

4.1 EXISTING AND ADJACENT LAND USES

Sources of information used in the preparation of the land use section include: the Solano County General Plan and Zoning Ordinance; the Dixon General Plan and Zoning Ordinance; the Dixon General Plan Environmental Assessment; Solano County Local Agency Formation Commission (LAFCo) policies; and the Northeast Quadrant Specific Plan.

4.1.1 ENVIRONMENTAL SETTING

The site consists of topography that is essentially flat, with vertical variations of approximately twenty-five feet between the lowest and highest portions within the 643-acre site. There are several visually distinctive man-made boundaries of the site including Interstate 80 to the north, Vaughn Road to the south, Pedrick Road and agricultural land to the east, and North First Street to the west, as shown on Figure 4.1.1.

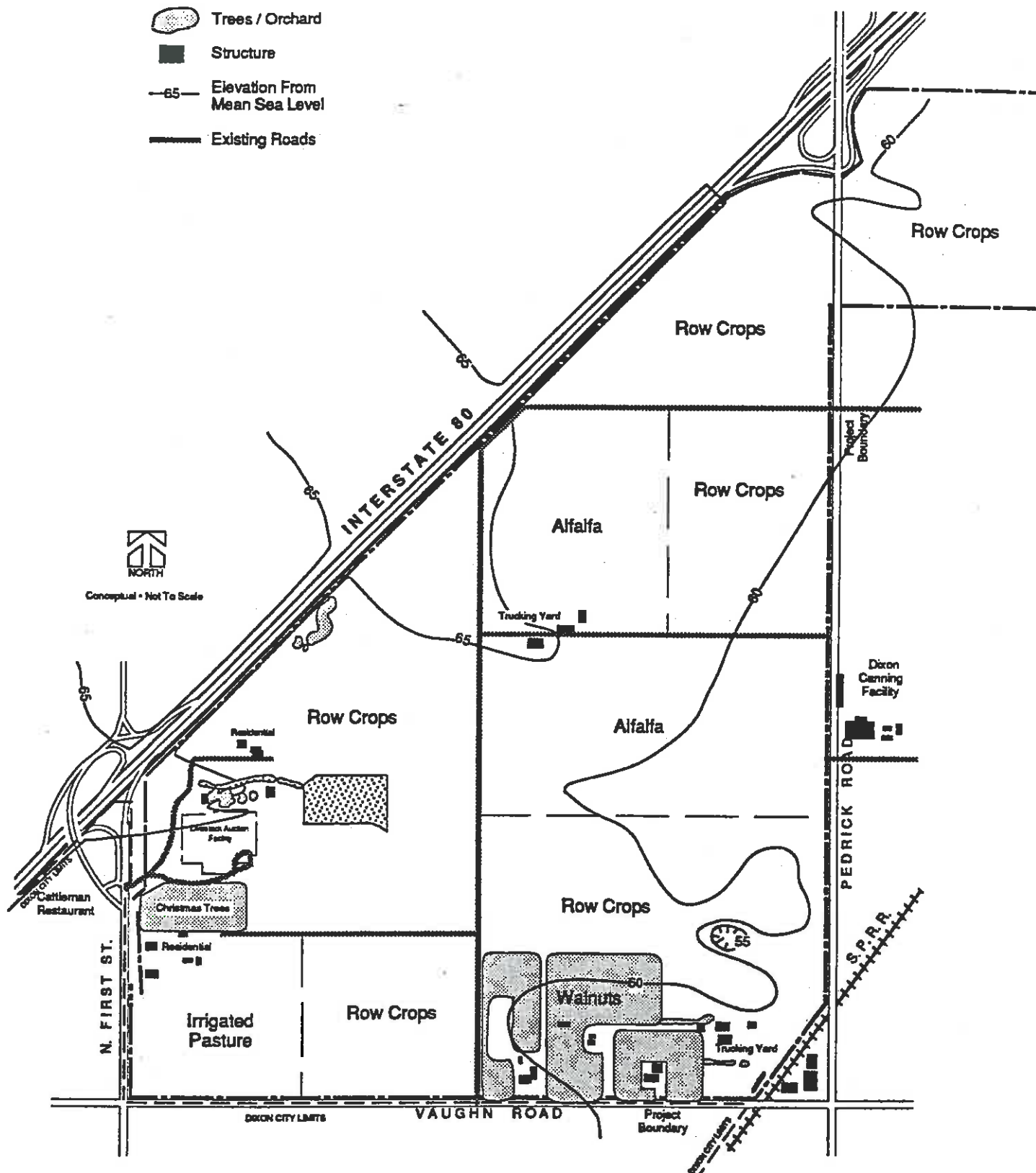
Historically, the site has been intensively cultivated to grow field and orchard crops. At present, approximately 580 acres of the site is used for field and row crops, and the remainder of the project site contains a livestock auction facility, Christmas tree farm (vacant), a trucking and maintenance operation, industrial fabrication/storage facility, a farm and eleven residential structures, as shown on Figure 4.1.1. The project site provides a substantial area of visual open space because of the predominantly agricultural uses and is valuable as visual open space because of its location adjacent to I-80.

Surrounding undeveloped areas are visually similar to the project site, characterized by relatively flat topography and either used for agricultural production or vacant. Existing urban development is located adjacent to the site's west, south and east boundaries. I-80 traverses the northern portion of the project site and further north there are several farms, a building supply facility, and a produce stand. South of Vaughn Road lies the Kragen Auto Distribution Center and a metal fabrication facility. East of Pedrick Road lie several storage tanks, a trucking facility, the Dixon Canning facility, a farm, and agricultural uses. West of the project site and North First Street lie the Farm Credit Bureau and Cattlemen's Restaurant as shown on Figure 4.1.2. All development on and adjacent to the project site is fairly visible from all portions of the subject site and from roadways in the vicinity, including I-80, North First Street, Vaughn Road, and Pedrick Road.

The NQSP is located outside of, but adjacent to, the Dixon city limits and within the Dixon Sphere of Influence. The project site is also partially located within the North First Street Assessment District (NFSAD) as shown on Figure 4.1.3.

EXISTING COUNTY GENERAL PLAN AND ZONING DESIGNATIONS

The 643-acre project site is located in unincorporated Solano County. The adopted Solano County General Plan elements include: Land Use and Circulation; Health and Safety, Seismic Safety and Noise; Resource Conservation and Open Space, and Housing. Existing land uses within the project site are regulated by the General Plan, including the Land Use Element which designates the site as Intensive Agriculture (A). The Solano County Zoning Ordinance reflects an Agriculture 40-acre Minimum (A-40) designation. Existing on-site and adjacent county general plan designations and zoning classifications are shown on Figure 4.1.4.



**FIGURE 4.1.1
EXISTING LAND USES**

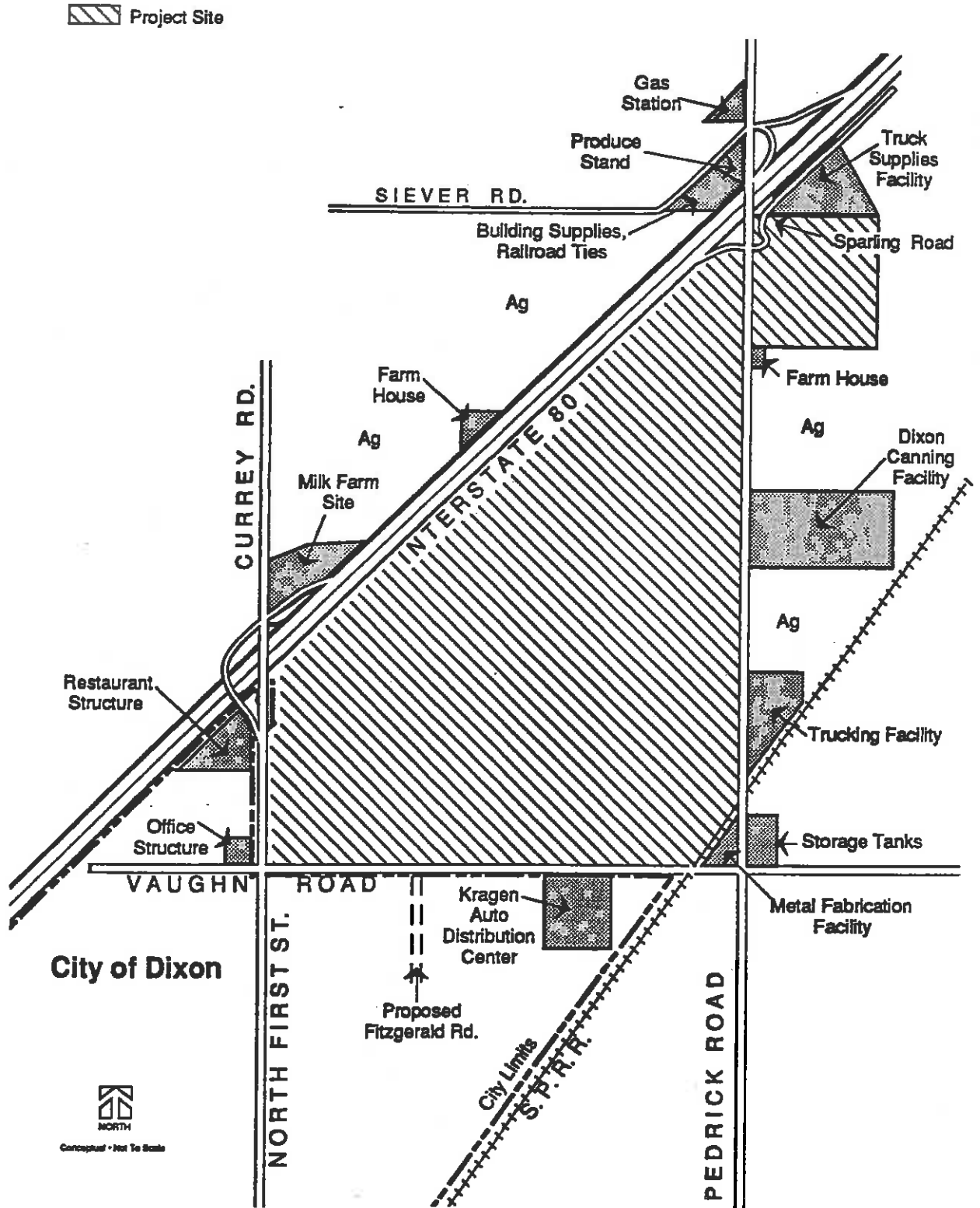
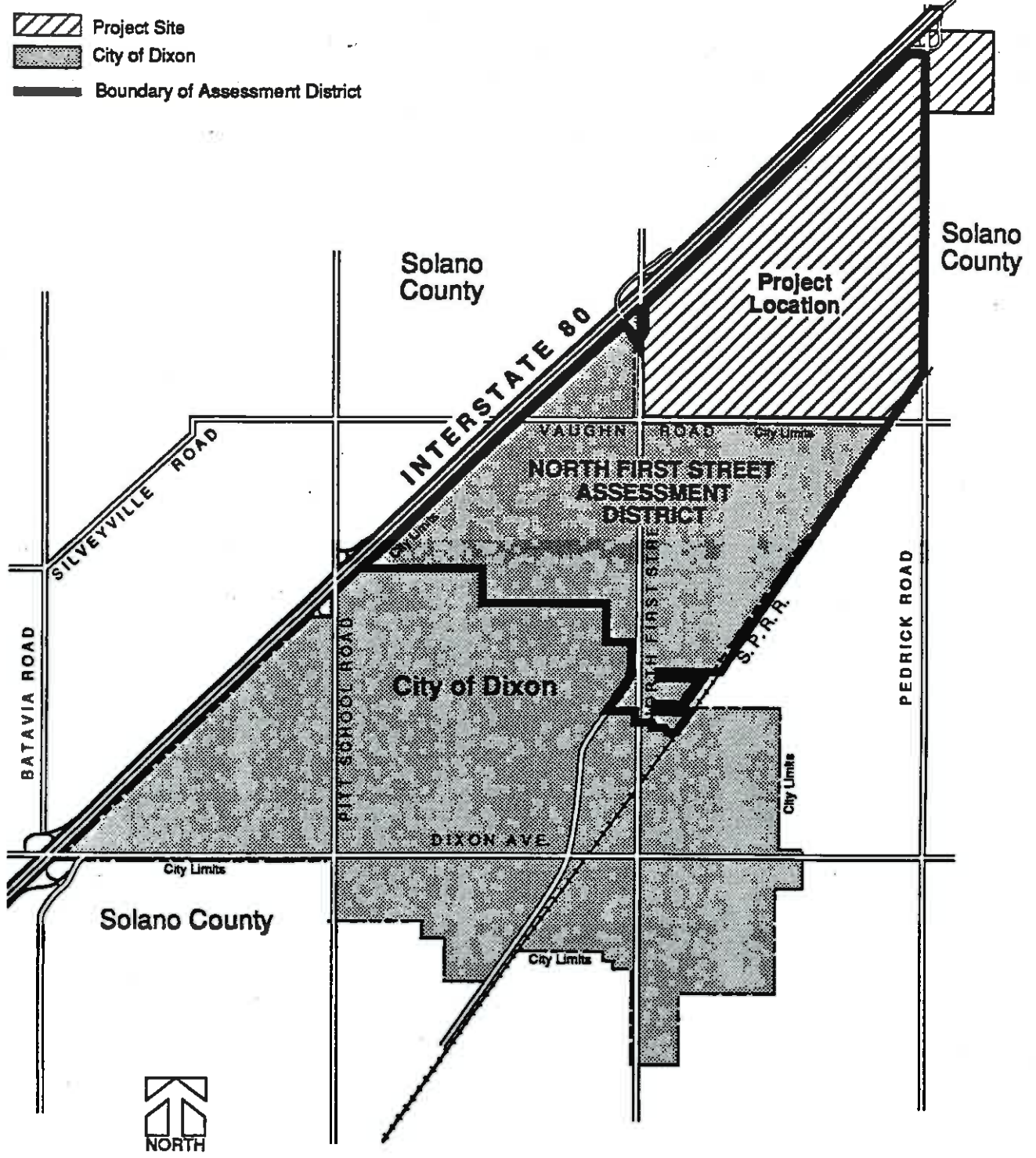


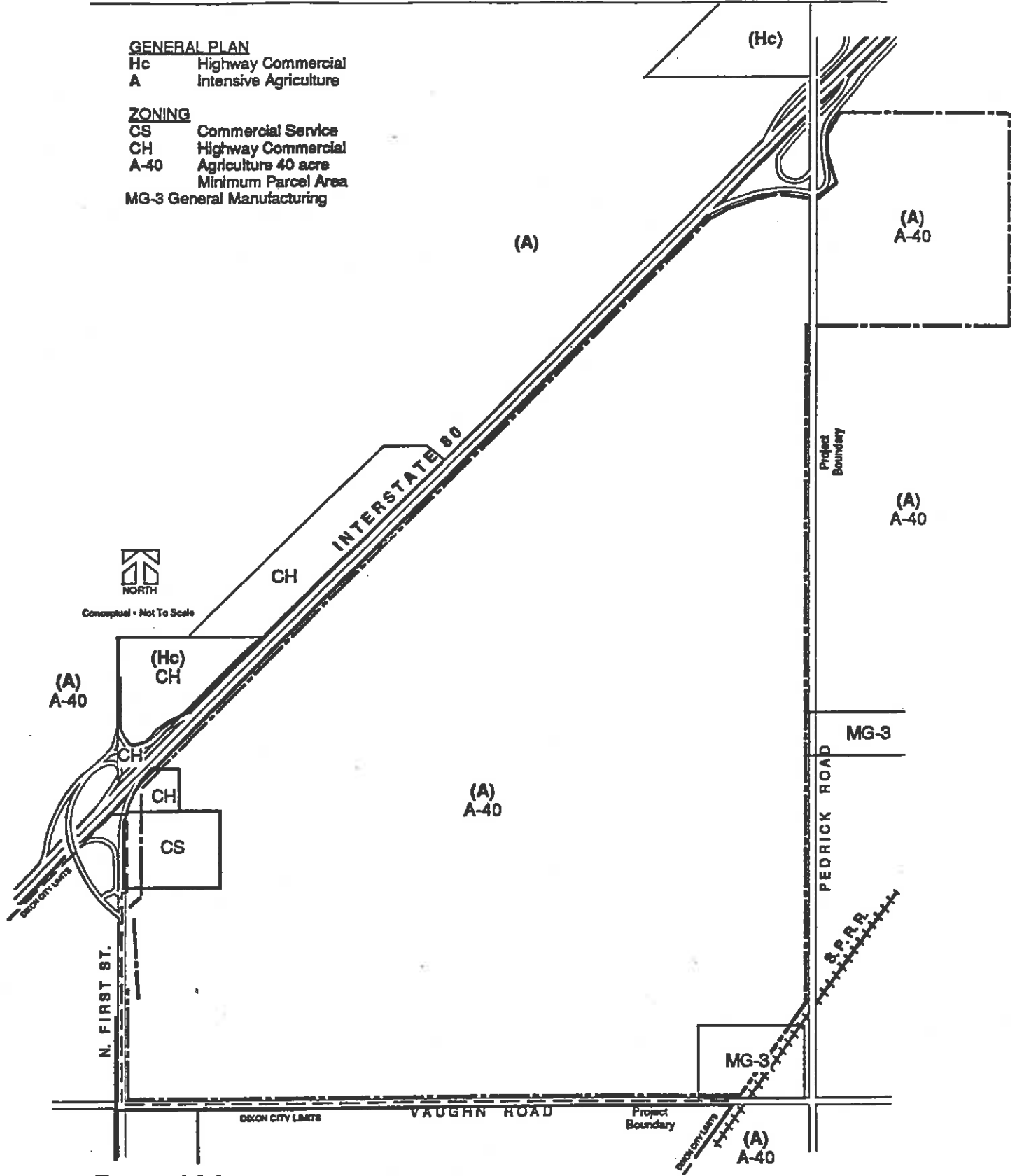
FIGURE 4.1.2
SURROUNDING LAND USES



Conceptual • Not To Scale

FIGURE 4.1.3
NORTH FIRST STREET ASSESSMENT DISTRICT

4.0 ENVIRONMENTAL ANALYSIS



**FIGURE 4.1.4
 EXISTING COUNTY GENERAL PLAN AND ZONING DESIGNATIONS**

CITY OF DIXON GENERAL PLAN AND ZONING DESIGNATIONS

The project site is located outside of, but adjacent to the Dixon city limit. However, the site is within the City of Dixon Sphere of Influence. The Dixon General Plan has pre-designated the 643-acre site as Employment Center (E) and Highway Commercial (HC) as shown on Figure 4.1.5. Both the E and HC land use designations specify that specific plan approval is required. Surrounding the project site to the south and west are land classified as a combination of highway commercial, professional administrative, light industrial, and service commercial (shown on Figure 4.1.5) The project site will be rezoned consistent with uses proposed in the specific plan document upon annexation.

LAND OWNERSHIP

The project site is comprised of many parcels of land which are owned by a variety of individuals and corporations. There are approximately eight major land owners as shown on Figure 4.1.6. Of the eight major land owners, two of them are considered to be non-participating owners in this specific plan effort. The Cammarota property comprises of 138 acres while the Mistler property, representing the second largest parcel of land, comprises 128 acres. The remaining parcels range from 59 to 101 acres in size.

AGRICULTURAL LAND STATUS

With the exception of a 60-acre parcel of land located east of Pedrick Road, no parcels within the boundaries of the project site that are currently under the Land Conservation Act (Williamson Act) contract. The Williamson Act contract allows a land owner to enter into an agreement with the county or city whereby the property owner agrees to maintain the land in agriculture or open space for a period of at least ten years in exchange for a reduction in property taxes for the subject parcel. The contract serves as a mechanism for keeping lands in agricultural use. The 60-acre parcel of land east of Pedrick Road is under contract and must file for either non-renewal or cancellation of the contract to develop. Figure 4.1.7 displays portions of the project site that are subject to the provisions of the Williamson Act.

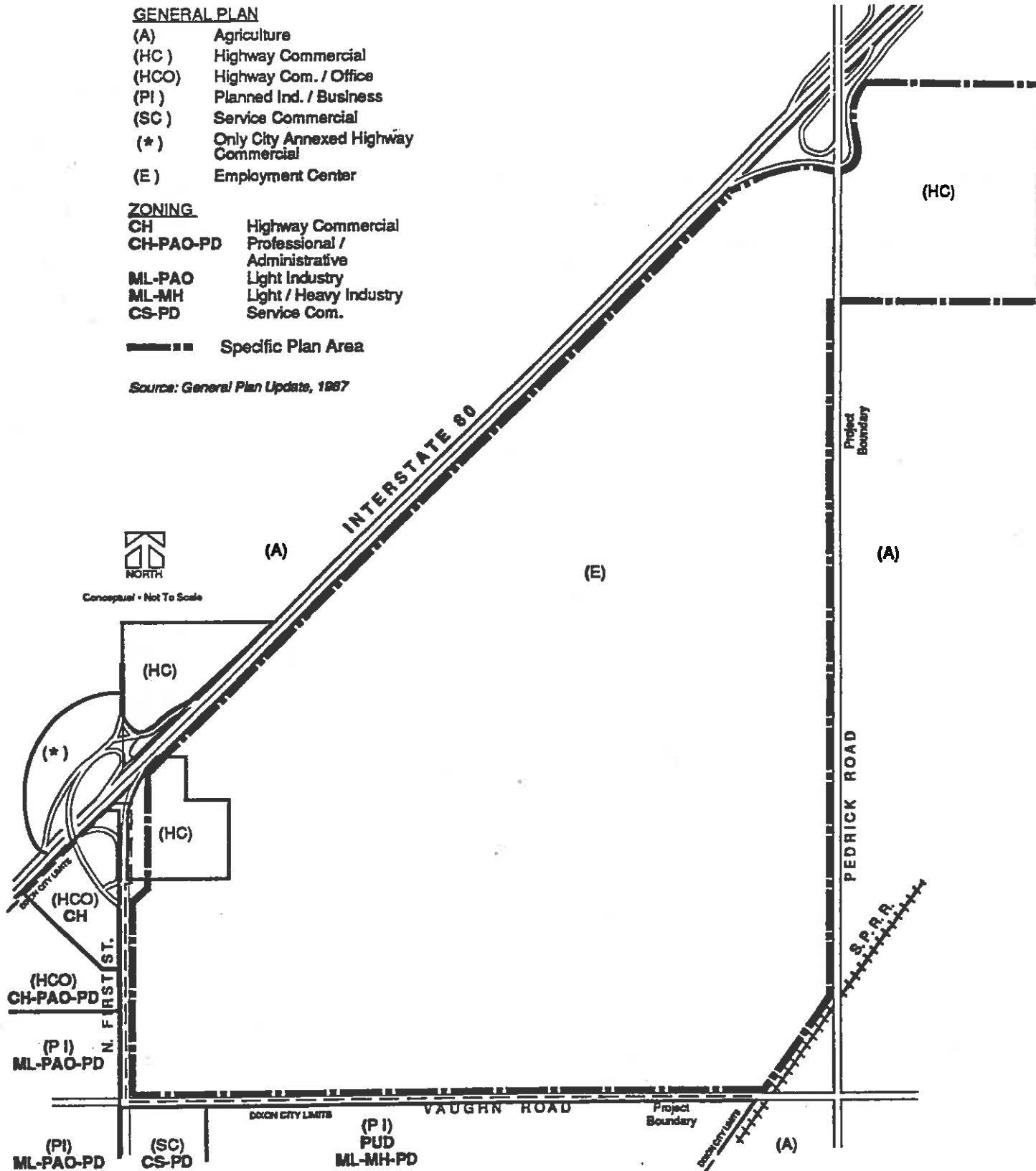
LOCAL AGENCY FORMATION COMMISSION SPHERE OF INFLUENCE

The project site is regulated by the Solano County Local Agency Formation Commission (LAFCo)/City of Dixon Sphere of Influence (SOI). This includes land in Solano County located within Dixon's ultimate physical boundaries and service areas. The project site is within the Dixon SOI and is therefore planned to be annexed into the City of Dixon at some time within the next 20 years.

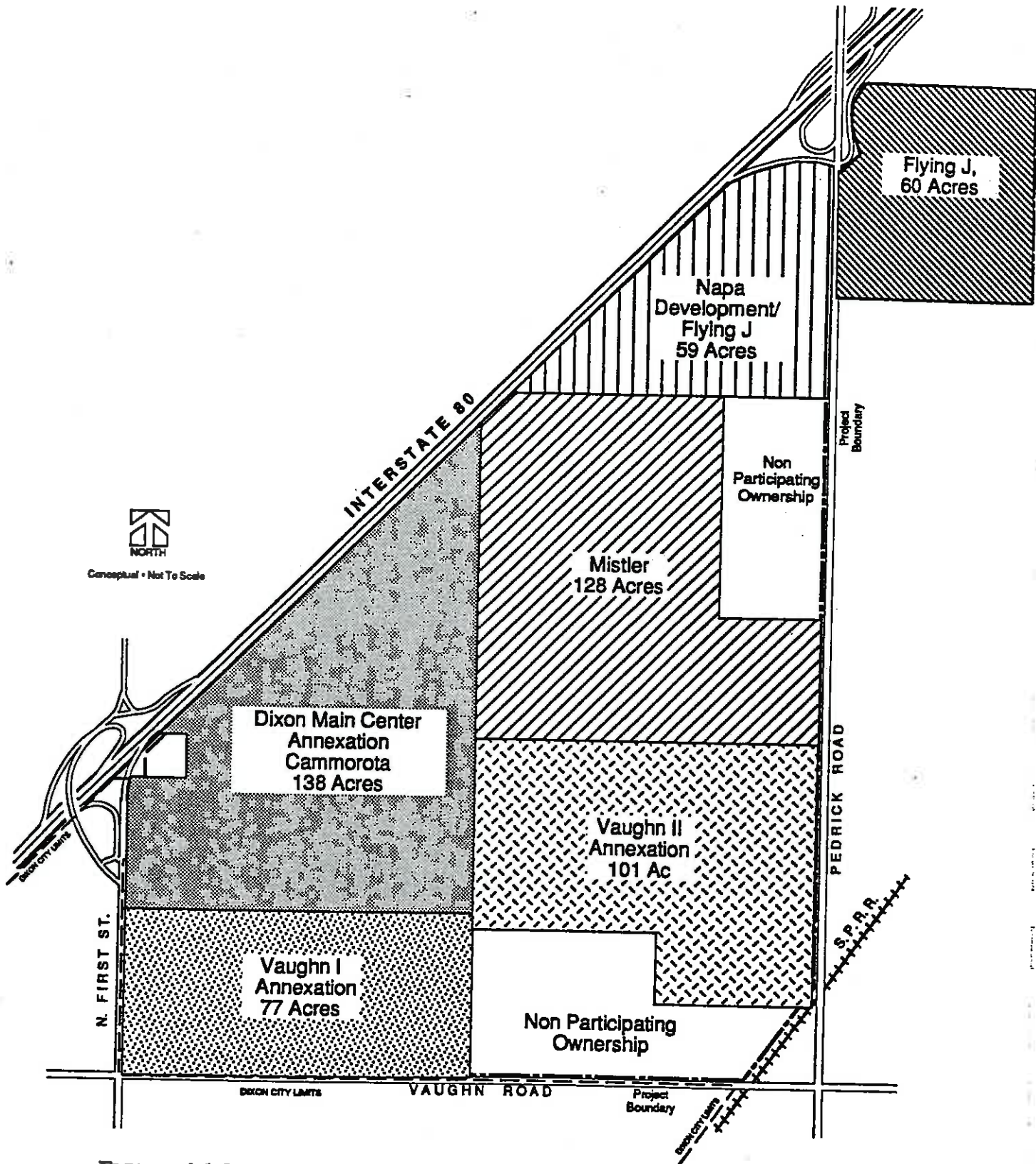
The Solano County LAFCo adopted standards and procedures for the evaluation of annexation proposals in (May 1987). Among the mandatory standards to be considered:

Standard No. 1: Consistency with Sphere of Influence (SOI) boundaries.

An area proposed for annexation shall be within the affected city's Sphere of Influence. An annexation application for lands outside an adopted Sphere of Influence may be considered concurrently with a request for amendment to the Sphere of Influence.



**FIGURE 4.1.5
EXISTING CITY OF DIXON GENERAL PLAN AND ZONING DESIGNATIONS**



**FIGURE 4.1.6
PROPERTY OWNERSHIP**

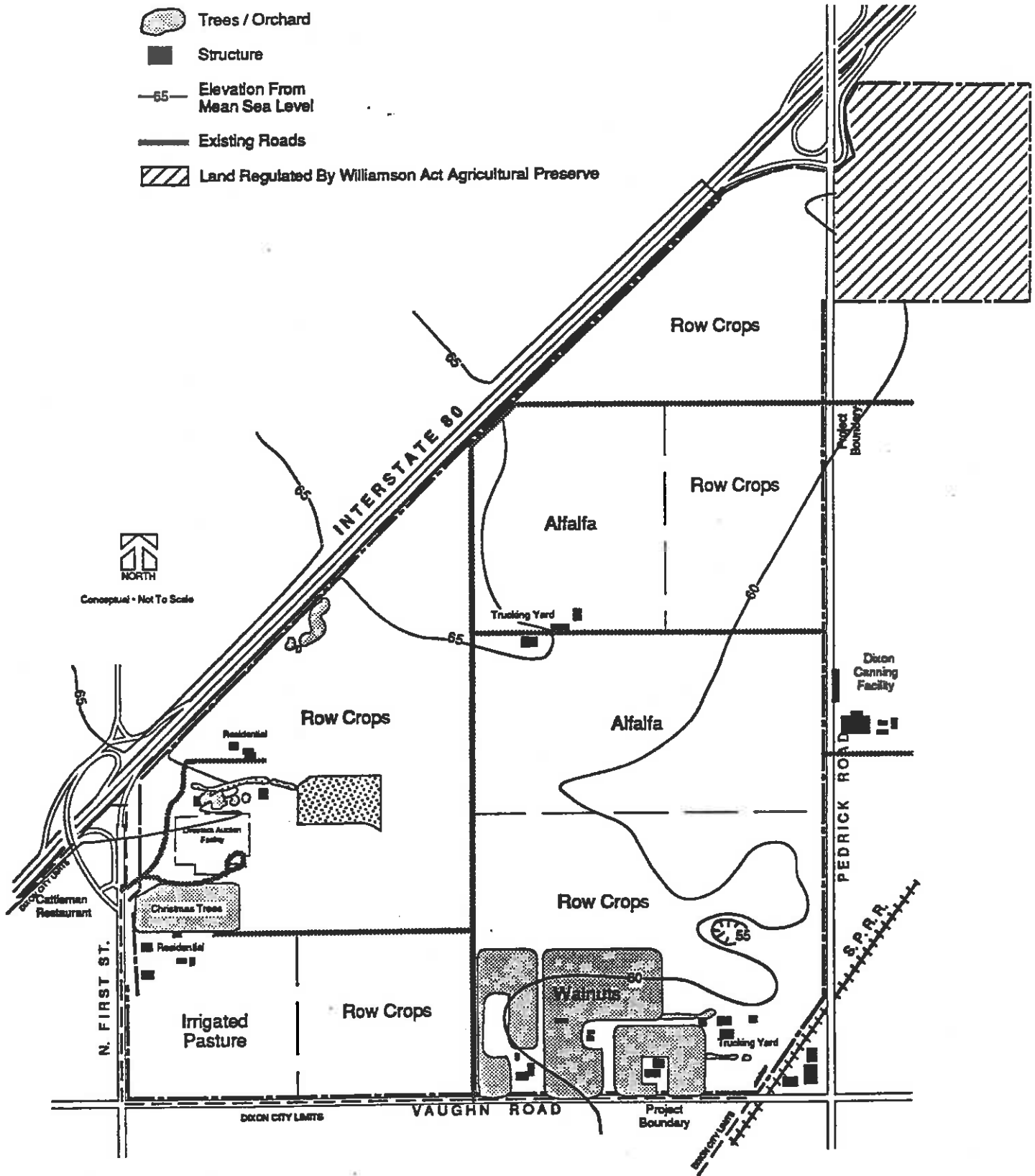


FIGURE 4.1.7
AGRICULTURAL LAND STATUS

Standard No. 2: Annexation to the limits of the sphere of influence (SOI) boundaries.

Annexation to the limits of the SOI boundary shall not be allowed if the proposal includes land designated for open space use by the affected city's general plan unless such open space logically relates to existing or future needs of the agency. Open space uses which may be located within agency limits include but are not limited to community and city-wide parks, recreational facilities, wind energy projects, reservoirs, and stormwater detention basins.

Standard No. 3: Consistency with appropriate general plan, specific plan, area-wide plan and zoning ordinance.

An application for annexation which involves the conversion of open space lands to urban use shall be denied by LAFCo if the proposed conversation is not consistent with applicable general plans, specific plans, area-wide plans, or zoning ordinances. The determination of consistency shall be the responsibility of the affected agency, and shall be met by a resolution approved by the agency council certifying that the proposed annexation meets all applicable consistency requirements of State Law, including internal consistency between city's adopted plans and the city's zoning ordinance. In the event plan consistency is contested, LAFCo shall retain the discretion to determine the consistency question and may require additional environmental information.

Standard No. 4: Consistency with the County General Plan of proposed reorganization outside of a city's Sphere of Influence boundary.

An application for annexation to a special district for lands outside an adopted Sphere of Influence boundary in unincorporated territory shall be denied by LAFCo if the land use proposed within the area of the proposed annexation is not consistent with the Solano County General Plan and Zoning Ordinance. A determination of consistency shall be the responsibility of the County, and shall be met by a resolution of the Board of Supervisors certifying that the proposed annexation meets all applicable consistency requirements of State Law, including internal consistency between the County's General Plan and Zoning Ordinance. This Standard shall also be made to apply to proposals for the creation of new special districts and the incorporation of new agencies within unincorporated territory which lies outside adopted Sphere of Influence boundaries.

Standard No. 5: Requirement for pre-approval.

Prior to approval of annexation by LAFCo, the affected agency shall have granted one or more of the following development approvals: (a) rezoning, (b) area-wide plan, (c) specific plan, or (d) development agreement.

Standard No. 6: Effect on natural resources.

An application for annexation shall describe the amount of land area involved, and the land, water, air, and biological resources affected, including topography, slope, geology, soils, natural drainages, vegetative cover, and plant and animal populations. Effects to be covered include those which will be both positive and negative and the means proposed to offset potential negative impact. LAFCo shall certify that provisions of the Solano County Environmental Guidelines for the Implementation of the California Environmental Quality Act have been complied with.

Standard No. 7: Relationship to established boundaries, streets and roads, lines of assessment, remaining unincorporated territory, proximity to other populated areas, assessed valuation.

LAFCo shall, where possible, avoid irregularities and overlapping of established boundaries in the annexation process which would otherwise create problems for taxing districts, including the loss of tax revenues required for district operation. City boundaries at County roads and city streets shall be delineated to provide an orderly division of road maintenance, and law enforcement responsibilities between cities and counties.

Standard No. 8: Likelihood of significant growth and effect on other incorporated or unincorporated territory.

Prior to approving an annexation, LAFCo shall make a finding that the proposed conversion of open space lands to urban use is justified by probable urban growth within a 10-year period of time. A finding of likelihood of significant growth justifying the conversation shall be based on an analysis of local and regional demand for the proposed use.

Standard No. 9: Protection of prime agricultural land.

Urban growth shall be guided away from prime agricultural land unless such action would not promote planned, orderly, and efficient development for the agency. Development of existing vacant or non-prime agricultural lands within the agency limits should be encouraged before any proposal is approved for urbanization outside of the agency limits.

Standard No. 10: Provision and cost of community services.

Adequate urban services shall be available to areas proposed for annexation. Prior to submittal of individual annexation proposals, the affected city shall submit an Urban Service Delivery Plan identifying the availability of and methods for providing the full range of urban services. The requirement for service availability to annexation proposals consistent with the affected agency's Urban Service Delivery Plan can be satisfied, at the discretion of LAFCo, by a "will serve" verification by the affected agency. "Will Serve" letters shall also address the availability of school facilities.

Standard No. 11: The effect of the proposed action on adjacent areas, mutual social and economic interest, and on local governmental structure.

The application shall describe the effect which the annexation could have on adjacent areas within and outside the agency. It shall also describe any social and economic benefits which will accrue to the agency and other affected agencies. The proposal should not be motivated by inner-city rivalry, land speculation, or other motives not in the public interest and should create no significant negative social or economic effects on the County or neighboring agencies.

DIXON GENERAL PLAN POLICIES

The Dixon General Plan was adopted by the City Council in December, 1993. The principal goals applicable to this specific plan as stated in the 1993 Dixon General Plan are as follows:

- To maintain and enhance the amenities enjoyed by residents of the area, and to preserve its semi-rural, small town character, while accommodating a balanced mix of new industrial, commercial, and residential land uses by phasing development into compact, orderly contiguous pattern consistent with Solano County LAFCo standards for annexations.
- To ensure that new urban development reflects the opportunities, constraints, and natural characteristics implicit in the areas affected.
- To maintain and preserve the existing rural character and agricultural uses in the unincorporated area surrounding the city, to ensure that urban development within the planning area occurs only within the city limits, and that final development approval is given only after the sites are annexed to the city.
- To limit the use of land on the other side of I-80 to agriculture. The only urban use which would be acceptable in this area would be highway commercial immediately adjacent to the three intersections and only if the sites are annexed to the city.
- To promote improvements in the visual quality and character of Dixon (e.g. street trees, landscaping, beautification, underground overhead wires, and requiring high standards of design.)
- To strive to prevent economic or physical damage, injury or loss of life resulting from natural or other hazards by responsive land planning.
- To protect residents from noise generated by freeway/highway traffic, industrial activity and railroad use by defining acceptable noise exposure standards, applying buffering, other land use and acoustical design requirements.
- To encourage new industrial and commercial uses that can provide additional local employment opportunities for Dixon residents and decrease out commuting by designating acreage for these uses in compatible locations.
- To maintain and enhance where feasible, the quality of all public service provisions, while expanding the service delivery systems to meet new demands on capacity consistent with the contiguous pattern of land use defined for future growth.
- To ensure that new development pays all the incremental costs of expanding public service provisions and facilities required to meet the demand it generates.

The Urban Development and Community Development Section of the general plan specifies additional policies and provisions which are more specifically related to this specific plan area:

- The city will phase development in an orderly, contiguous manner in order to maintain a compact development pattern and to avoid premature investment for the extension of public facilities and services. New urban development will occur in areas where municipal services and capacities exist prior to the approval of development in areas which would require major new facility expansion.

The project site is identified as Employment Center (E) and Highway Commercial (HC) on the 1993 Dixon General Plan land use map. Employment center uses, as interpreted by the specific plan, include: Light Industrial (PI), Professional and Administrative Office (O), Community Commercial (CC), and Highway Commercial (HC). The general plan addresses the development of industrial and business-professional land uses as follows:

- Planned Industrial/Business Park (PI) includes those uses which demonstrate, by the quality of their development and the nature of operations, that they can locate in close proximity to residential and commercial uses with a minimum of environment conflict. Strict landscaping, buffering and design standards would be adhered to by businesses and industries located in these areas.

The NQSP policies add emphasis and detail to the City of Dixon General Plan policies or establish policies applicable only to the project site. The specific plan map provides greater detail of uses within the site, however, is consistent with the general plan.

DIXON ZONING

The project site is not zoned by the City of Dixon since it is within the jurisdiction of Solano County.

4.1.2 STANDARDS OF SIGNIFICANCE

As defined by Appendix G of CEQA (Significant Effects), a project will have a significant impact if it will:

- Convert prime agricultural land to non-agricultural use or impair the agricultural productivity of prime agricultural land.
- Extend a sewer trunk line with capacity to serve new development;
- Displace a large number of people;
- Disrupt or divide the physical arrangement of an established community;
- Conflict with adopted environmental plans and goals of the community;

These standards are the thresholds used to establish a significant land use impact associated with this project.

4.1.3 ENVIRONMENTAL IMPACTS

AGRICULTURAL LAND CONVERSION

Impact LU-1: Prime agricultural land will be converted to non-agricultural use, including 60 acres regulated by Williamson Act Agricultural Preserve.

The proposed project will convert approximately 483 acres of Class I and approximately 160 acres of Class II soils from an agricultural use to a mixture of business-professional and light industrial land use. Although the project is consistent with the Dixon General Plan's land use designation, this conversion will represent a significant physical change to the existing agricultural use of the site and a conversion of prime agricultural land to a non-agricultural use.

Significance: Significant

Mitigation Measures: None

Residual Significance: Significant and unavoidable

EXTENSION OF SEWER LINE

Impact LU-2: The project will extend a sewer line with capacity to serve new development.

The project will require the extension of sewer lines into an area that currently does not have sewer services. However, the Dixon General Plan has determined that the NQSP area will be

annexed and developed as an Employment Center. Therefore, although a sewer line will be extended to serve new development, this area is planned for development.

- Significance:** Less than significant
- Mitigation Measures:** No mitigation required
- Residual Significance:** Less than significant

ADJACENT LAND USES

Impact LU-3: The project may impair the agricultural productivity of prime agricultural land adjacent to the NQSP area.

The NQSP is abutted on the east side by agricultural land. The development of commercial and light industrial projects could conflict with adjoining agricultural operations. However, agricultural buffers and setbacks have been incorporated into the NQSP to reduce potential impacts to adjacent agricultural operations.

- Significance:** Potentially significant
- Mitigation Measure LU-A:** Ensure that all future development within the NQSP strictly enforce the landscape medians and agricultural buffer zones established by the specific plan.
- Residual Significance:** Less than significant

RESIDENT DISPLACEMENT

Impact LU-4: The project will cause the displacement of existing residents.

The project will result in the conversion of eleven residential parcels to a commercial or light industrial use. Existing residences are associated with the existing agricultural use of the land and are not the predominant land use. Since there are relatively few people that would be displaced by the project, and since these individuals would choose to sell their land, this is considered less than significant.

- Significance:** Less than Significant
- Mitigation Measures:** No mitigation required
- Residual Significance:** Less than significant

ENVIRONMENTAL PLANS AND GOALS OF THE COMMUNITY

Impact LU-5: This project may conflict with adopted community plans or goals established by LAFCo.

- Significance:** Potentially significant

Annexation of the 643 acres of Solano County land under agricultural use to the City of Dixon will require approval by the Solano County LAFCo. LAFCo evaluation criteria will generally address issues associated with annexations, including the following:

Standard No. 1: Consistency with Sphere of Influence (SOI) boundaries.

A finding of consistency with adopted SOI boundaries becomes the first test in evaluating an annexation proposal. In most cases, location within or outside the boundary will determine whether the application should be accepted. Since the site is within the Dixon Sphere of Influence, the NQSP meets this standard.

Standard No. 2: Annexation to the limits of the Sphere of Influence (SOI) boundaries.

The NQSP will result in an annexation that is contiguous to the existing Dixon city limits and will not extend to the limits of the SOI boundary. This land is designated for an Employment Center and Highway Commercial by the Dixon General Plan. Therefore the NQSP meets this standard.

Standard No. 3: Consistency with appropriate General Plan, Specific Plan, Area-Wide Plan and Zoning Ordinance.

The NQSP is consistent with the Dixon General Plan, but not consistent with the County land use designation of agriculture. This will need to be resolved before LAFCo can make this finding.

Standard No. 4: Consistency with the County General Plan of proposed reorganization outside of a city's Sphere of Influence boundary.

This standard does not apply to this project.

Standard No. 5: Requirement for pre-approval.

The project is the specific plan required for annexation. This is consistent with this LAFCo standard.

Standard No. 6: Effect on natural resources.

CEQA requires the decision maker to balance the benefits of a proposed project against its unavoidable environmental risks in determining whether to approve a project. In accordance with CEQA Guidelines Section 15091, the LAFCo shall not approve or carry out a project for which an environmental impact report has been completed which identifies one or more significant effects of the project unless the LAFCo makes one or more of the following written findings for each of those significant effects, accompanied by a statement of the facts supporting each finding.

- (a) (1) Changes or alterations have been required in, or incorporated into, the project which mitigate or avoid the significant environmental effects thereof as identified in the Final EIR.
- (2) Such changes or alterations are within the responsibility and jurisdiction of another public agency and not the agency making the finding. Such changes have been adopted by such other agency or can and should be adopted by such other agency.
- (3) Specific economic, social, or other considerations make it infeasible for mitigation measures or project alternatives identified in the Final EIR.

- (b) The findings required by subsection (a) shall be supported by substantial evidence in the record.
- (c) The finding in subsection (a) (2) shall not be made if the agency making the finding has concurrent jurisdiction with another agency to deal with identified feasible mitigation measures or alternatives.

Under CEQA Guidelines Section 15092, after considering the Final EIR and in conjunction with making findings under Section 15091:

- (b) A public agency shall not decide to approve or carry out a project for which an EIR was prepared unless either:
 - (1) The project as approved will not have a significant effect on the environment, or
 - (2) The agency has:
 - (A) Eliminated or substantially lessened all significant effects on the environment where feasible as shown in findings under Section 15091, and
 - (B) Determined that any remaining significant effects on the environment found to be unavoidable under Section 15091 are acceptable due to overriding concerns as described in Section 15093."

CEQA Guidelines Section 15093 stipulates that:

- (a) CEQA requires the decision-maker to balance the benefits of a proposed project against its unavoidable environmental risks in determining whether to approve the project. If the benefits of a proposed project outweigh the unavoidable adverse environmental effects, the adverse environmental effects may be considered "acceptable."
- (b) Where the decision of the public agency allows the occurrence of significant effects which are identified in the Final EIR but are not at least substantially mitigated, the agency shall state in writing the specific reasons to support its action based on the Final EIR and/or other information in the record. This statement may be necessary if the agency also makes a finding under Section 15091 (a) (2) or (1) (3).
- (c) If an agency makes a statement of overriding considerations, the statement should be included in the record of the project approval and should be mentioned in the Notice of Determination.

Standard No. 7: Relationship to established boundaries, streets and roads, lines of assessment, remaining unincorporated territory, proximity to other populated areas, assessed valuation.

LAFCo shall consider the following as factors favorable to approval of an annexation.

- (a) The proposal would not create islands, near-islands, or irregular and/or illogical configuration of existing city limits.

- (b) The boundaries of the proposal include appropriate areas and are otherwise properly drawn.
- (c) The proposed area has total population and/or development density requiring municipal or urban type services; or, if not presently urban in character, consistent with development approvals required under Standard No. 5, it is expected that the area will be urban within ten years.
- (d) The proposed area is in close proximity to the developed portion of the city and would be a logical extension of city growth.

Although the projected time frame for buildout of the NQSP is the same as the Dixon General Plan (through the year 2010), it is anticipated that substantial development will occur over the next 10 years. The NQSP is consistent with this LAFCo standard.

Standard No. 8: Likelihood of significant growth and effect on other incorporated or unincorporated territory.

LAFCo shall require each City to submit a Comprehensive Annexation Plan and periodically request that the Plan be updated. The Plan shall be adopted at least every five years or following major revisions to the affected city's General Plan. The Plan should cover a 15-year time frame, but can be extended to the horizon date of the city's General Plan provided it does not exceed 10 years. The Plan shall address issues in the following time increments: 1-5 years and 5 years and beyond.

An application for annexation shall be accompanied by evidence including a market analysis which will justify the proposed conversion of open space to urban use. The market analysis will consider the appropriate factors of supply and demand and the Comprehensive Annexation Plan. This will be required before the NQSP area can be annexed.

LAFCo will use the affected city's Comprehensive Annexation Plan, its resolution of review and comment on the Plan, and the market analysis to evaluate annexation proposals and to make findings on the likelihood of significant growth. LAFCo's evaluation will consider all aspects of the Plan including the affected city's progress toward meeting infill goals.

Standard No. 9: Protection of prime agricultural land.

In reviewing lands identified as prime agriculture, consideration will be given to the economic viability of the property and whether the land can be economically and productively farmed.

An annexation is considered to promote the planned orderly and efficient development of an area if:

- The proposed annexation either abuts a developed portion of the agency or abuts properties which already are committed to urban development by the extension of streets and other public facilities where service extensions were predicated on adjacent lands within the proposed annexation area being developed to assist in meeting bond obligations or other financial instruments against the property; or
- It can be demonstrated that there are insufficient vacant non-prime lands within the Sphere of Influence planned for the same general purposes. The proposed NQSP meets these standards.

Standard No. 10: Provision and cost of community services.

Adequate urban services shall be available to areas proposed for annexation. The project complies with this standard.

Standard No. 11: The effect of the proposed action on adjacent areas, mutual social and economic interest, and on local governmental structure.

Examples of mutual social and economic benefits, include achieving a balanced housing supply within the community, the provision of commercial areas where existing commercial development does not meet needs of residents, the creation of new employment opportunities to meet the needs of unemployed or under-employed, protecting sensitive resources, advancing the time when public improvements needed by the larger community may be provided, and improving levels of service within the community without incurring additional costs.

These types of benefits may, in a given case, argue for a project as off-setting negative consequences identified in responding to other Standards. The NQSP complies with this standard.

Mitigation Measure LU-B: The project will require review and approval by the Solano County LAFCo before it can be annexed to the City of Dixon or developed.

Residual Significance: Less than significant

Impact LU-6: The project conflicts with adopted community plans and goals established by the Williamson Act Agricultural Preserve.

The proposed NQSP is consistent with the general plan land use designations of Employment Center (E) and Highway Commercial (HC). The Dixon General Plan has policies to accommodate a balanced mix of new industrial, commercial and residential land uses by phasing development into a compact, orderly contiguous pattern consistent with Solano County LAFCo standards. The General Plan specifies that the City will phase development in an orderly, contiguous manner in order to maintain a compact development pattern and to avoid premature investment for the extension of public facilities and services. The City also requires that new urban development occur in areas where municipal services and capacities exist prior to the approval of development in areas which would require major new facility expansion. The NQSP complies with these established community goals, however, 60 acres of the plan area is designated as Williamson Act Agricultural Preserve. This is not consistent with the proposed HC development.

Significance: Potentially significant

Mitigation Measure LU-C: The proposed NQSP shall be reviewed by the Dixon City Council and the Solano County Board of Supervisors, and findings shall be made that the 60 acres of the project site currently under Williamson Act should be withdrawn from Agricultural Preserve.

Residual Significance: Less than significant

4.1.4 CUMULATIVE IMPACTS

Impact LU-7: Cumulative impact - Growth inducement.

The NQSP will result in the conversion of prime agricultural land to a non-agricultural use and will have the potential to extend development further northeast than projected by either the Solano County or City of Dixon General Plans at this time.

The extension of urban services into an undeveloped area always has the potential to have growth inducing implications. Although the NQSP is designated for urban development by the Dixon General Plan, the adjacent land is planned for agriculture. Future decision makers will have the discretion to consider further annexation and development of agricultural land to the northeast of the NQSP area. However, the development of the NQSP plan area will increase development pressures and may accelerate the timing of future annexations considerations.

Significance: Significant

Mitigation Measures: None

Residual Significance: Significant and unavoidable

4.1.5 LEVEL OF SIGNIFICANCE AFTER MITIGATION

The NQSP represents a land use policy interpretations for both Solano County and the City of Dixon. Implementation of mitigation measures LU-A, LU-B and LU-C will eliminate potential project conflicts with adopted community plans and goals to a less-than-significant level. If these mitigation measures are not enacted, annexation will not be approved and the project will not be allowed to proceed.

Land use impacts associated with the loss of prime agricultural land are not so easily remedied. Potential conflicts between the NQSP and adjacent agricultural land can be successfully mitigated through the use of buffers and setbacks as provided for in the specific plan. However, at this time, neither Solano County or the City of Dixon have developed an agricultural land mitigation program to "off-set" the permanent conversion of 643 acres to a non-agricultural use. Similarly, the extension of a sewer line into an agricultural area presently not served by public infrastructure will cause growth pressures and could further exacerbated the loss of regional agricultural lands. Therefore, the conversion of prime agricultural land to a non-agricultural use and the extension of a sewer line into an agricultural area will remain as significant and unavoidable impacts.

4.2 GEOLOGY, SOILS, AND SEISMICITY

The following section, describing the geology, soils, and seismicity in the vicinity of the specific plan area, was compiled from information contained in a Preliminary Site Assessment prepared by the Anderson Consulting Group (1993); Soil Survey of Solano County, California prepared by the United States Department of Agriculture Soil Conservation Service in cooperation with the University of California Agricultural Experiment Station (1977), City of Dixon Final Draft General Plan and Environmental Assessment prepared by Duncan & Jones (1993); and the Solano County General Plan Health and Safety Element, Seismic Safety, Safety, and Noise Elements prepared by Sedway Cooke (1977).

4.2.1 ENVIRONMENTAL SETTING

GEOLOGY

The project site is located in the Central Valley of California, which is shaped like a long, linear, westwardly-tilting trough. The base of the trough is composed of granite rocks which are overlaid by approximately 3,000 feet of marine rocks, deposited when the valley was a portion of the Pacific Ocean floor. On top of the marine rocks lie thick deposits of alluvium (clay, silt, sand, and gravel), eroded from the bordering mountain ranges. The alluvium covers the valley, giving it its unusually flat appearance. Flanking the Central Valley on the east and west are mountain ranges; the Sierra Nevada to the east and the Coastal Range to the west as shown on Figure 4.2.1.

The project site, like most of the western edge of the Sacramento Valley, is underlain by deeply deposited continental and marine sediments (Lorens et al). Below the City of Davis to the east, these sediments measure up to depths of 2,800 feet whereas in the western limits, towards Vacaville, the thickness measures around 1,200 feet. The principle water bearing formation in the Dixon area is the Tehama formation composed of coarse sandy deposits. The Tehama formation ranges up to 2,250 feet thick. Overlying the Tehama formation are sediments of the Putah Plain. These sediments range up to 165 feet thick and sometimes bear water.

SOILS

The surface in the vicinity of the project site is underlain with soils of Quaternary-age alluvium, consisting of an unstratified mix of sand, silt, clay, and gravel. Project site soils consist of five soil series in two agricultural classes including: Brentwood clay loam, Yolo loam and Yolo silty clay loam which are Class I Agricultural Soils; and Capay-silty loam and Yolo loam, clay substratum which are Class II Agricultural Soils (Table 4.2.2). These soil series are categorized into three soil associations including: Yolo-Brentwood, Rincon-Yolo, and Capay-Clear Lake. Project site soils are shown in Figure 4.2.2.

Two soil characteristics are pertinent to the specific plan: the soil's inherent physical properties as they relate to engineering requirements, and soil characteristics as they pertain to the agricultural potential of the site. In general, the soils are classified as loams with differing percentages of silts and clays.

ENGINEERING-RELATED SOIL CHARACTERISTICS

Soil types within the project site fall into three associations as indicated in Table 4.2.1. The Yolo-Brentwood soil association is most suited for development as these soils possess the lowest potential for shrinkage and swelling (lowest clay content), the lowest potential for corrosivity and water-induced erosion, and moderate limitations for the placement of septic facilities. The remaining associations have relatively higher potentials for shrink/swell, corrosivity and surface runoff. Because of the high clay content found in some of the on-site soils, and minimal gradients for drainage, certain areas of the site are prone to surface ponding and consequently seasonal flooding. Due to the presence of impermeable layers and the tendency for higher water table conditions, the Capay-Clear Lake soil association is more prone to liquefaction during a seismic event.

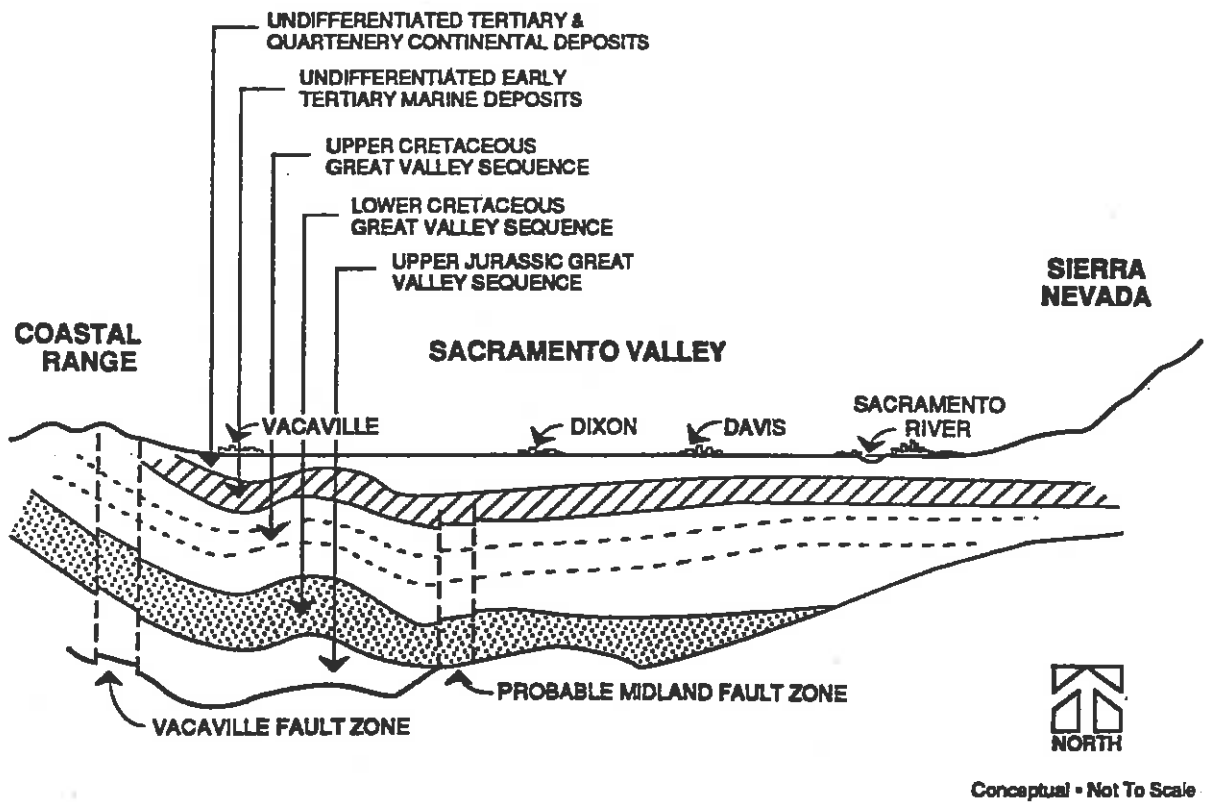
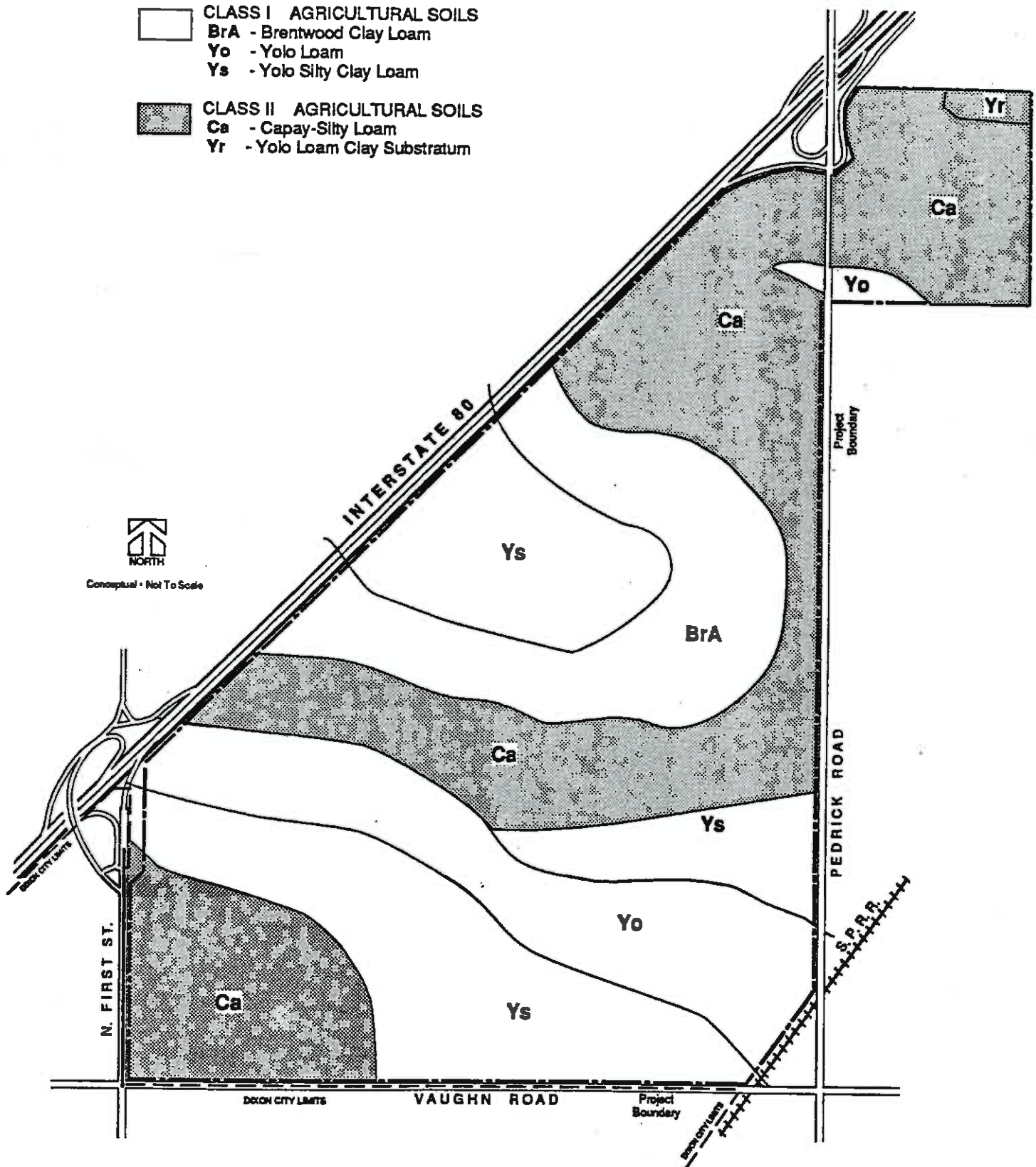


FIGURE 4.2.1
GEOLOGIC CROSS-SECTION



**FIGURE 4.2.2
 ON-SITE SOILS**

TABLE 4.2.1
PROJECT SITE SOIL ASSOCIATIONS AND ENGINEERING CONSTRAINTS

SOIL ASSOCIATION	ENGINEERING CONSTRAINTS		
	SHRINK/SWELL POTENTIAL	CORROSIVITY	DRAINAGE RUNOFF
Yolo-Brentwood (loams to silty clay loams)	moderate/high	moderate	moderate infiltration, well-drained.
Rincon-Yolo (loam and clay loams)	high	high	slow infiltration, impermeable layers.
Capay-Clear Lake (silty clay loams to clays)	high	high	slow infiltration, high runoff, impermeable.

(Source: *Soil Survey of Solano County, California*, United States Department of Agriculture, Soil Conservation Service, in cooperation with University of California Agricultural Experiment Station, May 1977.)

AGRICULTURAL RELATED SOIL CHARACTERISTICS

As stated above, the specific plan area contains both Class I and Class II soils. Class I soils have generally few limitations that restrict their use, while Class II soils have some limitations that reduce the choice of plants or require moderate soil conservation practices as described in Table 4.2.2. Within these soil classes, soil types are further broken down into "capability units" which further describe the limitations of the soil types. Project site soils have capability units listed as: 1) an actual or potential erosion hazard; and, 2) a limitation caused by slow permeability or very slow permeability of the subsoil. Soil types are still further broken down into "capability subclasses", which are soil groups within one class, and are designated by lower case letters. The two Class II project site soils contain the letter "s" in their capability unit description which shows that the soil is limited mainly because it is shallow, droughty, saline, or stony.

Soil types area further described in terms of a "land resource area", which is a broad geographical area that has a distinct combination of climate, soils, management needs, and cropping systems. Project site soil types are listed in land resource area (17) which includes the valley portions of the county. Most of the land in this area is irrigated for intensive cultivation. The rest of the area is used for dry-farmed grain or pasture.

SEISMICITY

The City of Dixon is located within a region prone to seismic occurrences, most notably associated with the San Andreas fault system located approximately 60 miles to the west. No earthquake faults are known to traverse the specific plan area.

Historically, damage due to seismic occurrences in the Dixon area have been minimal primarily because of the general absence of presently active faults in the vicinity. One exception was the 1892 Vacaville-Dixon earthquake which is estimated to have been in the range of 6.5 on the Richter scale. While several active faults have been mapped in the western region of Solano County, including the Green Valley Fault, the Concord Fault, and the potentially active Midland Fault which traverses the City of Dixon between I-80 and the intersection of West A Street and Pitt School Road, no known fault has been associated with the Vacaville-Dixon seismic occurrence (Heeley, and Herd 1988; Jennings, 1988). Present

Table 4.2.2
PROJECT SITE SOIL SERIES AND AGRICULTURAL LIMITATIONS

SYMBOL/SOILSERIES	CAPABILITY UNIT	SLOPE	CHARACTERISTICS
CLASS I AGRICULTURAL SOILS			
BrA/Brentwood clay loam	I-1 (17)	0-2%	runoff very slow, slight erosion hazard.
Yo/Yolo loam	I-1 (17)	nearly level	moderate permeability, slow runoff, slight erosion hazard.
Ys/Yolo silty clay loam	I-1 (17)	nearly level	moderate permeability, slow runoff, slight erosion hazard.
CLASS II AGRICULTURAL SOILS			
Ca/Capay-silty loam	IIs-3 (17)	nearly level	slow surface runoff, low erosion hazard.
Yr/Yolo loam, clay substratum	IIs-3 (17)	nearly level	slow permeability, slow runoff, slight erosion hazard.

(Source: Soil Survey of Solano County, California, United States Department of Agriculture, Soil Conservation Service, in cooperation with University of California Agricultural Experiment Station, May 1977.)

speculation suggests that the epicenter of this historic earthquake may be along a buried fault north of Vacaville and east of the crest of the Vaca Mountains (Bennet, 1987; Wong, 1989). Additional faults which have been active within the last 10,000 years include an unnamed fault approximately 11 miles north of the City of Dixon, and the Cordelia Fault located approximately 20 miles southwest of the city.

A fault is considered potentially active if evidence indicates that surface displacement along the fault has occurred within the last two million years (Quaternary period). Potentially active faults include faults which may be associated with historic seismicity. The position of the Midland Fault coincides generally with the regional geologic boundary separating the Coast Range to the west and the Great Central Valley to the east. Recent investigations of seismicity and geologic structures suggest that large historic earthquakes have occurred and future earthquakes are probable along this general boundary, which extends 360 miles along the western side of the Great Central Valley.

Although there are no recorded events conclusively attributable to the Midland Fault zone, the anticipated magnitude for a seismic occurrence, based on the Modified Mercalli Intensity measuring the expected ground level shaking intensity, is IX. The seismicity of the area is minimal, and is not likely to produce ground shaking of over 0.5g.

GROUND SHAKING/LIQUEFACTION

Despite the infrequency of significant seismic activity within the vicinity of the project site, other existing extenuating factors which require planning consideration include the potential for liquefaction. Due to the deeply deposited layers of alluvial sediments underlying the specific plan area, intense ground shaking and liquefaction could accompany a seismic event.

The magnitude of both effects depends on the composition of the sediments and soils below the groundwater level and the proximity to the epicenter.

Ground failure resulting from earthquake-induced liquefaction is an important risk affecting existing and future urbanization of the area. As the specific plan site is underlain by recent alluvial deposits, some of these deposits, if consisting of silty sands and if situated in high groundwater conditions, may be prone to liquefaction during seismic shaking. Saturated granular materials in liquefaction-prone soils can be transformed by seismic shaking into a fluid-like state causing ground failure and consequent structural damage.

4.2.2 THRESHOLD SIGNIFICANCE

The following criteria was considered when determining the significance of development of the proposed project with respect to geology, soils and seismicity. An earth resources impact is significant under CEQA whenever one or more of the following occur with development of a proposed project:

- Exposes people, structures, or property to major geologic hazards such as earthquakes, landslides, mudslides, or ground failure;
- Results in unstable earth conditions or changes in geologic substructure;
- Destroys, covers, or modifies any unique geologic or physical features;
- Increases wind or water erosion of soils, either on or off-site; or
- Has the potential for deformation of foundations or damage to structures due to shrink-swell behavior.

4.2.3 ENVIRONMENTAL IMPACTS AND MITIGATIONS

SOILS

Impact G-1: Construction associated with project implementation may cause soil erosion, wind and water erosion, and siltation of local drainages.

Implementation of the proposed project would result in increased soil erosion, wind and water erosion, and siltation of local drainages during and after construction from excavation and grading activities. Disturbed soils due to grading roadways, building pads, and trenching for foundations and underground utilities would also cause the potential for increased soil disturbance.

Significance: Significant

Mitigation Measure G-A: An erosion control plan shall be prepared prior to construction. This plan shall include standards for permanent erosion control design, requirements for full establishment of vegetation, and emphasize drought-tolerant and climate-adapted vegetation.

Mitigation Measure G-B: Disturbed areas of the project site that are not actively under construction during the winter rainy season shall not be left exposed for more than one month.

Residual Significance: Less than significant

Impact G-2: Damage to structures and infrastructure caused by soils prone to shrink/swell behavior.

Soils prone to shrink/swell response due to moisture fluctuations may cause damage to buildings and infrastructure due to differential movement in rigid structures such as foundations, pavement, and utility lines.

Significance: Significant

Mitigation Measure G-C: Prior to development of any facility within the specific plan area, a detailed geotechnical investigation of on-site soils shall be conducted to identify the soils subject to shrink/swell behavior.

Mitigation Measure G-D: Hazards associated with shrink/swell soils shall be avoided through proper construction methods which include site drainage, and responsive grading, excavation and foundation design. Potential adverse effects due to soils with high shrink/swell are avoidable if these soils are identified prior to the design and construction, and appropriate design and construction methods are applied.

Residual Significance: Less than significant

SEISMICITY

Impact G-3: Ground-shaking and liquefaction could occur due to possible seismic event along active faults in the area.

Major earthquakes along the San Andreas Fault system and other active faults in the area may cause ground shaking and liquefaction in the vicinity of the project site, resulting in structural damage to building foundation and paved areas. The severity of seismic activity would vary depending on the characteristics and the epicenter of the earthquake. As the specific plan proposes land uses involving publicly occupied buildings, a risk is created with development in regards to seismic safety.

Significance: Significant

Mitigation Measure G-E: All structures and new buildings constructed within the project area shall conform to the latest seismic structural standards of the Uniform Building Code (UBC) as a minimum standard.

Mitigation Measure G-F: Plans for individual buildings subject to public occupancy shall be accompanied by an investigative report prepared by a geologist specialized in engineering. This report shall identify underlying geology including depth of water table, depth to bedrock, and presence and characteristics of sand lenses. Necessary structural measures to adequately respond to the degree of probable risk attributable to these underlying formations shall be recommended.

Mitigation Measure G-G: No public or private electrical, water, wastewater or gas lines shall be permitted to cross identified potential ground

failure areas without sufficient precautionary emergency provisions for: rapid shut-off, minimum disruption of service, and any adverse impact on adjoining and surrounding uses in the event of seismic-induced ground failure.

Residual Significance: Less than significant

4.2.4 CUMULATIVE IMPACTS

Impact G-4: The project will minimally contribute to cumulative soil erosion or the potential for exposing people to a possible seismic event.

Significance: Less than significant

Geology and soil impacts are site-specific and are not considered substantial in a cumulative scale. Therefore, the project would not contribute to cumulative geologic and soil-related impacts.

4.2.5 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Grading and erosion control measures, as well as state-mandated seismic design criteria, would be required for development within the specific plan area. The mitigation measures recommended in Section 4.2.3 would mitigate adverse soils and seismic constraints to a level below significant.

4.3 SURFACE AND WATER QUALITY

This section provides an overview of surface hydrology and water quality issues associated with the Northeast Quadrant Specific Plan (NQSP). Information contained in this section was integrated from several technical studies including the Dixon Regional Master Drainage Plan and Environmental Impact Report prepared by Brown and Caldwell Consulting Engineers (1989); Preliminary Investigation of Storm Drainage, Wastewater, Water, and Street Systems prepared by Morton & Pitalo, Inc. (1993); Urban Runoff Discharges from Sacramento Report prepared by the California Regional Water Quality Control Board Report Number 87-15P55 and Surface Water Quality Data Evaluation for Selected Streams in Central District prepared by the Department of Water Resources (1989). A copy of the Preliminary Investigation of Storm Drainage is contained in Appendix F of the Technical Appendices and the Dixon Regional Master Drainage Plan and EIR which are available for review at the City of Dixon's Community Development Department.

4.3.1 ENVIRONMENTAL SETTING

REGIONAL WATERSHED CHARACTERISTICS

The project site is located on an alluvial plain formed by Putah Creek, which is located in the greater Sacramento Valley of Central California. The general drainage pattern in the vicinity of the City of Dixon is to the southeast (0.1 to 1 percent slope) through relatively flat farmland and a series of roadside ditches and canals which ultimately discharge to the Sacramento Delta.

The land form in the vicinity was originally composed of gently rolling land with natural drainageways. Agricultural practices have significantly changed the land and have caused increases in the rates of runoff. Specific changes which have contributed to increased runoff rates include: 1) land leveling for grading and drainage; 2) use of irrigated farming techniques; 3) furrowing for summer and winter crops; and 4) changes from pasture and field crops to row crops.

Increases in runoff rates in the area have also occurred due to urbanization. Development in the City of Dixon has also caused increases in the amount of impervious surface and decreases in the times of concentration of watersheds.

Areas which would be flooded as a result of a 100-year storm (the single storm with the greatest rainfall which would be expected over a 100-year period) have been designated by the Federal Emergency Management Agency (FEMA). Major flood hazard areas in the Dixon area are located along Dickson and Dudley Creeks. Areas in the vicinity of the project site (including the project site) are not located within a 100-year floodplain according to FEMA.

SURFACE WATERSHED CHARACTERISTICS

The 643-acre specific plan site is located on the same alluvial plain formed by Putah Creek which generally slopes from the northwest to the southeast at a 0.1 to 1 percent slope. Elevations across the site range from a high of 75 feet above mean sea level (AMSL) to a low of 50 feet AMSL. The climate in the region is semi-arid with hot, dry summers and wet, mild winters. Annual rainfall ranges from 16 to 24 inches, and 90 percent of it falls during the months of November to April.

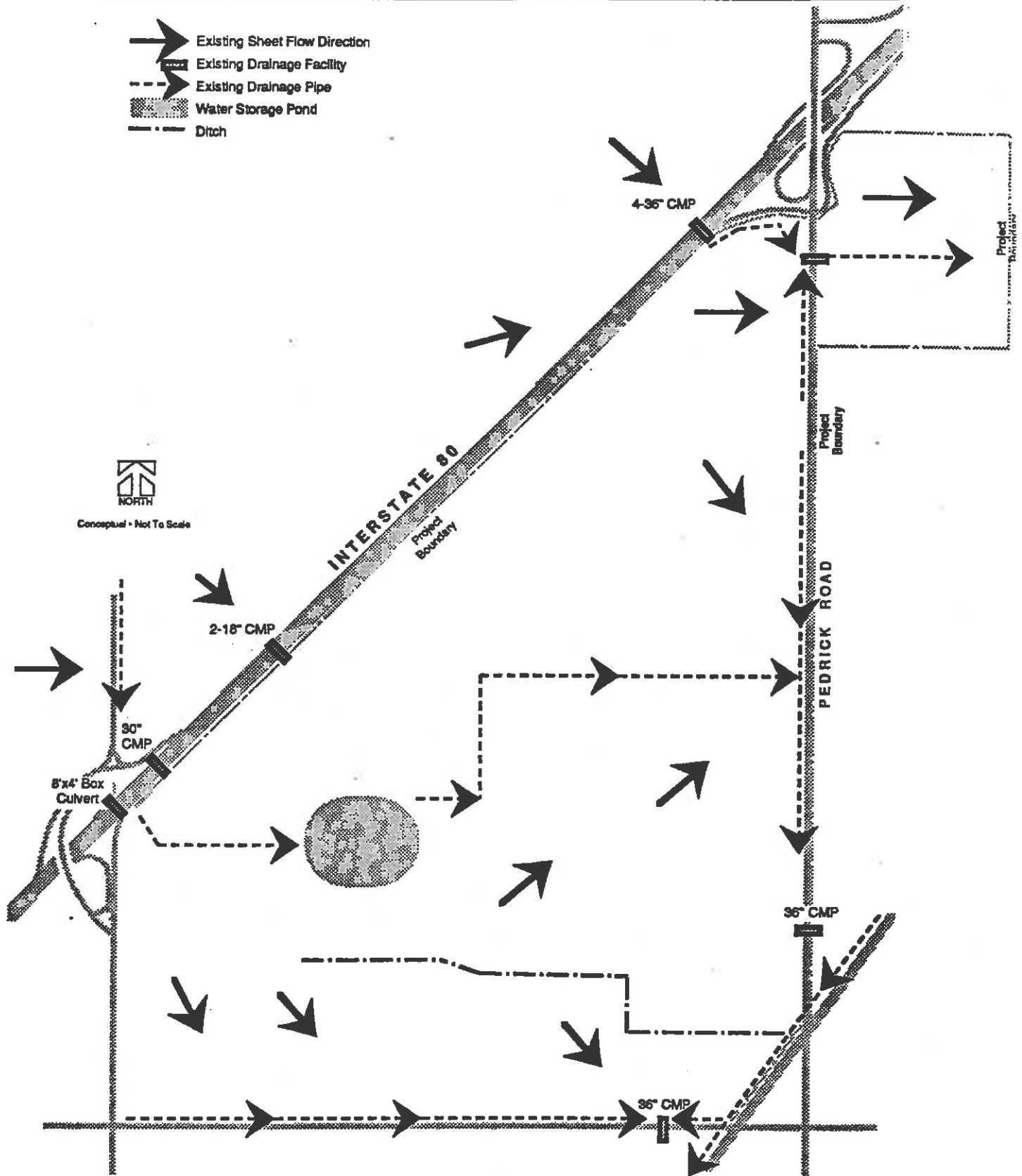
The majority of the parcels within the specific plan site are used for irrigated row crops and orchards. Runoff is collected in roadside ditches adjacent to Pedrick Road on the east and Vaughn Road on the south, and conveyed to a depressed area adjacent to the Southern Pacific Railroad (SPRR) tracks. The project site is not located within the Dixon Resource Conservation District (DRCD) service area and therefore no outlet channel has been provided. Flows appear to be stored within the depressed area adjacent to the SPRR and ultimately drain into the downstream system as shown on Figure 4.3.1.

Additional flows from the northwest side of I-80 contribute to the site. Field inspection of the existing drainage patterns within the project site indicate that approximately 1,460 acres are tributary to this drainage system. This area drains onto the NQSP site via an eight-foot by four-foot reinforced concrete box (RCB) culvert crossing of I-80 near the Curry Road/North First Street interchange, as well as a 30-inch corrugated metal pipe (CMP) pipe and two 18-inch CMPs northeast of the interchange. The flows are conveyed from this point eastward by channel to a depressed area of approximately 4.5-acres. This area remains wet year round due to irrigation runoff. A channel conveys the flows from this point to Pedrick Road.

An additional 360 acres are tributary to the four 36-inch CMP archpipe culvert crossings of I-80 southwest of the Pedrick Road Interchange. An existing channel bisecting the proposed 60-acre parcel east of Pedrick Road carries flows eastward and away from the project site.

SURFACE WATER QUALITY

A report prepared by the California Regional Water Quality Control Board (CRWQCB) revealed that water quality of surface water runoff in the Sacramento area is highly variable. In the absence of data particular to the City of Dixon, this information can be assumed to be approximate surface runoff in the vicinity of the proposed project. Contaminants in surface water runoff are dependent upon land use, proximity to those uses and the length of time



**FIGURE 4.3.1
EXISTING DRAINAGE SYSTEM**

between rains that produce the "first flush" runoff. Based on the above-mentioned study, urban surface runoff is typically higher in concentrations of copper, lead, cadmium, chromium, and zinc than acute U.S. Environmental Protection Agency (EPA) Water Quality Criteria for the protection of freshwater aquatic organisms. Metals found in surface runoff typically originate from automobile use including lead from exhaust fumes and zinc and copper from brake shoes.

The California Department of Water Resources (DWR) is responsible for assessing the quality of the state's water resources including surface water. According to a Surface Water Quality Data Evaluation for Selected Streams in Central District prepared by the DWR (1989), a monitoring site in Putah Creek near Winters has been identified as having potential water quality problems affecting beneficial uses due to the total hardness and alkalinity. Total Dissolved Solids (TDS) are in the range of 150 - 500 mg. The secondary Maximum Contaminant Level (MCL) for TDS is 500 mg/L (however, short-term exposure to drinking water containing up to 1,500 mg/L TDS is considered acceptable). Crop irrigation may be adversely affected by TDS of 500 mg/L and can be severely limited at higher concentrations.

Recent data is limited on water quality of surface water resources immediately adjacent to the project site. Local drainage ditches and canals are intermittent and often have no appreciable surface flow during the dry season. However, during low-flow periods, surface water from these facilities may contain appreciable concentrations of agricultural pollutants including pesticides, herbicides, and fertilizers.

GROUNDWATER

The majority of groundwater resources in the vicinity of the City of Dixon are within Quaternary alluvial deposits of Putah Creek. The major aquifers consist of sand and gravel channel deposits created by past migrations of the creek channel upon the valley floor. These deposits are moderately to highly permeable and typically provide high well yields. These channel deposits are covered by younger alluvium consisting of mostly silt and fine sand approximately 40 to 150 feet thick over older alluvium. The groundwater region south of Dunnigan Hills in the Putah Plain receives recharge from Cache and Putah Creek drainages.

Groundwater in this area is plentiful, with the water table rising over the past 30 years due to increased agricultural irrigation. The depth to groundwater in the area is estimated to be 20 to 40 feet and no free groundwater has been observed within the boundaries of the project site. The groundwater flow direction is normally to the southeast. The higher strata of groundwater has been determined to contain high nitrate levels, caused by the large dairies that once existed in this area (personal communication, Darrell Rosenkild, Director of Water Operations, Solano Irrigation District).

FEDERAL CLEANWATER ACT

The Federal Clean Water Act places the primary responsibility over the control of water pollution and for planning the development and use of water resources with the states, although it does establish certain guidelines for the states to follow in developing their programs. Thus, in California the regulatory program created by the Porter-Cologne Water Quality Act of 1970 and the planning activities of the state and regional boards are the primary means by which the federal objective of restoration and maintenance of the integrity of the nation's waters is met.

Water quality objectives for all waters in the state are established under applicable provisions of Section 303 of the Federal Clean Water Act and the Porter-Cologne Water Quality Control Act.

INLAND SURFACE WATER QUALITY STANDARDS

The State Water Resources Control Board (SWRCB) has developed water quality objectives for inland surface waters in the 1991 Inland Surface Waters Plan. Included among the provisions pertaining to the objectives are the following: (a) that all point and non-point discharges must comply with identified water quality objectives; and (b) that effluent limits are to be imposed, either through National Pollutant Discharge Elimination System (NPDES) permits or Waste Discharge Requirements (Water Code Section 13260), such that the water quality objectives shall not be exceeded in the receiving water outside a designated mixing zone.

SACRAMENTO RIVER BASIN WATER QUALITY CONTROL PLAN

Water quality objectives have been established for the Sacramento River (and its tributaries), and are contained in the 1991 Sacramento River Basin Plan prepared by the CRWQCB in compliance with the Federal Clean Water Act and the Porter-Cologne Water Quality Control Act. The basin plan establishes water quality objectives, and implementation programs to meet stated objectives and to protect the beneficial uses of water in the Sacramento River watershed basin.

The Inland Surface Waters Plan established water quality objectives for priority pollutants that are more stringent than those water quality objectives in the pre-existing Basin Plan. Therefore, the Inland Surface Waters Plan takes precedence. However, if the basin plan is amended to include more stringent objectives for the Sacramento River Basin than those established in the Inland Surface Waters Plan, the basin plan objectives would apply.

EPA STORMWATER DISCHARGE PERMITTING REGULATIONS

The Federal Clean Water Act prohibits the discharge of pollutants to navigable waters from a point source unless authorized by a NPDES permit. With respect to pollutants in stormwater discharges, the Federal Clean Water Act currently only requires two sizes of municipalities, large (population 250,000 or above) and medium (population 100,000 to 250,000), certain industrial activities, and certain construction activities to obtain permit coverage. The EPA may adopt regulations for small municipalities with populations with less than 100,000. The goal of newly issued regulations is to improve the quality of stormwater discharged to receiving waters to the "maximum extent possible" through the use of Best Management Practices (BMPs). BMPs can include the development and implementation of various practices including educational measures (workshops for informing the public of what impacts result when household chemicals are dumped into storm drains), regulatory measures (local authority of drainage facility design), public policy measures (label storm drain inlets as to impacts of dumping on receiving waters), and structural measures (filter strips, grass swales, and detention ponds).

CALIFORNIA GENERAL CONSTRUCTION ACTIVITY STORMWATER PERMIT

Effective October 1, 1992, General Stormwater Discharge Permits are required by the State for stormwater discharges associated with construction activities that disturb five acres or more. Construction on sites less than five acres require a permit if part of a larger development or land sale. Land owners are responsible for obtaining and complying with the permits, however, associated duties may be delegated to developers and contractors by mutual consent.

Permit applicants are required to prepare, and retain at the construction site, a Stormwater Pollution Prevention Plan that describes the site, erosion and sediment controls, means of

waste disposal, implementation of approved local plans, control of post-construction sediment and erosion control measures and maintenance responsibilities, and non-stormwater management controls. Dischargers are also required to inspect their construction sites before and after storms to identify stormwater discharge associated with construction activity, and to identify and implement controls where necessary.

4.3.2 THRESHOLD SIGNIFICANCE

The following criteria was considered when determining the significance of development of the proposed project. An impact to water quality was considered significant under CEQA if one or more of the following could occur:

- substantially degrade water quality;
- contaminate a public water supply;
- substantially degrade or deplete groundwater resources;
- interfere substantially with groundwater recharge;
- cause substantial flooding, erosion or siltation;
- adversely change off-site flooding; or
- release urban or agricultural pollutants in stormwaters.

4.3.3 ENVIRONMENTAL IMPACTS

ON-SITE HYDROLOGY

The proposed drainage system for the NQSP is shown on Figure 4.3.2. As shown, site improvements for the project site would collect and convey runoff to localized detention ponds and channels. The drainage channel located within the 100-foot landscape easement in combination with the roadside drainage channel at Professional Drive would combine and distribute the flows to seven local detention ponds, as well as convey outlet flows to an outfall system.

The actual amount of containment area required for the proposed detention ponds would be determined in the design of individual development projects within the specific plan area. A preliminary estimation of approximately 32 acres (5 percent of the entire site), has been determined to be required to accommodate all on-site detention basins. The ponds would be located and integrated into the landscaping typically required for industrial, business-professional, and commercial land uses. In addition, the on-site storm drainage collection system would also be incorporated in easements which feature landscaped pedestrian pathways. The easements would provide pedestrian pathways and drainage swales that link all the detention pond areas on-site. The ponds, swales and pedestrianways would provide a network linking all areas of the specific plan.

OFF-SITE HYDROLOGY

Two alternative outfall systems are identified by the Preliminary Investigation of Storm Drainage (Appendix F of the Technical Appendices). The first involves an expansion to the outfall system to be constructed with the North First Street Assessment District (NFSAD) improvements. Outlet flows could be discharged from the project site drainage system by a pump located at the southeast end of the 100 landscape corridor. A 36-foot diameter pipe undercrossing of the SPRR tracks could be constructed at Vaughn Road. The flows that would be conveyed southwest along the east side of the SPRR right of way to the existing city Pond 'B' site. The capacity of Pond 'B' would need to be expanded by approximately 200-acre feet to maintain outflows at acceptable levels.

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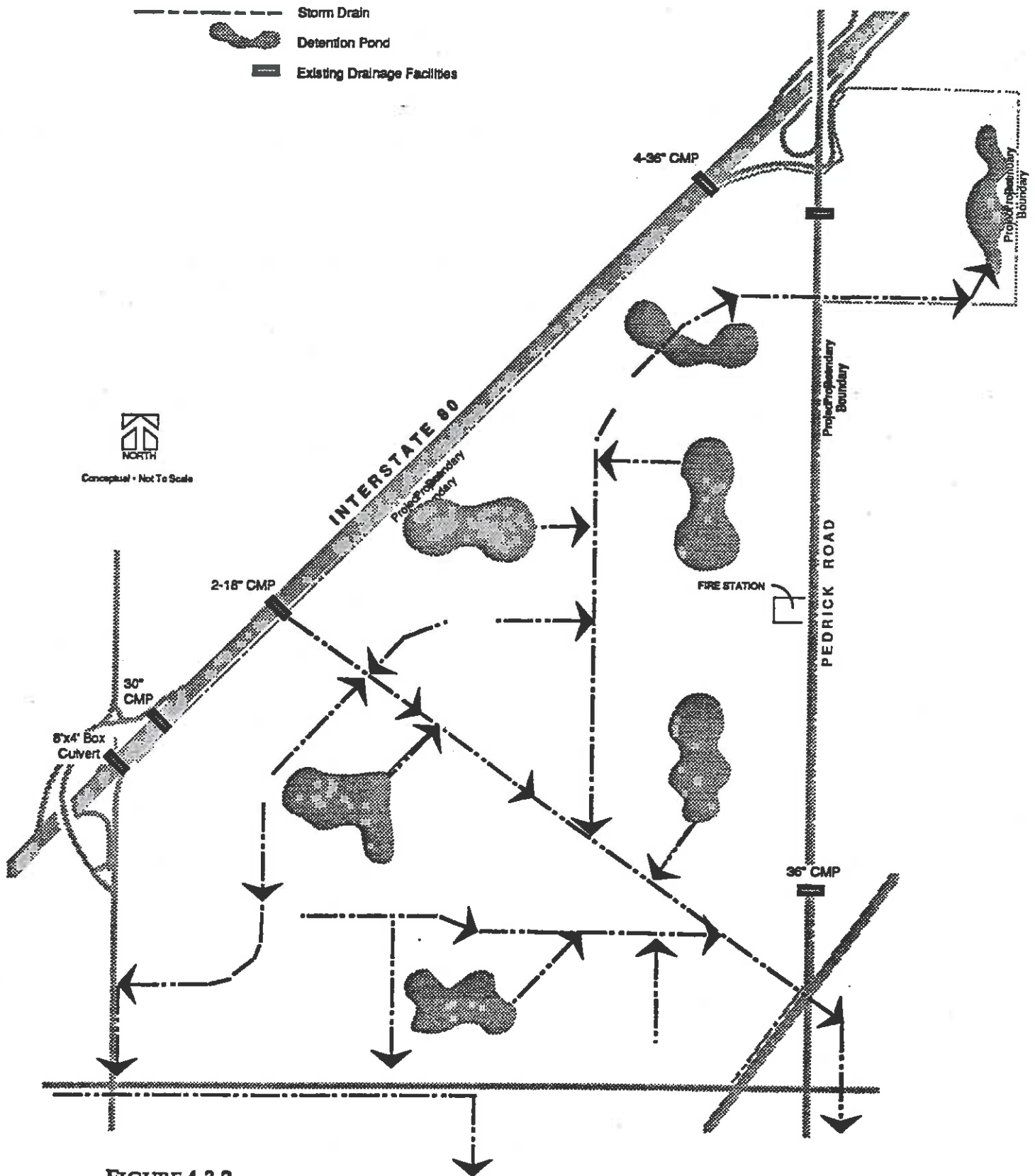
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The Dixon Northeast Quadrant Specific Plan proposes that the principal stormwater system will consist of a series of small detention basins. The purpose of these detention basins is to provide sufficient volume to retain 100% of the on-site stormwater in a 100-year event if no other drainage system is available. Each application for a PUD pursuant to this specific plan will be required to demonstrate the capacity to retain all stormwater in a 100-year event unless a comprehensive storm drainage system is available to serve the proposed project. Other alternative stormwater control measures may be considered in the PUD review process for development projects. On-site detention ponds will be incorporated as amenity features in individual land uses. The ponds will be shallow, typically four-foot deep, with gradual slopes and visually enhanced with landscaping.




 NORTH
 Conceptual - Not To Scale

**FIGURE 4.3.2
PROPOSED DRAINAGE SYSTEM**

The second alternative outfall system would be the construction of channel improvements from the developed area northeast to Putah Creek. The flows would be conveyed eastward from Pedrick Road at the intersection with Professional Drive to the SPRR tracks. From this location, the flows could be conveyed along the west side of the SPRR right-of-way to Putah Creek. At the Putah Creek Levee, a pump station would be constructed to lift the flows into the creek. This alternative is not in compliance with the City of Dixon Master Drainage Plan, which could be amended if this alternative is selected.

SURFACE WATER QUANTITY

Impact WQ-1: Change in land use from agriculture to urban uses will result in potential increases to the quantity of surface water runoff.

The conversion of predominately agricultural land to urban uses have the potential to create an impact on local surface waters as a result of precipitation events and ongoing irrigation practices in the area. Because of the limited downstream flow capacities, additional runoff generated by the proposed project would not be allowed at this time. Therefore, this project is dependent on improvements to the city-wide drainage system or has the option to retain all on-site drainage.

Significance: Significant

Mitigation Measure WQ-A: Prior to commencement of on-site grading, the project shall demonstrate, via a detailed hydraulic analysis of post development topographic and drainage conditions, that the final project design would not substantially cause flooding to adjacent or downstream parcels or conveyance facilities. The project proponent shall participate in city-wide drainage improvements in order to increase downstream flow capacities to accommodate this project.

Mitigation Measure WQ-B: Final detention basin(s) design, conveyance facilities, and management of the proposed facilities on-site shall, as demonstrated by the hydraulic analysis of the project proponent and approved by the City of Dixon, adequately accommodate runoff from a 10-year and 100-year storm event. Ultimate development of the entire site must be considered, although drainage infrastructure construction could be phased as needed.

Residual Significance: Less than significant

SURFACE WATER QUALITY

Impact WQ-2: Change to the quality of runoff would result from the fundamental change in land uses from agriculture to urban uses.

Fine sediments and various types of pollutants would be generated by human activity within the proposed project. These materials would accumulate on the impervious surfaces (i.e., streets, parking lots and roofs) between rainstorms and would be subsequently washed off various surfaces and transported into detention basins and receiving conveyance facilities. In

addition, land that is not covered by impervious surfaces would generally be landscaped and routinely treated with fertilizers and pesticides which would also get carried into surface water courses during a storm event.

Significance: **Significant**

Mitigation Measure WQ-C: Prior to commencement of on-site grading, the project sponsor shall develop a surface water quality control plan, to be implemented and approved by the City of Dixon. The plan shall include, but not necessarily be limited to reducing runoff contaminant concentrations by:

- installing sediment and grease traps at all catch basins or within storm drain lines;
- properly maintaining sediment and grease traps, with responsibility for maintenance assigned to site operations to be established by the project sponsors prior to completion of construction of the first phase of development;
- incorporating infiltration facilities (porous pavement or grass swales) within the project to reduce peak flow of runoff;
- reducing source pollution causes through practices such as minimal use of fertilizer, pesticides and herbicides, proper application of water for landscape irrigation, keeping roadways and parking lots free of litter and sediments, proper methods and locations for disposal of automobile hazardous wastes; and
- maximizing distances between inlets and outlets perhaps using elongated basin shapes.

Residual Significance: **Less than significant**

GROUNDWATER.

The project's impact on groundwater quantities is addressed in Section 4.9 (Public Services and Utilities). Regarding groundwater quality, the project site has been farmed for decades. The potential exists that hazardous materials (fertilizers, insecticides, diesel fuel) were used and possibly disposed of on the site. A Preliminary Site Assessment, contained in Appendix E of the Technical Appendices has been conducted. Please refer to Section 4.10 (Public Health and Safety) of this EIR for a discussion on hazardous materials and their potential impacts to the local groundwater.

4.3.4 CUMULATIVE IMPACTS

Impact WQ-3: **The project will cumulatively contribute to increased surface water runoff and degradation to surface water quality.**

Implementation of cumulative development within the cumulative sphere of influence would result in altering the existing topography and increasing the potential for increased runoff volumes and flow rates. The cumulative area is characterized as being relatively flat (0.1 to 1 percent) and sloping to the southeast as is the proposed project. A total of 1,323 acres are

planned for a variety of residential, commercial, industrial and other land uses which would contribute to alteration of topsoils. However, this impact is not considered to be significant because the issues associated with soil erosion and surface water quality can be mitigated through grading, drainage, and revegetation features and other efforts identified in Section 4.3.3.

Significance: Less than significant

4.3.5 LEVEL OF SIGNIFICANCE AFTER MITIGATION

The mitigation measures recommended in Sections 4.3.3 would reduce impacts to surface water to a less-than-significant level.

4.4 AIR QUALITY

The primary source of information for this Section is the Draft CEQA Review Handbook, Determination of Significance, Yolo/Solano Air Quality Management District, January, 1993.

4.4.1 ENVIRONMENTAL SETTING

The primary factors that determine air quality are the locations of air pollutant sources and the amounts of pollutants emitted. Atmospheric conditions such as wind speed, wind direction, and air temperature gradients interact with the physical features of the landscape to determine the movement and dispersal of air pollutants. The topographic and atmospheric characteristics of the Sacramento Valley tend to inhibit the dispersal of air pollutants.

REGIONAL GEOGRAPHY AND CLIMATE

The plan area is located to the northeast of the City of Dixon in the Sacramento Valley. From a geographic and meteorologic standpoint, the Sacramento Valley is relatively uniform. Essentially, the valley is characterized by flat terrain with climate described as Mediterranean: hot and dry in the summer and cold and wet in the winter. This combination of geographical and meteorological characteristics, coupled with an extensive irrigation system, have made the valley some of the most productive agricultural land in the world.

The meteorology of the Sacramento Valley has a significant influence on the formation and transport of air pollutants. Regional wind patterns and temperatures are extremely influential in determining the rate and frequency of the horizontal and vertical dispersion of pollutants. The inland location and surrounding mountains shelter the valley from the ocean breezes which keep the coastal regions moderate in temperature. The only breach in the barrier is the Carquinez Straits which exposes the midsection of the valley to the coastal air mass. Compared to the coastal area, temperatures in the Sacramento Valley are much more extreme. For example, the warmest and coolest months of the year are July and January with average temperatures of 96 and 53 degrees F, respectively. Furthermore, daily temperatures exceeding 90 degrees F occur an average of 95 days per year, while a reading of 32 degrees occurs an average of 23 days per year.

The average annual precipitation in the Sacramento Valley is 17.9 inches, most of which occurs between November and April. Between May and October average precipitation is less than one inch per month. The record maximum monthly rainfall was 11.7 inches in

December, 1955. The record maximum daily rainfall was 3.2 inches, also occurring in December of that same year.

The relative humidity in the Sacramento Valley is variable throughout the year. Typically, humidity levels are low during the summer. Winter storms create higher relative humidities during the months of November through March. During December through February a dense layer of ground fog often forms at night and can continue for several weeks.

AIR QUALITY RULES, REGULATIONS AND STANDARDS

Regulation of air quality is achieved through both federal and state ambient quality standards and emissions limits for individual sources of air pollutions. Regional Air Quality Management Districts and local Air Pollution Control Districts enforce these standards and implement stationary and mobile emission control programs.

FEDERAL

The Federal Clean Air Act (CAA) required the U.S. EPA to identify National Ambient Air Quality Standards (NAAQS) to protect public health and welfare. NAAQS have been established for the six "criteria" air pollutants: ozone (O₃); carbon monoxide (CO); nitrogen dioxide (NO₂); sulfur dioxide (SO₂); suspended particulate matter (PM₁₀); and lead (Pb). These pollutants are called criteria air pollutants because EPA publishes criteria documents to justify the choice of standards to protect public health. Table 4.4.1 displays ambient state and federal air quality standards.

Pursuant to the 1990 CAA Amendments, the EPA has classified air basins, or portions thereof, as either "attainment" or "non-attainment" for each criteria air pollutant, based on whether or not the NAAQS have been achieved. The EPA identifies the Sacramento Valley Air Basin (SVAB) as non-attainment for O₃ and PM₁₀.

STATE

The California Air Resources Board (CARB) regulates mobile emissions sources and oversees the activities of County Air Pollution Control Districts (APCDs) and regional Air Quality Management Districts (AQMDs). The CARB regulates local air quality indirectly through established State Ambient Air Quality Standards (SAAQS) and vehicle emission standards, by conducting research activities and by planning and coordinating activities.

California has adopted ambient standards that are more stringent than the federal standards for the criteria air pollutants. Under the California Clean Air Act (CCAA), patterned after the Federal Act, areas have been designated as attainment or non-attainment with respect to the SAAQS. The SVAB is designated as non-attainment for O₃ and PM₁₀ with respect to the state standards.

The Environmental Quality Act (CEQA) of 1970 was enacted by the state legislature in response to an increasing concern for the state's natural resources. The primary purposes of the Act are to: 1) require the full evaluation and disclosure of the environmental impacts of proposed projects; 2) ensure that a reasonable range of alternatives that could feasibly attain a project's basic objectives are evaluated; 3) require that significant environmental impacts are avoided whenever possible through the adoption of mitigation measures; and 4) ensure that agencies which approve projects where significant environmental effects are involved provide full disclosure of their reasons to do so.

TABLE 4.4.1
 AMBIENT AIR QUALITY STANDARDS

Air Pollutant	California	Federal	
	Concentration	Primary (>)	Secondary (>)
Ozone (O ₃)	0.09 ppm, 1-hr. avg. >	0.12 ppm, 1-hr. avg.	0.12 ppm, 1-hr. avg.
Carbon Monoxide (CO)	9.0 ppm, 8-hr. avg. > ^a 20 ppm, 1-hr. avg. >	9 ppm, 8-hr. avg. ^b 35 ppm, 1-hr. avg. >	9 ppm, 8-hr. avg. 35 ppm, 1-hr. avg. >
Nitrogen Dioxide (NO ₂)	0.25 ppm, 1-hr. avg. > ^c	0.053 ppm, annual avg. ^d	0.053 ppm, annual avg. ^e
Sulfur Dioxide (SO ₂)	0.05 ppm, 24-hr. avg. > with ozone >= 0.10 ppm, 1-hr. avg. or TSP >= 100 ug/m ³ , 24-hr. avg. 0.25 ppm, 1-hr. avg. > ^e	0.03 ppm, annual avg. 0.14 ppm, 24-hr. avg.	0.50 ppm, 3-hr. avg.
Suspended Particulate Matter (PM 10)	30 ug/m ³ , annual geometric mean > 50 ug/m ³ , 24-hr. avg. > ^f	50 ug/m ³ , annual 8 arithmetic mean 150 ug/m ³ , 24-hr. avg.	50 ug/m ³ , annual 8 arithmetic mean 150 ug/m ³ , 24-hr. avg.
Sulfates	25 ug/m ³ , 24-hr. avg. >=		
Lead (Pb)	1.5 ug/m ³ , 30-day avg. >=		
Hydrogen Sulfide	0.03 ppm, 1-hr. avg. >=	1.5 ug/m ³ , calendar quarter	1.5 ug/m ³ , calendar quarter
Vinyl Chloride	0.010 ppm, 24-hr. avg. >=		
Visibility	In sufficient amount to reduce the visual range to less than 10 miles at relative humidity less than 70%, 8-hr. avg. (9am-5pm) ^h		
Reducing Particles			

^a Effective December 15, 1982. The standards were previously 10 ppm, 12-hour average and 40 ppm, 1-hour average.

^b Effective September 13, 1985, standard changed from 10 mg/m³ (>= 9.3 ppm) to >9 ppm (>= 9.5 ppm).

^c Effective March 9, 1987, standard changed from >= .25 ppm to > .25 ppm.

^d Effective July 1, 1985, standard changed from > 100 ug/m³ (> .0532 ppm) to (> .0534 ppm).

^e Effective October 5, 1984. The standard was previously .5 ppm, 1-hour average.

^f Effective August 19, 1983. The standards were previously 60 ug/m³ TSP, annual geometric mean, and 100 ug/m³ TSP, 24-hour average.

^g Effective July 1, 1987. The standards were previously: Primary - Annual geometric mean TSP > 75 ug/m³, and a 24-hour average TSP > 260 ug/m³. Secondary - Annual geometric mean TSP > 60 ug/m³, and a 24-hour average TSP > 150 ug/m³.

^h Effective October 18, 1989. The standard was previously "In sufficient amount to reduce the prevailing visibility to less than 10 miles at relative humidity less than 70%, 1 observation", and was based on human observation rather than instrumental measurement.

SOURCE: South Coast Air Quality Management District, April 1991.

REGIONAL

Located in the Sacramento Valley Air Basin, the Yolo/Solano Air Quality Management District (YSAQMD) constitutes roughly 1,500 square miles. The YSAQMD encompasses all of Yolo County and the northeastern half of Solano County. Bordering the District is Colusa and Sutter Counties to the north, portions of Solano County to the south, and Sacramento and Napa Counties to the east and west, respectively. The cities of West Sacramento, Davis, Woodland, Dixon, Rio Vista, Vacaville, and Winters are all included within the YSAQMD's jurisdiction.

Each county in the SVAB has been required to develop an air quality attainment plan in order to meet attainment status for the non-attainment criteria pollutants. YSAQMD accordingly has developed an Air Quality Attainment Plan for both Yolo and Solano Counties that describes its strategies to reach attainment status.

The YSAQMD regulates air quality through its permit authority over most types of stationary emission sources through its inspection and enforcement activities. The Air Quality Attainment Plan primarily seeks to reduce mobile sources of O₃ emissions by integrating transportation, land use and air quality planning. Airborne particulate matter equal to or less than 10 microns in diameter (PM₁₀) is also addressed in the plan, but with less emphasis.

EXISTING AIR QUALITY

Air quality within the Sacramento basin varies from season to season with ambient concentrations of ozone and PM₁₀, of particular concern in the summer and winter, respectively. The presence of persistent temperature inversions exacerbate the air pollution in the valley by prohibiting the vertical dispersion of pollutants. During half of the days in July and August, a phenomenon called the "Schuytzt Eddy" prevents the normal horizontal distribution of pollutants to the north. In the winter, the cold temperatures create an environment which make CO and PM₁₀ the pollutants of most concern. Air pollution transport is common because of the absence of geographical barriers within the valley.

The YSAQMD has been designated as non-attainment for O₃ and PM₁₀. The YSAQMD non-attainment status for O₃ and PM₁₀ is categorized as "serious" with respect to the state air quality standards.

The YSAQMD's regional air quality monitoring network provides information on average concentrations of the criteria air pollutants. Since the implementation of stationary and mobile emission control policies in the mid-1970's, the average number of air pollution violations per year in the district has fluctuated. Table 4.4.2 is a five-year summary of the highest annual concentrations for the two criteria air pollutants for which the YSAQMD is non-attainment (O₃ and PM₁₀), collected at the YSAQMD's nearest air quality monitoring stations at Davis and Woodland. The highest annual concentrations are also shown for CO for which the YSAQMD is currently attainment. This data is expected to be representative of air quality in the vicinity of the project site. Air pollutant concentrations are compared with the SAAQS air quality standards, which are more stringent than the corresponding NAAQS. Motor vehicle traffic on local roads and highways is the major source of air pollution near the project site. These three criteria air pollutants are described below.

Ozone (O₃)

The federal O₃ standard is violated occasionally in some parts of the Sacramento Valley and therefore, the air basin is non-attainment for O₃. Levels of O₃ in the area have also exceeded the state standard regularly over the past five years, including the YSAQMD. In the YSAQMD the formation of ozone is most common from April through October.

Ozone is not emitted into the atmosphere but is instead formed through a complex series of reactions in the atmosphere. The reactions involve combining reactive organic gasses (ROGs) and nitrogen oxides (NO_x) in the presence of sunlight.

ROGs are emitted from both combustion and organic solvent evaporation. In 1990, 54% of ROG emissions were attributable to on-road and off-road vehicles, while area sources and point sources accounted for 46%. NO_x are formed solely from combustion. The primary sources of ROGs and NO_x include power plants, automobiles, petroleum industry, pesticides, and organic solvents.

Several studies have shown that ozone damages alveoli, the tiny individual air sacs in the lungs. Consequently, prolonged exposure to ozone worsens the condition of victims suffering

TABLE 4.4.2
AIR POLLUTANT SUMMARY, 1986-1990

Pollutant	Std.***	Monitoring Data by Year*				
		1986	1987	1988	1989	1990
Ozone (O₃)						
Highest 1-hr. average, ppm**	0.09	<u>0.11</u>	<u>0.10</u>	<u>0.11</u>	<u>0.10</u>	<u>0.11</u>
Number of standard excesses (days)		4	2	15	1	4
Particulate Matter (PM₁₀)						
Highest 24-hr. average, ug/m ³	50	<u>94</u>	<u>102</u>	<u>96</u>	<u>113</u>	<u>80</u>
Standard Excesses (days)		7	8	19	8	7
Annual Geometric Mean, ug/m ³	30	<u>32.5</u>	<u>30.9</u>	<u>33.6</u>	<u>30.4</u>	<u>25.8</u>
Carbon Monoxide (CO)						
Highest 1-hr. average, ppm	20.0	13.0	14.0	9.0	13.0	12.0
Number of standard excesses (days)		0	0	0	0	0
Highest 8-hr. average, ppm	9.0	6.0	8.4	4.9	5.4	5.0
Number of standard excesses (days)		0	0	0	0	0

* 1986-1990 ozone data are taken in Davis. PM₁₀ and CO data are taken in Woodland.

** ppm = parts per million; ug/m³ - micrograms per cubic meter.

*** State standard, not to be exceeded

Underlined values are in excess of applicable standard.
California Air Resources Board, Air Quality Data Summaries, 1986-1990

from bronchitis, asthma and other respiratory ailments. Individuals with less developed or damaged respiratory systems, such as infants or the elderly, are particularly vulnerable to prolonged exposure to ozone. Studies have shown the ozone also causes damage to vegetation.

Particulate Matter (PM₁₀)

Particulate matter (PM₁₀) refers to particulates with an aerometric diameter equal to or less than ten microns. At the Woodland monitoring station, the PM₁₀ standard was exceeded regularly between 1986 and 1990.

The sources of PM₁₀ are many. Included among them are fume-producing industry and agriculture, motor vehicle combustion, as well as tire wear and wind-raised particulates. A primary source within the district is the soot generated from agricultural burning. In 1989, 96% of particulate emissions came from area and point sources, while 4% came from mobile sources.

Because of its ability to bypass the human body's natural filtering mechanisms, particulate matter of less than 10 microns in diameter has the potential to cause irritation and damage to the respiratory tract. Other effects of exposure to PM₁₀ include irritation of the eyes, throat, and nose, and even damage to alveoli.

Carbon Monoxide (CO)

The YSAQMD is attainment for CO; however, the Sacramento Air Quality Management Area (AQMA) is non-attainment.

CO is an odorless, colorless toxic gas. It is a byproduct of incomplete combustion. Motor vehicles and industrial sources are the primary sources of CO in the YSAQMD. In 1990, 88% of CO emissions came from mobile sources while 12% came from area and point sources.

CO has been shown to deprive organs of oxygen by entering the bloodstream and attaching to hemoglobin. For this reason, prolonged exposure to CO can be particularly damaging to individuals with heart disease. Other effects from exposure to CO range from fatigue and nausea to impairment of the central nervous system and changes in heart function. The severity of the health disorder caused by CO exposure depends largely on the concentrations and length of exposure.

Other Criteria Air Pollutants The standards for nitrogen dioxide (NO₂), sulfur dioxide (SO₂), and lead (Pb) are being met within the region, and ambient concentrations of these pollutants show no signs of exceeding state or federal standards in the future.

Local Air Quality

Carbon monoxide is the pollutant of major concern along roadways. CO is considered a primary pollutant. Unlike ozone, CO is directly emitted from a variety of sources. The most notable source of CO is motor vehicles. For this reason, CO concentrations are usually indicative of the local air quality generated by a roadway network. As shown on Table 4.4.2, state and federal CO standards were not exceeded in the area during the period 1986-1990.

Even though the standards were not exceeded, existing CO levels in the project vicinity were assessed using the CALINE 4 computer model. CALINE 4 is a fourth generation one source air quality model developed by the California Department of Transportation (CALTRANS). The purpose of the model is to assess air quality impacts near transportation facilities in what is known as the microscale region. Given source strength, meteorology, site geometry, and site characteristics, the model can reliably predict pollutant concentrations.

Worst case atmospheric conditions were modeled to estimate worst case concentrations of CO from existing traffic in the project area. For worst case meteorological conditions, a wind speed of five meters per second (one MPH), and a stability class G were used for a one-hour and an eight-hour averaging time.

Five (5) receptor locations were modeled, as shown on Figure 4.4.1. Emission factors were obtained from the YSAQMD's Draft CEQA Review Handbook and reflect vehicle mix and operating characteristics typical of arterial traffic in Solano County. Receptor locations were chosen to represent a range of emission concentrations near existing and proposed high volume intersections and arterials located in the project vicinity. Peak hour traffic volumes for the local roadways were obtained from the traffic study prepared for this proposed project. The results of the modeling effort for existing air quality are shown on Table 4.4.3. The pollutant levels shown are expressed in parts per million (ppm) for each receptor. The

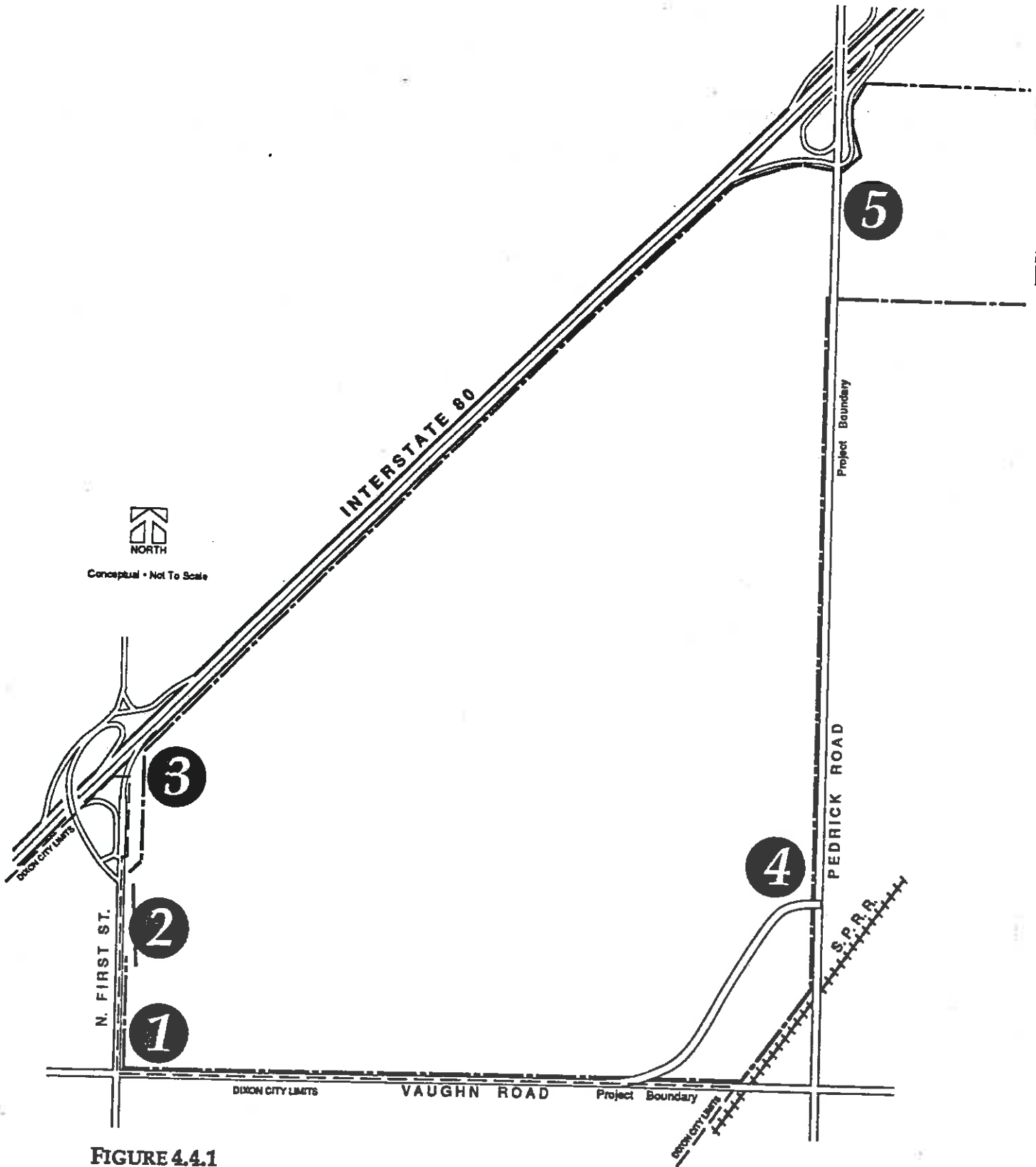


FIGURE 4.4.1
RECEPTOR LOCATION MAP

results indicate that under the worst-case conditions, state and federal standards are not being exceeded at locations within the project area. State and federal standards are not being exceeded at locations within the project area.

**TABLE 4.4.3
EXISTING BASELINE CO CONCENTRATIONS**

<u>Receptor/Intersection</u>	<u>Maximum CO Concentrations (PPM)</u>		<u>State Standard</u>		<u>Federal Standard</u>	
	<u>1-hour</u>	<u>8-hour</u>	<u>1-hour</u>	<u>8-hour</u>	<u>1-hour</u>	<u>8-hour</u>
	1. N. First St./Vaughn Road	12.5	7.5	20 ppm	9.1 ppm	35 ppm
2. N. First St./Future Arterial B	12.7	7.6	20 ppm	9.1 ppm	35 ppm	9.1 ppm
3. N. First St./I-80	14.1	8.5	20 ppm	9.1 ppm	35 ppm	9.1 ppm
4. Pedrick Road/Vaughn Road	11.8	6.4	20 ppm	9.1 ppm	35 ppm	9.1 ppm
5. Pedrick Road/I-80	13.3	8.0	20 ppm	9.1 ppm	35 ppm	9.1 ppm
Background Concentration	11.0	5.1	-	-	-	-

SENSITIVE RECEPTORS

Some land uses are considered more sensitive to air pollution than others, due to the types of population groups or activities involved. Land uses such as playgrounds and schools, hospitals, rehabilitation centers, long-term health care facilities, and convalescent/retirement homes are considered to be relatively sensitive to poor air quality because the young, the old, and the infirm are more susceptible to respiratory infections and other air-quality-related health problems than the general public. Residential land uses are considered sensitive to air pollution, as residents, including the young and the elderly, could be exposed to ambient air pollutant concentrations that could have adverse health impacts.

There are currently eight residential structures on the project site. However, these residences will be either demolished or removed from the site.

There are no other sensitive receptors in the vicinity of the proposed project.

4.4.2 THRESHOLD SIGNIFICANCE

The State CEQA Guidelines state that a significant effect on the environment will:

- Conflict with adopted environmental plans and goals of the community where it is located;
- Violate any ambient air quality standard, contribute substantially to an existing or projected air quality violation, or expose sensitive receptors to substantial pollutant concentration.

To evaluate impacts from an air quality perspective, one needs to examine emissions and compare these emissions with determined quantitative thresholds of significance. If the lead agency finds that a project has the potential to exceed the given thresholds, then the project should be considered significant.

Threshold criteria are needed to evaluate the impacts of indirect sources (i.e., motor vehicles) associated with urban and industrial development. The district's thresholds are based, in part, on Section 182 (d) of the California Clean Air Act (CCAA) which identifies 15 tons or more per year of volatile organic gases as the significance level for stationary sources of emissions in serious non-attainment areas for ozone. The CCAA is used instead of the Federal Clean Air Act because the state standard is stricter. As a result, the District will comply with the CAA by using the CCAA's standards. The YSAQMD also takes into account thresholds established by other air quality management agencies in California.

The district advocates that the threshold be 80 lbs. for ROG, NO_x, and PM₁₀, and 550 lbs. per day for CO (Table 4.4.4). The carbon monoxide (CO) threshold is significantly higher than other pollutants because the district is attainment for CO. Carbon monoxide, though, does need regulation since it is a precursor to ozone. The district also recommends thresholds be used by lead agencies in making a determination of significance for mobile or indirect sources. However, the final determination of whether or not a project is significant is within the jurisdiction of the lead agency pursuant to Section 15064(b) of the CEQA Guidelines.

**TABLE 4.4.4
THRESHOLD LEVELS
(LBS. PER DAY*)**

<u>POLLUTANT</u>	<u>THRESHOLD</u>
Reactive Organic Gasses (ROG)	80
Nitrogen Oxides (NO _x)	80
Particulate Matter (PM ₁₀)	80
Carbon Monoxide (CO)	550

*CA State 1-hour or 8-hour standard for ROG, NO_x, and CO; CA State 24-hour standard for PM₁₀.

4.4.3 ENVIRONMENTAL IMPACTS AND MITIGATIONS

Air quality impacts can result both from construction activities and from the on-going operations of the completed project. Construction emissions would have a short-term effect, while operational emissions would continue to affect air quality throughout the lifetime of the project. Motor vehicles would be the primary source of project-generated air pollutant emissions. Emissions also would result from natural gas used for space heating.

CONSTRUCTION IMPACTS

Impact AQ-1: The NQSP will result in short-term construction impacts to air quality.

Significance: Significant

Construction of the project would generate fugitive dust including PM₁₀ emissions from construction activities, ROG emissions from paints and asphalts, and exhaust emissions (ROG and NO_x) from construction vehicles.

Construction activities would also cause combustion emissions from utility engines. On-site heavy-duty construction activities envisioned would vary from day-to-day as construction activity levels change. Construction equipment emissions for a worst-case day are envisioned during the earlier phases of the project. Equipment usage was estimated from construction requirements for a similar project. These equipment requirements and associated emissions are detailed in Table 4.4.5.

Short-term grading operations have the potential to generate fugitive dust containing oil residues. Although the majority of such fugitive dust is inert, some areas contain minor petroleum spills as a result of historic and current agricultural and trucking operations. Petroleum residue present in some soils could be stirred-up during grading operation. This residue acts as a binder to trap fine soil particles that might otherwise escape into the air during handling. These larger particles then settle-out of the air much more rapidly than unagglomerated particles. As a result, the potential for off-site travel of petroleum-contaminated soils is considered low.

**TABLE 4.4.5
CONSTRUCTION EMISSIONS
(POLLUTANTS IN LBS/DAY)**

Equipment Type	Equipment Used	Hours in Operation	CO	ROG	NO _x	PM ₁₀
Scraper	5	40	33.0	6.6	101.1	11.0
Wheeled Loader	2	16	6.6	2.2	19.8	2.2
Track type Loader	2	16	2.2	2.2	8.8	2.0
Off-highway Truck	1	8	8.8	2.2	22.0	2.2
Roller	2	16	2.2	2.0	8.8	2.0
Misc.	20	80	35.2	8.8	90.1	6.6
Total Emissions	-	-	88.0	24.0	250.6	26.0
Significance Threshold	-	-	550.0	80.0	80.0	80.0

With the exception of NO_x, all estimated construction emissions are below the threshold criteria. As shown in Table 4.4.5, worst-case NO_x emissions exceed the YSAQMD significance threshold. However, because of the mobile nature of such equipment, emissions

will not result in concentrations that would threaten local attainment of the clean air standards, given the existing source-to-receptor separation near the project site.

Measures to Reduce PM₁₀

Although only the NO_x emissions exceed the YSAQMD significance threshold, the following mitigation measures will help to minimize all short term construction air quality impacts:

- Mitigation Measure AQ-A: The project construction site shall be watered at least two times per day. Emphasis shall be placed on the watering of unpaved roadways during periods of high vehicle movement.
- Mitigation Measure AQ-B: Tarpaulins or other effective covers shall be used on haul trucks when transferring earth materials.
- Mitigation Measure AQ-C: Where feasible, all inactive portions of the project construction site shall be seeded and watered until vegetation is grown.
- Mitigation Measure AQ-D: All disturbed soil areas not subject to revegetation shall be stabilized using approved chemical soil binders, jute netting, or other methods approved in advance by the YSAQMD.
- Mitigation Measure AQ-E: Soils shall not be exposed nor grading occur during periods where wind speeds are greater than 20 mph averaged over one hour.
- Mitigation Measure AQ-F: Vehicle speed shall not exceed a maximum of 15 mph on all unpaved roads.
- Mitigation Measure AQ-G: All roadways, driveways, and sidewalks shall be paved as soon as possible. In addition, building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.

Measures to reduce O₃
Precursors (ROG and NO_x)

- Mitigation Measure AQ-H: Proper maintenance of equipment and engines shall be maintained at all times.
- Mitigation Measure AQ-I: Vehicle idling shall be kept to an absolute minimum. As a general rule idling shall be kept below 10 minutes.
- Mitigation Measure AQ-J: During smog season (April through October), the construction period shall be lengthened so as to minimize the number of vehicles and equipment operating at the same time.
- Mitigation Measure AQ-K: Construction activities should utilize new technologies to control ozone precursor emissions as they become available and feasible.

Measures to reduce petroleum contamination of soils

Mitigation Measure AQ-L: A site assessment shall be conducted before construction activities begin. At locations where petroleum contamination has occurred, the soils shall be remediated using appropriate techniques (Section 4.11, Public Health and Safety). Removal of petroleum contamination will also eliminate the generation of hydrogen sulfide and its associated odor. If unforeseen areas of subsurface contamination are encountered during excavation activities, grading shall be curtailed in the contaminated area until the area is evaluated and remediated as appropriate.

Residual Significance: Less than significant

EXISTING AIR QUALITY

Impact AQ-2: Existing air quality in the project area currently exceeds the YSAQMD's threshold of significance for O₃ and PM₁₀.

Significance: Significant and unavoidable

PROJECT GENERATED EMISSIONS

Impact AQ-3: Long-term mobile sources of air pollution will result from implementation of the NQSP.

Significance: Significant and unavoidable

Long-term air quality impacts occur due to air pollutant emissions from both mobile and stationary sources. The emissions attributable to the project are primarily from project-generated motor vehicle traffic, which could increase ambient air pollutant concentrations.

Operational air quality impacts from the proposed land uses per day would result primarily from 99,124 additional motor vehicle trips generated by the project. Using URBEMIS 3, an emissions estimating program developed by the CARB, traffic-generated emissions from the project, at full-buildout, would be approximately 7,098.2 pounds per day (lb/day) of CO, 1,258.2 lb/day of NO_x, 709.8 lb/day of ROG, 134.5 lb/day of SO_x, and 1,194.4 lb/day of PM₁₀, as shown on Table 4.4.6, these violate the YSAQMP significance thresholds.

PROJECT PLUS FUTURE GENERATED EMISSIONS

Impact AQ-4: The project plus future (2010) generated emissions will result in violations of ambient CO standards and a net increase of the O₃ precursors.

Projected traffic conditions in 2010 (Table 4.4.6 and Appendix J) show that the project would cause ambient CO standards to be violated locally. Project-generated emissions would also cause a net increase of the O₃ precursors.

Significance: Significant and unavoidable
TABLE 4.4.6

TABLE 4.4.6
DAILY OPERATIONAL EMISSIONS
(LBS PER DAY)

Source	Maximum Daily Pollutant Emissions				
	ROG	CO	NO _x	PM ₁₀	SO _x
Highway Commercial	406.0	4002.8	724.8	259.6	77.1
Community Commercial	131.8	1299.2	235.2	84.2	25.0
Prof. & Admin. Office	70.6	736.6	122.5	350.8	13.3
Light Industrial	101.4	1059.6	175.7	499.8	19.1
TOTAL:	709.8	7098.2	1258.2	1194.4	134.5
YSAQMP Significance Thresholds:	80.0	550.0	80.0	80.0	N/A

Projected roadside CO concentrations at full buildout were modeled with the CALINE 4 dispersion model on the basis of peak-hour traffic volumes and worst-case meteorological assumptions. The results of this modeling are shown in Table 4.4.7.

Although emission factors are expected to be lower in the future because of cleaner-burning fuels, improved engine efficiencies, and the potential availability of a rail access, the project plus future emissions will result in a significant impact to air quality..

TABLE 4.4.7
FUTURE CO CONCENTRATIONS (PPM)

<u>Receptor/Intersection</u>	<u>Existing CO Concentrations</u>		<u>Future CO Concentrations w/Project</u>		<u>Future Cumulative CO Concentrations</u>	
	<u>1-hour</u>	<u>8-hour</u>	<u>1-hour</u>	<u>8-hour</u>	<u>1-hour</u>	<u>8-hour</u>
	1. N. First St./Vaughn Road	12.5	7.5	12.0	7.2	13.9
2. N. First St./Future Arterial B	12.7	7.6	10.7	6.4	12.3	7.4
3. N. First St./I-80	14.1	8.5	11.5	6.9	13.4	8.0
4. Pedrick Road/Vaughn Road	11.8	6.4	9.9	5.9	12.5	7.5
5. Pedrick Road/I-80	13.3	8.0	11.4	6.8	13.3	8.0
Background Concentration	11.0	5.1	7.0	3.6	7.0	3.6

The following mitigation measure will reduce the air quality impacts associated with traffic generated by the NQSP, but it will not result in projected daily operational emissions below the YSAQMP significance thresholds. However, the existing air quality is considered non-attainment, therefore, any additional traffic would be considered significant. Further, regardless of where a development like the NQSP is built in the region, the air impacts would be the same as the proposed project.

The following mitigation measures will help to reduce air quality impacts. However, this remains as a significant and unavoidable impact.

Mitigation Measure AQ-M: Convenient access, such as shuttle services, to public transit systems shall be provided to encourage shoppers, employees and visitors to use mass transit, thereby reducing vehicle emissions.

Mitigation Measure AQ-N: Information shall be provided at various locations within the project site about carpool, vanpool, or transit use facilities. Incentives, such as parking stalls for carpool and vanpool vehicles shall also be exercised.

Mitigation Measure AQ-O: Employee trip reduction and other applicable transportation control measures shall be developed. An annual report shall be prepared to document and demonstrate employee trip reduction.

Mitigation Through Land Use Planning and Site Design

Mitigation Measure AQ-P: Mixed land uses will reduce vehicle trips and vehicle miles traveled (VMT). Supportive land uses shall be sited within walking/biking distance of one another.

Mitigation Measure AQ-Q: Support facilities to encourage modes of transportation other than the automobile shall include pedestrian and bicycle pathways.

Mitigation Measure AQ-R: Parking lots, drive-through facilities, and egress/ingress areas shall be designed to reduce vehicle idling. Slow-moving or idling vehicles produce more emissions.

Mitigation Measure AQ-S: Secure, convenient indoor or outdoor bike storage racks shall be provided at commercial centers, office buildings, and other places of employment.

Mitigation Measure AQ-T: Street design standards, including landscape areas between the sidewalk and street, night lighting, safe islands in the center of major arterials, automatic street or pedestrian-activated "walk" signals, and adequate "walk" times, shall be enforced.

Mitigation Measure AQ-U: PM₁₀ emissions shall be reduced by curtailing fugitive dust through effective landscaping, and paving all vehicle roads and parking lots.

Residual Significance: Significant and unavoidable

Impact AQ-5: Stationary sources of air pollution associated with energy generating.

Stationary source emissions would be primarily emissions from electricity and natural gas usage generated by future uses.

Significance: Less than significant

Impact AQ-6: Airborne PM₁₀ from adjacent agricultural operations.

Operation of the proposed project adjacent to active agricultural operations would result in potential incompatibility between employee health and agricultural activities. Fugitive dust generated by machinery operations on adjacent agricultural properties to the north and east of the proposed project could increase the frequency of PM₁₀ standard violations and therefore, result in risks to future employees.

Migration of airborne dust can present health hazards because of the inhaleable characteristics of fine dust particles, and the concomitant health issues of dust particles entering and persisting in lung tissue. Agricultural operations can generate substantial dust through activities such as plowing, cultivating, and harvesting.

Significance: Significant

Mitigation Measure AQ-V: An agricultural buffer is proposed on the east side of the project site.

Residual Significance: Less than significant

Impact AQ-7: Airborne PM₁₀ from adjacent agricultural burning.

Agricultural burning to dispose of dead row crop plants produces substantial amounts of PM₁₀ emissions, depending on the substance being burned. While other methods of field waste elimination, such as disking or shredding, can be employed to eliminate waste materials without burning, such methods are more labor and machinery-intensive and are less effective in suppressing crop parasites. Depending on atmospheric conditions, such as wind speed, wind direction, and precipitation, the amount of PM₁₀ generated could be substantial. The region is already non-attainment for PM₁₀.

Significance: Significant

Mitigation Measure AQ-W: Air pollution control districts regulate the timing and methods of field burning in order to reduce the impact on local and regional air quality.

Mitigation Measure AQ-X: An agricultural buffer is proposed on the east side of the project site.

Residual Significance: Less than significant

4.4.4 CUMULATIVE IMPACTS

Impact AQ-8: Cumulative emissions of ozone (O₃) precursors

The region is non-attainment for O₃. The project, contributing to cumulative development, would add to ROG and NO_x emissions, which are O₃ precursors. The YSAQMD has not projected a date for the attainment of the O₃ standard.

Significance: **Significant and unavoidable**

Future mitigations for employers will help to reduce the cumulative impacts to air quality; however, this remains as a significant and unavoidable impact.

- Mitigation Measure AQ-Y:
- Establish a priority system favoring multi-rider vehicles.
 - Establish parking pricing strategies.
 - Maximize telecommunication, including appropriate network infrastructure.
 - Establish satellite offices when appropriate. (Applicable to office/industrial and educational institutions.)
 - Offer low-cost financing to employees for the purchase of telecommuting equipment or lend company-owned equipment.
 - Provide home-computer link to mainframe computer (via modem) so that employees may complete programming tasks or use computers at home.
 - Employer-sponsored subscription buses to supplement or substitute for public transit service.
 - Provision of shuttle bus service from an employment center to main transit lines, or during lunch hours to provide employees with access to shopping and restaurants.
 - Request minibuses, jitney or other para-transit service within the project.
 - Request improvement and possible relocation of an existing transit stop or station to serve both new and existing surrounding development.
 - Request dedication of bus turnouts or other street designs to accommodate bus travel under the subdivision ordinance.
 - Request amenities to increase the convenience and attractiveness of transit stops; i.e., waiting shelters, benches, secure bike parking, public telephone, and posted bus schedules.
 - Request convenient bus schedules to accommodate unusual schedules.
 - Request free or reduced transit fares for midday central business district trips.
 - Provide free bus transfers, free or low-cost bus fares, and bus transit passes.
 - Request construction of a transit center that will serve the future project and the community.
 - Request development of a park-and-ride lot.

Residual Significance: **Significant and unavoidable**

4.4.5 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Even with the implementation of mitigation measures, the project and the project in conjunction with cumulative future development would generate significant air quality impacts. The YSAQMP significance thresholds would not be attained regardless of where a project of this nature was prepared within this air basin. Therefore, this remains as a significant and unavoidable impact.

4.5 BIOLOGICAL RESOURCES

Vegetation, wildlife, and wetland resources within and surrounding the project site were characterized and assessed using a variety of sources, databases, and field research. A search of the California Natural Diversity Database (CNDDDB) for special status plant and wildlife species was conducted, followed by an extensive review of appropriate literature, and discussions with personnel at the California Department of Fish and Game (CDFG). This information was supplemented with biological field surveys conducted in September and October of 1991. Subsequent to the field surveys, a Biotic Survey and Wetlands Assessment was prepared by Sugnet & Associates which is contained in Appendix G of the Technical Appendices.

4.5.1 ENVIRONMENTAL SETTING

VEGETATION RESOURCES

The project site is located in the southwestern portion of the Sacramento Valley and is typical of valley grassland habitat: agricultural fields, open expanses of annual plants, and few perennial species. Approximately 580 acres of the site are currently in agricultural production containing row crops and orchards. Current crops include tomatoes, oat hay, and alfalfa. Other habitat types present on-site include an orchard, pine grove, irrigated pasture, and a seasonal freshwater marsh as shown on Figure 4.5.1. Several isolated fields were fallow.

These habitats vary in their complexity and specialized environmental conditions. General descriptions of these habitats, their species composition, environmental characteristics and wildlife resources are described below. A list of plant and wildlife species observed on-site is also included in Appendix G of the Technical Appendices.

ROW CROPS

Row crops are actively cultivated and therefore support few natural species. The edges of these fields harbor the greatest plant diversity because they are not as frequently plowed. Although the repeated manipulation of the land is not conducive to most plant and animal species, there are certain opportunistic plants and animals that can survive under these conditions. Many weedy plant species such as field bindweed, Johnson grass, wild oat, and filaree grow in and around the cultivated fields. These species are not particularly desirable but they do provide variety, forage, and cover for wildlife. Most of these species are naturalized annuals (non-native but common components of the Sacramento Valley) and can reproduce over a short period of time.

These cultivated fields are also used by rodents (mostly ground squirrels and deer mice) and rabbits as foraging and nesting habitats. Birds such as crows, blackbirds, mourning doves, finches and sparrows which typically use the fields for foraging. Hawks may also forage in these fields, feeding on rodents, insects or occasionally on small birds.

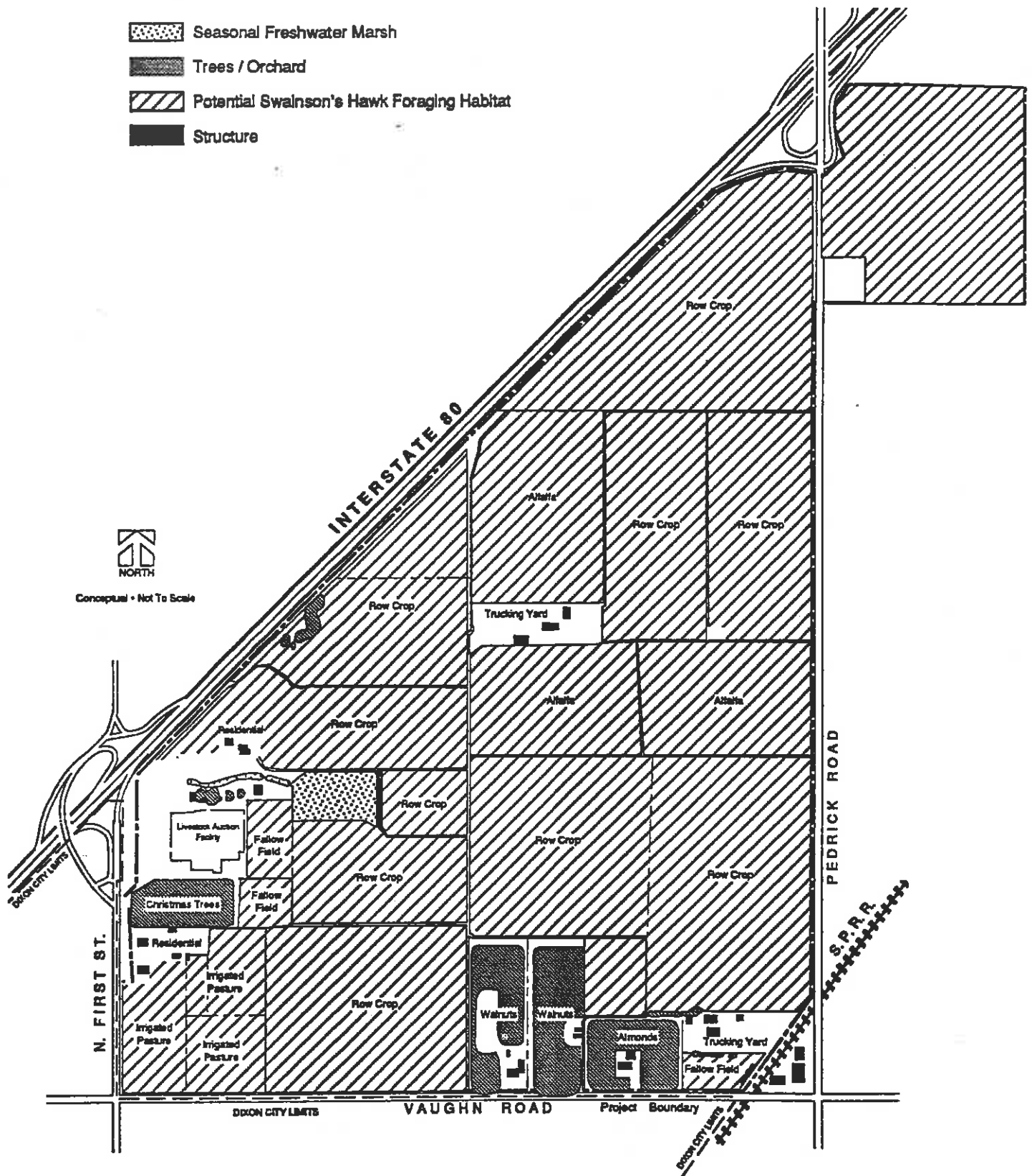


FIGURE 4.5.1
BIOLOGICAL RESOURCES

FALLOW FIELDS

Portions of the project site are currently fallow and harbor several weedy plant species. Habitat value in these fallow areas is similar to, but slightly better than, the cultivated areas. Fallow fields are a more stable environment because they are generally less frequently disturbed and thus allow plants and animals to become more established. Small fallow areas among large disturbed areas may act as refuges for species escaping constant agricultural disturbance. Plant species observed in these areas are essentially the same as in and around cultivated areas.

Bird species utilizing the open areas for food, cover, and/or nesting include the western meadowlark, savannah sparrow, house finch, and killdeer. Raptors including the red-tailed hawk, Swainson's hawk, black-shouldered kite, kestrel, and turkey vulture may also forage over these fallow areas, feeding on rodents, rabbits and insects, although they were not observed during field surveys.

IRRIGATED PASTURES

The southwest portion of the project site is currently used as an irrigated pasture. Bermuda grass and dallisgrass are the dominant plant species. Cattle, horse, and sheep were observed grazing during the field surveys. These fields likely host a similar variety of birds and mammals as do row crop and fallow field habitat.

ORCHARDS AND PINE GROVES

A walnut orchard and two almond orchards are located in the south and southwestern portions of the project site. In addition, a pine grove is located just north of the irrigated pasture. These areas are dominated by a relatively uniform tree cover and an understory consisting of many of the same weedy species found in the cultivated fields. The orchard provides habitat for wildlife species such as common flicker, scrub jay, American crow, white crowned sparrows, and house finches. Squirrels and rabbits are common mammals. Coyotes and other mammals may use orchards for foraging and cover.

SEASONAL FRESHWATER MARSH

In order to determine the nature and extent of wetland related resources occurring within the boundaries of the project site, a wetland assessment was conducted concurrent with a special status species survey during the months of September and October of 1991.

A large contiguous seasonal freshwater marsh covering approximately 5.3 acres area is located in the west central portion of the project site. The marsh area appears to have resulted from grading associated with construction of the I-80 freeway/North First Street Interchange. Excess drainage from the north side of I-80 is conveyed to the site by culverts. The marsh area consists of a long channel-like feature terminating in a rectangular depression (topographical low) where the water tends to accumulate. The wetland is dominated by tall flatsedge and smartweed. The marsh was dry during the fall of 1991 field surveys. Portions of the channel contained cattails and bulrush. To the north, east, and south of the depression area are active row crop production, while to the west is a fallow field currently being used for livestock grazing.

The seasonal freshwater marsh provides habitat for a variety of wildlife species, particularly birds. Species likely to utilize this area on a seasonal basis include red-winged blackbirds, Herons, egrets, and a variety of ducks and shorebirds. Other wildlife species likely to occur here include raccoon, western toad, Pacific tree frog, bullfrog and garter snakes.

SPECIAL STATUS SPECIES

A special status species or habitat survey was conducted for the site in September and October of 1991. Special status species is a broad term used to refer to all the plant and animal species inventoried in the CDFG's Natural Diversity Database, regardless of their legal or protective status. Special plant and animal taxa are species, subspecies, or varieties that fall into one or more of the following categories:

- Officially listed by California or the Federal Government as Endangered, Threatened, or Rare;
- A candidate for state or federal listing as Endangered, Threatened, or Rare under Section 15380(d) of the CEQA guidelines;
- A Bureau of Land Management (BLM), U.S. Fish and Wildlife Service (USFWS) or U.S. Forest Service (USFS) sensitive species;
- Taxa listed in the California Native Plant Society's Inventory of Rare and Endangered Vascular Plants of California;
- Taxa that are biologically rare, very restricted in distribution or declining throughout their range but not currently threatened with extirpation;
- Population(s) in California that may be peripheral to the major portion of a taxon's range but are threatened with extirpation in California; or
- Taxa closely associated with a habitat that is declining in California at an alarming rate (e.g. wetlands, riparian, old growth forests, native grasslands, valley shrubland habitats, vernal pools, etc.).

No special status plant species were identified from the CNDDDB for the project vicinity. This information was verified during the field surveys. Due to the prevalence of intensive agriculture activity in the vicinity, endemic plant species are scarce. Native valley oak trees were not found on the site, but may possibly occur in residential areas of the site that were not intensively surveyed. The valley oak has no state or federal protection, but has been designated as a "plant of limit distribution" (List 4) by the California Native Plant Society (CNPS).

The CNDDDB printouts for the USGS Dixon and Merritt 7.5-minute quadrangles listed four potential special status wildlife species: California tiger salamander, giant garter snake, Swainson's hawk, and burrowing owl. Four other special status species were considered by the CNPS or the U.S. Fish and Wildlife Service (USFWS) to have the potential to occur in the vicinity of the project site, as documented on Table 4.5.1.

CALIFORNIA TIGER SALAMANDER

California Tiger salamander is a Category 2 candidate for federal listing as a threatened or endangered species. Tiger salamanders are found in grassland habitats within one to two miles of water. They use ground burrows during their summer dormancy period but require a water source for breeding. No California Tiger Salamanders were observed to occupy the wetland area of the project site during the field surveys.

BLACK-SHOULDERED KITE

The black-shouldered kite is designated as a CDFG species of special concern. The species prefers open country adjacent to woodlands, and may often be found in open agricultural or grassland habitats. They typically nest in trees or tall shrubs adjacent to open foraging habitat that includes grasslands and alfalfa fields where they prey upon voles and other small

prey. The on-site row crops are suitable foraging habitat; however, no black-shouldered kites were observed during field surveys.

TABLE 4.5.1
SPECIAL STATUS SPECIES IN THE AREA *

TARGET SPECIES	STATUS FEDERAL/STATE/CNPS	HABITAT
FLORA:		
Valley oak (<i>Quercus lobata</i>)	-/-/4	valley/foothill grassland
FAUNA:		
California tiger salamander (<i>Ambystoma californiense</i>)	C2/CSC	annual grassland valley/foothill hardwood (understory), stream courses
Black-shouldered kite (<i>Elanus caeruleus</i>)	-/*	riparian/woodland (nest): savannah/grassland (forage)
Swainson's hawk (<i>Buteo swainsoni</i>)	-/ST	open grassland (forage); mature trees (nest)
Northern harrier (<i>Circus cyaneus</i>)	-/CSC	marsh/grassland
Burrowing owl (<i>Athene cunicularia</i>)	-/CSC	open grassland (rodent burrows)
Tri-colored blackbird (<i>Agelaius tricolor</i>)	C2/-	nesting; marsh/riparian scrub
Giant garter snake (<i>Thamnophis couchii gigas</i>)	C2/ST	slow moving bodies of water

- C2 Category 2 Candidate for Federal listing (Taxa for which existing information indicates may warrant listing, but for which substantial biological information to support a proposed rule is lacking).
 FT Federally listed, threatened.
 CE State listed, endangered.
 ST State listed, threatened.
 CSC California Department Fish and Game "Species of Special Concern"
 4 Plant of limited distribution.

- Falls into one or more of the following categories:
- Taxa considered endangered or rare under Section 15380(d) of CEQA guidelines.
- Taxa that are biologically rare, very restricted in distribution, or declining throughout their range.
- Population(s) in California that may be peripheral to the major portion of a taxon's range, but which are threatened with extirpation within California.
- Taxa closely associated with a habitat that is declining in California at an alarming rate (e.g., wetlands, riparian, old growth forests, desert aquatic systems, native grasslands).

*Based on data obtained by the California Department of Fish and Game's Natural Diversity Data Base (NDDB) and lists from the California Native Plant Society (CNPS) and the U.S. Fish and Wildlife Service (USFWS)

SWAINSON'S HAWK

The Swainson's hawk is a Buteo or soaring hawk, unique among California raptors in that its migration spans from the Central Valley to South America. It migrates to the Central Valley region in late March and early April to nest, then returns to the pampas of Argentina and neighboring countries for the fall and winter periods (USFW, 1990).

The Swainson's hawk is a state-listed threatened species inhabiting open grassland and agricultural habitats of the Central Valley. It is believed that loss of native habitat is one of the major causes for the 90 percent decline of this species in California. The CNDDDB lists numerous sightings within the project vicinity over the last 10 years, and at least one pair was known to have nested during 1991 along Pedrick Road within a mile of the site. Nesting pairs are also known from the Putah Creek and Willow Slough areas where the highest nesting densities in the state occur. Since the hawk may forage at least 10 miles out from its nest, any suitable foraging cover including alfalfa, grassland, and most row crops (excluding rice) within a 10-mile radius of a known nest is considered Swainson's hawk habitat. As identified by the CDFG, this project is located within 10 miles of known nest sites.

NORTHERNHARRIER

The Northern harrier is a CDFG species of special concern. It is associated with marsh and grassland habitats. While this species was not observed during the survey, it may forage in the grassland patches, open agricultural lands, and wetland areas of the project site. No suitable nesting habitat was observed to occur within the boundaries of the project site.

BURROWING OWL

The burrowing owl is designated by CDFG as a second-priority species of special concern. This designation indicates that this species is declining in a large portion on its range in California, however, populations are still sufficiently large that danger is not immediate. This species lives and breeds in burrows, typically in abandoned ground squirrel colonies. Optimal habitat conditions include dry, open, and nearly level grasslands or prairies. No burrowing owls were observed during the on-site field survey.

TRI-COLORED BLACKBIRD

Tri-colored blackbird is a Category 2 candidate species for federal listing. Its preferred nesting habitat is freshwater marsh, but it may also nest in riparian scrub and giant reed grass among other nesting substrates. Foraging habitat includes wetlands and adjacent agricultural or grasslands. The cattail area in the wetland channel represents marginal but potential nesting habitat for the tri-colored blackbird. However, none were observed during the field survey.

GIANT GARTER SNAKE

The giant garter snake is a Category 2 candidate for federal listing as a threatened or endangered species. It is also a state-listed threatened species. This snake inhabits tules, cattails, and banks of irrigation canals. The CNDDDB lists sightings of the snake along Putah Creek in Davis. Any irrigation canal supporting a fish population as a food base may be considered potential habitat. No water habitat exists on the site that would support a fish population, and giant garter snakes were not observed to occupy the project site during the field surveys.

4.5.2 THRESHOLD SIGNIFICANCE

The following significance criteria was considered when determining the significance of the proposed project with regard to biological impacts. Impacts to vegetation, wildlife, and wetland resources were considered to be significant if the proposed project:

- substantially affects a special-status plant or animal species or the species' habitat;
- interferes substantially with the movement of any resident wildlife species;
- substantially affects, reduces the number of, or restricts the range of an endangered species of animal, or the habitat of the species;
- substantially diminishes the acreage or value of local habitat for wildlife or plants;
- deteriorates existing wildlife habitat;
- adversely affects significant riparian lands, wetlands, or other wildlife habitats; or
- results in filling a jurisdictional wetland.

4.5.3 ENVIRONMENTAL IMPACTS AND MITIGATIONS

VEGETATION RESOURCES

Impact B-1: Project will result in the displacement of existing vegetation.

Because the majority of the area is currently in row crops, the greatest disruption will occur to the occupants of these areas. Generally, the plant species that occupy Central Valley row crop areas are common and opportunistic. No special status species were identified from the CNDDDB for the project vicinity. The vast majority of plant species are weedy annuals that grow in similar situations. A widespread seed bank exists for most of these species throughout the Sacramento Valley. Development will not have a significant impact on these species.

Significance: Less than significant

Impact B-2: Proposed project will result in the removal of agricultural vegetation.

Implementation of the proposed project would remove all agricultural vegetation on the site, including: row crops, fallow fields, irrigated pasture, orchards, and a pine grove. This will not effect any special status plants or habitats.

Significance: Less than significant

SEASONAL FRESHWATER MARSH

Impact B-3: Project will result in the alteration of a seasonal freshwater marsh.

Implementation of the proposed project may alter the present on-site 5.3-acre seasonal freshwater marsh. Degradation or fill of this habitat may be subject to Section 404 of the Clean Water Act and Section 1603 of the CDFG Streambed Alteration Code. A detailed wetland delineation should be conducted to precisely define wetland boundaries and acreages.

Significance: Significant

Mitigation Measure B-A: Where practicable, the wetlands area should be avoided through land use planning.

Mitigation Measure B-B: Preserved wetlands area should be protected from development by a buffer or easement, so that the wetland continues to function in a natural state. Buffer widths would vary depending upon final configuration of adjacent proposed land uses. The wetlands area and buffer shall be dedicated as an open-space easement which prohibits structures, grading, and filling activities.

In general, the following standards shall apply to the buffer and preserved wetlands area:

- All sprinkler systems shall be designed so that no direct irrigation water reaches any portion of the preserve. Grass-lined swales shall be constructed at the margins of all turfed and irrigated areas that slope toward the buffer in order to intercept and prevent irrigation water from flowing into the wetlands area.
- No mowing shall be allowed to occur in a wetland easement.
- Surface water runoff from any paved surface shall be directed away from any intermittent tributary or swale which carries water to a wetland.

Mitigation Measure B-C: If the removal or total destruction of the marshland area is unavoidable as a result of the project, it may be required that the impacted wetland be mitigated at a 1:1 ratio so that no net loss of wetland habitat occurs. On-site mitigation is preferable, although off-site mitigation may be allowed.

Residual Significance: Less than significant

WILDLIFE RESOURCES

Impact B-4: Project will cause a disturbance to wildlife resources.

Wildlife populations, other than species with special status, would be impacted to a greater extent during the grading phase of the project. Direct and indirect impacts would include removal of existing vegetation and agriculture from the site, some of which would be replaced by landscaping, landscape buffers, drainage and detention basins, and agricultural buffers. The noise and other human disturbances associated with development would cause avoidance of the site by certain wildlife species including rodents, ground squirrels, rabbits and deer mice. It is expected that the existing impacted wildlife would move to other non-disturbed lands adjacent to the site.

Many birds including crows, blackbirds, mourning doves, finches and sparrows would continue to utilize the project site, especially those that migrate through the area on their way to other locations. However, there would be a reduction of year-around resident birds due to the loss of vegetation and agriculture. Once the project site is fully developed, sufficient habitat on-site and adjacent to the project site would be utilized by some of these birds.

Reptiles on the project site would be directly impacted. A certain percentage of these animals would be destroyed by bulldozers and other heavy equipment during grading activities. The

remainder of reptiles in the area would be displaced and would either utilize adjacent undisturbed land or die. Some may become available as food for raptors and other wildlife. These disturbed species are not considered significant under the definition of a threshold of significance.

Significance: Less than significant

SWAINSON'S HAWK

Impact B-5: Disturbance to Swainson's hawk habitat.

Implementation of the proposed project would convert approximately 460 acres of potential foraging habitat for the state-listed Swainson's hawk to development.

Because the project site is located within a 10-mile radius of multiple Swainson's hawk nest sites, the CDFG may consider construction within the project area a significant impact to Swainson's hawk foraging habitat. The CDFG considers foraging habitat "necessary to maintain the reproductive effort" and its destruction as a "take" under the California Endangered Species Act (CESA).

For additional information on Swainson's hawk, please refer to Appendix G of the Technical Appendices which contains the CDFG's current Draft Mitigation Guidelines for Swainson's hawk in the Central Valley of California.

Significance: Significant

Mitigation Measure B-D: A breeding survey shall be conducted between April and July in order to:

- Determine if the species nest on the project site;
- To develop appropriate mitigation measures, which may include a 1:1 replacement ratio of impacted foraging habitat. This replacement habitat should include alfalfa and row crops such as tomatoes, oats, wheat, barley, and sugar beets.

Mitigation Measure B-E: Future development shall participate in a County-wide Habitat Management Plan.

Residual Significance: Less than significant

TIGER SALAMANDER

Impact B-6: Project may cause a disturbance to California tiger salamander habitat.

The wetlands area on the project site is potential habitat for the California tiger salamander, and the species is known to occur in the Dixon area.

Significance: Significant

Mitigation Measure B-F: A field survey shall be conducted during the spring months in order to:

- Determine if the species occurs on the project site;
- To develop appropriate mitigation measures.

Residual Significance: Less than significant

Impact B-7: Project may result in a disturbance to habitat of the northern harrier, black-shouldered kite and tri-colored blackbird.

Development of the proposed project would eliminate the potential foraging habitat for other special status bird species including the northern harrier, black-shouldered kite and tri-colored blackbird. However, these species were not observed foraging on the project site during the field surveys.

Significance: Potentially significant

Mitigation Measure B-G: Future development shall participate in a County-wide Habitat Management Plan addressing the loss of potential foraging habitat.

Residual Significance: Less than significant

4.5.4 CUMULATIVE IMPACTS

Impact B-8: Project will contribute to a cumulative loss of seasonal freshwater marsh.

Cumulative development in the Dixon area would result in the conversion of seasonal freshwater marshes and wetlands. The project's potential loss of 5.3-acres of seasonal freshwater marsh habitat is only a small part of cumulative losses. However, the Corps of Engineers and CDFG require a minimum of a 1:1 replacement ratio if protected wetlands are disturbed or destroyed by development.

Significance: Less than significant

Impact B-9: Project will contribute to a cumulative disturbance to Swainson's hawk habitat.

Cumulative development would further disturb the breeding habitat of the Swainson's hawk, thereby contributing to the reduction of its population. The proposed project is located in part of the Swainson's hawk breeding range.

However, the CDFG requires development projects which impact the species habitat to enter into an agreement to ensure adequate mitigation. This is accomplished through a 1:1 replacement ratio of land to be dedicated as Swainson's hawk foraging habitat, or through participation in a CDFG County-wide Habitat Management Plan (CHMP) with other development projects. Therefore, the implementation of mitigation measures B-D and B-E will minimize the cumulative loss to Swainson's hawk foraging habitat.

Significance: Less than significant

4.5.5 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Impacts to seasonal freshwater marshes and species of special concern have been *mitigated to a level below significance* with implementation of the recommended mitigation measures in Section 4.5.3 and 4.5.4.

4.6 CULTURAL RESOURCES

Archaeological and historical investigations of the project site were conducted by Peak & Associates, Inc. in April and May of 1993. The survey technique employed included complete coverage. The project site was walked in parallel transects with no more than 20 meters of space between the members of the field team. Although most of the land is in agricultural use, visibility was generally good because crops had either been just harvested or the fields had just been prepared for planting. Areas that have received too much impact to merit inspection included two large excavated pools, a razed motel, and the livestock auction yard.

Because of the potential for buried sites, historic maps were consulted to identify former waterways and to assist the field study and guide recommendations for future work. A complete copy of the Cultural Resources Assessment prepared by Peak & Associates, Inc. is contained in Appendix H of the Technical Appendices.

4.6.1 ENVIRONMENTAL SETTING

The 643 acre project site is located on the lower alluvial plains of the Dudley and Putah Creek drainageways on the western margin of the Sacramento Valley. According to a records and literature review performed by the Northwest Information Center of the Archeological Sites Inventory at California State University, Sonoma, (September 1991) no formal cultural resources inventory has been conducted on-site, or in the immediate vicinity of the project area and no prehistoric resources recorded in the project vicinity. However, the project is in an area which is inherently difficult to evaluate for potential impacts to prehistoric-era cultural resources because of the far-reaching impacts caused by intensive agricultural activities.

The old slough system in the vicinity of the City of Dixon was once an area of Native American occupation, as evidenced by the recent discovery of a major site with minimal to no surface evidence two miles west of the project site. Archeologically sensitive areas such as old water courses are often now invisible due to the pervasive and intensive grading, plowing and other earthworks conducted for agricultural purposes. Given the conditions as described above, there is a moderate possibility of prehistoric cultural resources existing on-site.

ETHNOLOGY

The Patwin group occupied the lower western half of the Sacramento Valley where the project site is situated. Patwin territory extended approximately 90 miles north to south and 40 miles east to west. Distinction is made between the River Patwin who resided in large villages near the Sacramento River, and the Hill Patwin, whose villages were situated in the small valleys along the lower hills of the Vaca Mountains and Coast Range, with concentrations in Long, Indian, Bear, Capay, Cortina, and Napa Valleys. Together, these two groups are classified as southern Wintuan and belong to the Penutian language family as do the languages of the Miwok and Costanoan peoples.

Patwin territory includes the riverine environment of the tule marshes, vines, and brush near the Sacramento River, the flat grasslands dotted with oak groves, and the hills and small valleys of the Coast Ranges. The villages situated on small bluffs near the river were often very large, estimated upwards at 1,000 residents. In the hills, the Patwin settled in the small valleys, particularly at Cache and Putah Creeks, where large populations were reported. The

plains were least hospitable there, villages were sparse because of winter flooding and lack of reliable water sources during the dry months.

Historical accounts of the Patwin include the early mission registers of baptisms, marriages, and deaths of Indians taken to Mission Delores and Mission San Jose as early as 1800. In 1823, Mission San Francisco Solano was established in nearby Sonoma until about 1836 when all the missions were secularized. During this time, several Mexican land grants were awarded and large ranchos were established on Putah and Cache Creeks.

HISTORY

The history of the region around the City of Dixon is associated with agriculture. The development of the area centered on the development of farms and the transportation facilities necessary to bring farm produce to market.

An early settler in the vicinity was Elijah Silvey, who settled on property on the old road from Napa to Sacramento in 1852. He built a house and corral (he had established a herd of about 100 milk cows) which became a waystation on the road. Eventually a trade center named Silveyville developed around the spot. This was short-lived as the whole community was moved five miles east to the line of the railroad upon its construction in 1868. The name lives on in the designation of Silveyville Township, but the town quickly disappeared after the establishment of Dixon as the main freight depot in the area. The Silveyville post office was discontinued in 1871.

The town of Dixon was originally to have been named Dickson after Thomas Dickson who donated 10 acres for the town site and freight depot. Possible explanations for the change in spelling of the town's name include an error by the postal service, or the first freight sent to the new depot was labeled Dixon. In any event, the correct spelling is retained in the name of the creek that borders the townsite on the north and the east. Dixon grew as a shipping and marketing point for the extensive agricultural industry that developed in Solano County.

The project vicinity, being convenient to the new station, went into agricultural production in short order. The county map of 1890 shows all the land around Dixon in private ownership, mostly in 160-acre parcels. The 1906 USGS map, however, shows very few residences outside the town limit, indicating agriculture and pasturage were the primary land uses.

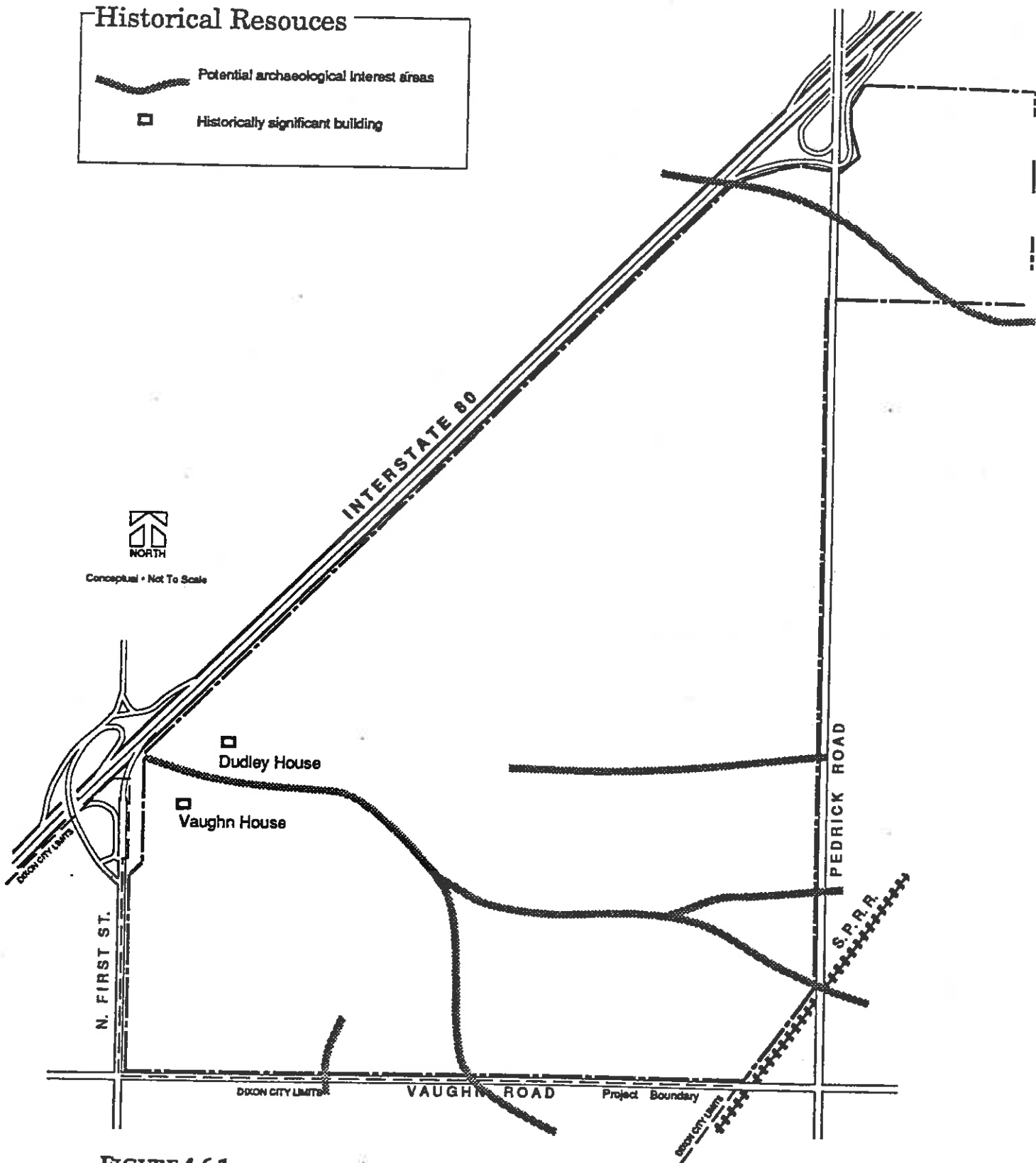
EXISTING PREHISTORIC AND HISTORIC RESOURCES

Comparing the current inventory of structures found on-site with those depicted on a 1952 USGS map version reveals that only 14 of 26 structures currently present were built prior to 1952. Comparison with a 1906 USGS map shows that none of the current buildings were present at that time.

No known prehistoric resources exist on the project site. However, old water courses on the site indicate potential archaeologically sensitive areas (see Figure 4.6.1) which will require individual analysis as specific projects are developed.

Vaughn House

The State Office of Historic Preservation lists a structure known as the "Vaughn House," located on-site along North First Street on the Historic Properties Directory (see Figure 4.6.1). The citation for the Vaughn house (prepared by Pamela McGuire) denotes an estimated date of construction of 1910. Mr. Bill Seidel of the Office of Historic Preservation stated that the



**FIGURE 4.6.1
HISTORIC RESOURCES**

"Vaughn House" was originally cited in a historical survey for the Dixon area. The historical survey in which the Vaughn House appears, states that it is "eligible for local listing". This designates the property as a discretionary local issue.

DUDLEY RESIDENCE

Similarly, the Dudley residence, a house built for the daughter of the founder of the City of Dixon in the 1870's and relocated to the project site around 1911, is situated in the northwest corner of the project site (see Figure 4.6.1). Although this residence does not qualify for state or national historical significance, it also may be eligible for local listing as established by the city or county.

Since several structures are shown within the specific plan site boundaries on the 1952 Dixon USGS topographic quadrangle, archeological deposits and/or structural remains reflecting settlement and early commercial activities may exist within the specific plan area.

With exception of the two historic buildings, no significant cultural resources were identified on the surface of the project area. No evidence of prehistoric occupation or use of the project site was found.

4.6.2 THRESHOLD SIGNIFICANCE

Appendix K of the CEQA Guidelines lists the criteria to be utilized for evaluating cultural resources for CEQA projects. Under CEQA, important cultural resources are those that are either listed upon or eligible to be listed on the National Register of Historic Places (NRHP); registered or eligible to be listed as a State Historical Landmark; or included in any responsible inventory of historic properties.

The following significance criteria described below was considered when determining the significance of development of the proposed project. A cultural and/or historic resources impact was considered to be significant if the proposed project would:

- disrupt or adversely affect a prehistoric or historic archeological site;
- disrupt a property of historic or cultural significance to a community or ethnic or social group; or
- disrupt a structure that embodies the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant or distinguishable entity whose components may lack individual distinction.

4.6.3 ENVIRONMENTAL IMPACTS

PREHISTORIC RESOURCES

Impact C-1: Potential damage to undiscovered cultural resources.

Implementation of the proposed project would not destroy a known archeological resource since no recorded prehistoric archeological resources have been found within the specific plan area. In addition, the project site was intensively surveyed and no prehistoric archeological sites were identified.

Although the specific plan site area is of moderate archeological sensitivity, it is not surprising, given the long history of agriculture in the area, that there was no positive finding

for archeological evidence as resulting from the field surveys. In particular, land leveling and filling of the old sloughs would very likely obscure surface evidence if present. However, as with most projects involving earthwork, there is the potential that prehistoric resources might be uncovered during construction.

Significance: Potentially Significant

Mitigation Measure C-A: Consultant with qualified archaeologist if buried archaeological deposits are discovered during construction.

Residual Significance: Less than significant

HISTORIC RESOURCES

Impact C-2: Construction of the project will result in destruction of Vaughn House.

Implementation of the proposed project would destroy the Vaughn residence which is listed on the California Register of Historic Structures.

Significance: Significant

Mitigation Measure C-B: Future development shall be required to preserve, avoid, or relocate the Vaughn House to a new location. If neither avoidance nor moving the structure is ultimately feasible for the Vaughn House, then the structure shall be fully recorded before demolition.

Residual Significance: Less than significant.

Impact C-3: Construction of the project will result in destruction of Dudley House.

Development of the proposed specific plan would affect the Dudley residence. However, this impact is not, however, considered to be significant because the structure has been relocated from its original location and it is not listed on the California Register of Historic Structures.

Significance: Significant

Mitigation Measure C-C: Future development shall be required to preserve, avoid, or relocate the Dudley House to a new location. If neither avoidance nor moving the structure is ultimately feasible for the Dudley House, then the structure shall be fully recorded before demolition.

Residual Significance: Less than significant.

4.6.4 CUMULATIVE IMPACTS

Impact C-4: Cumulative impact to archaeological and historic resources.

Impacts to prehistoric archeological sites and historic resources are specific to the development of each site but are part of the cumulative loss of cultural resources. As such, development of the project area would contribute to the cumulative impact on resources. The City of Dixon, Solano County, and other state agencies have policies for protection and require adequate survey and mitigation to avoid such impacts to these resources.

Significance: **Less than significant**

4.6.5 LEVEL OF SIGNIFICANCE

Implementation of the mitigation measures identified in Section 4.6.3 will reduce all potential impacts to cultural resources to a less-than-significant level.

4.7 TRANSPORTATION, CIRCULATION, AND ACCESS

This analysis of the transportation, circulation, and access characteristics of the proposed project is compiled from the Northeast Dixon Specific Plan Traffic Analysis, Fehr & Peers Associates Inc., March 18, 1994, the City of Dixon, Environmental Assessment of the Hearing Draft General Plan, Responses To Comments, Appendix A, Traffic Analysis, Duncan & Jones, October 29, 1993 and the 1991 Solano Congestion Management Program, Solano Transportation Authority. A summary of these reports is presented below. The full report of the Fehr & Peers Associates traffic reports, and Environmental Assessment are available at the City of Dixon Planning Department.

The section begins with a description of the existing conditions in the vicinity of the project and generally throughout the city, providing the quantitative basis for analysis of future conditions. This is followed by a description of transit related facilities, programs and road network improvements that are approved but not yet implemented or built. This portion is intended to establish the cumulative conditions as they are and will be irrespective of the proposed project or any other projects not yet approved by the City of Dixon.

The EIR also provides a description of the project, including the circulation concepts incorporated in the specific plan, and quantification of the project traffic characteristics apart from any other development. This is followed by an analysis of the traffic impacts of the existing traffic plus the project traffic, cumulative conditions without the project, as well as the existing traffic, plus project traffic, plus cumulative traffic projected to the year 2010.

For each traffic input identified, the level of significance is defined, and mitigation measures are established as appropriate.

The methodology for the development of traffic forecasts was set by the City of Dixon in order to maintain consistency with the assumptions used for the General Plan analysis. The City's direction for assumptions on traffic forecasts are outlined in a memorandum from J. Daniel Takacs, P.E., Consulting Traffic Engineer, September 30, 1993. This memo includes direction on a variety of assumptions including trip generation, distribution, and floor-to-area ratios.

Traffic forecasts were developed for the following scenarios:

- Existing Conditions - Existing conditions were based on traffic data provided from the Preliminary Circulation Element of the Northeast Dixon Specific Plan, Fehr & Peers Associates, Inc., March 18, 1994.

- Existing plus Project Conditions - Projected-generated traffic was manually added to the existing traffic volumes based on trip generation and distribution assumptions prescribed by the City of Dixon.
- Cumulative Conditions without the Project - Forecasts were provided by the City of Dixon which included the following assumptions regarding the other proposed developments in the City: 100 percent of the residential units and 80 percent of the non-residential development in the South park and the Southwest plan areas.
- Cumulative Conditions with the Project - Projected-generated traffic was manually added to the traffic projections for Cumulative Conditions without the project. Site traffic was generated and distributed based on assumptions prescribed by the City of Dixon for cumulative conditions.

4.7.1 ENVIRONMENTAL SETTING

EXISTING CONDITIONS

The area surrounding the proposed specific plan is largely undeveloped. Therefore, the current traffic volumes at the intersections and on the roadways are relatively low and most of the circulation network operates well.

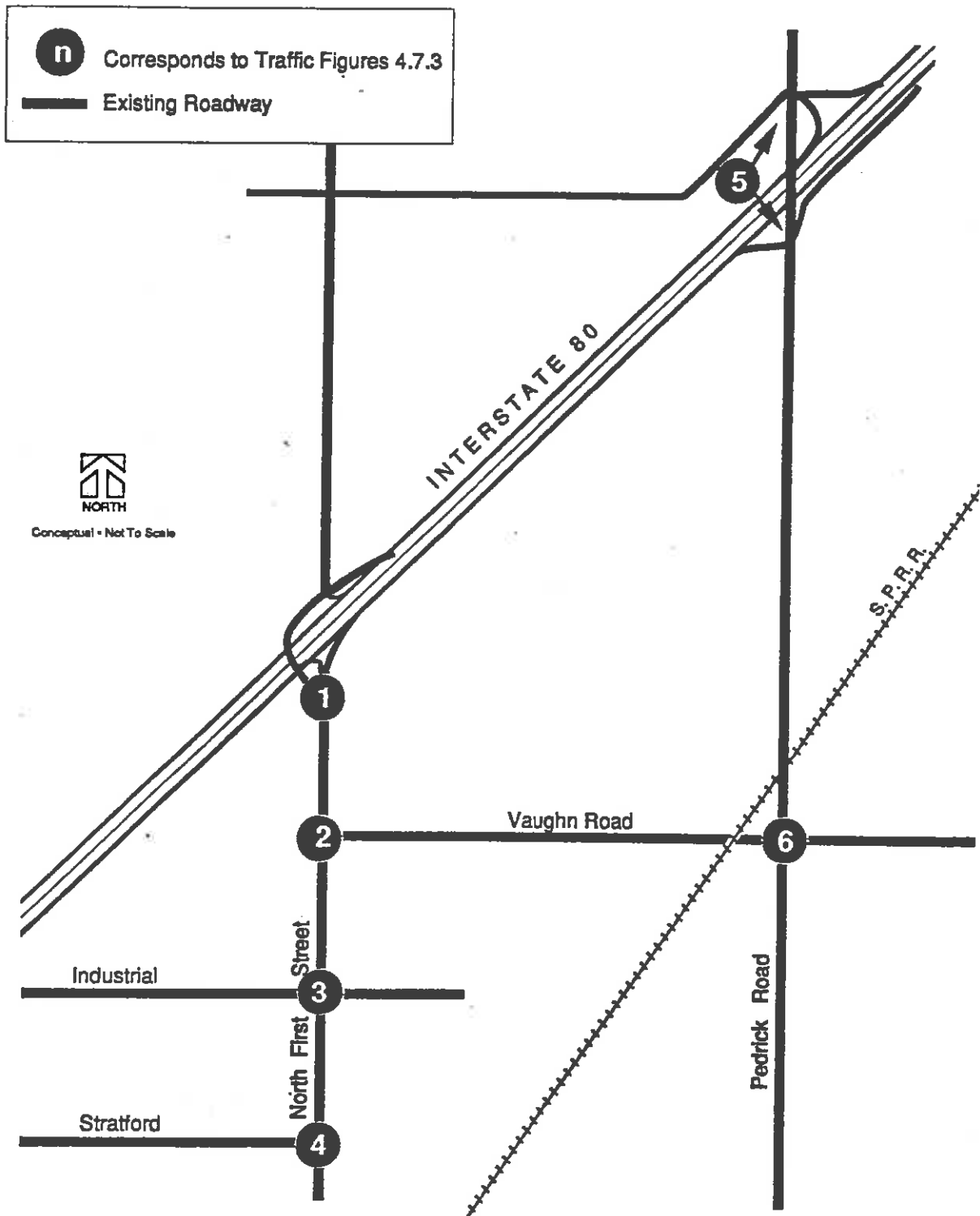
Overview of Street System

Traffic conditions on city and county roads as well as the state highway system in the vicinity of the proposed project are influenced by commuter travel patterns and by travel to and from regional destinations and attractions. In general, regional circulation in the area is composed of one major east-west facility (Interstate 80) with north-south circulation limited due to local two-lane roads. Interstate 80 (I-80) provides regional access to the project site and will serve as a primary route for project-generated traffic to and from the area. Pedrick Road and North First Street both provide north-south circulation including access to the project site with interchanges at I-80. Vaughn Road is a local two-lane road paralleling the southern boundary of the NQSP area, providing access between North First Street and Pedrick Road. Interstate and local streets are shown on Figure 4.7.1.

Existing Roadways

The local street system in Dixon is primarily developed within a north-south/east-west grid system. North First Street, the west boundary of the project area, begins at I-80 and extends south as the main commercial street in the city of Dixon. North First Street, also designated State Route (SR) 113, currently carries approximately 7,500 daily vehicle trips north of Vaughn Road and 8,800 daily trips north of Stratford Avenue⁽¹⁾. Pedrick Road a north-south road is the east boundary of the majority of the land within the project area. This street begins as Road 98 north of Woodland (Yolo County) and runs south becoming Pedrick Road at the Solano County line. The road then crosses I-80, passing by the specific plan area, and then continues south ending at Main Prairie Road south of Dixon. The current volume of traffic on this road ranges from 1,500 to 2,000 daily trips near the project. Vaughn Road is an east-west road which begins at North First Street and ends east to Runge Road. It currently carries approximately 650 daily trips.⁽¹⁾ (Fehr & Peers Associates, February, 1993)

(1) Daily traffic volumes on the study roadways were estimated by factoring the PM peak hour volumes.



**FIGURE 4.7.1
PROJECT INTERSECTIONS**

Existing Intersections

Six existing intersections were identified by the City of Dixon for analysis of this project. This includes: 1) I-80 Interchange/North First Street (I-80 eastbound ramp and I-80 westbound ramp/Curray Road); 2) North First Street/Vaughn Road; 3) North First Street/Industrial Way; 4) North First Street/Stratford Avenue; 5) I-80 Interchange/Pedrick Road (I-80 westbound ramp and I-80 eastbound ramp); 6) Pedrick Road/Vaughn Road. Fehr & Peers Associates conducted AM and PM peak hour traffic counts at the six existing intersections, all of which are currently unsignalized. Figure 4.7.2 shows the location of each study intersection and Figure 4.7.3 illustrates the existing AM and PM peak hour turning volumes at the study intersections.

Interstate 80

Interstate 80 is a major inter-regional freeway that serves as the northern boundary of the project site. It connects the San Francisco Bay Area with Sacramento and other major cities across the western portion of the United States. In the vicinity of the project, I-80 currently has three lanes in each travel direction. According to *1992 Traffic Volumes on California State Highways*, Caltrans, 1993, this section of I-80 serves approximately 90,000 vehicles per day, with 8,600 traveling during the peak hour.

Existing Transit Services

The City of Dixon currently is not served by regularly scheduled public transit service; however, the city operates a general public dial-a-ride system (Readi-Ride). The service operates within the city limits and, to a limited extent, to immediately adjacent unincorporated areas. Ridership consists of primarily school-aged children, handicapped residents, and seniors. Approximately 100 trips per day are typically provided. CITYLink intercity transit service provides public bus service to the cities of Vacaville, Fairfield, and Davis. Morning, mid-day and late afternoon service are provided by CITYLink with two regular bus stops in Dixon. Connecting transit service to the Bay Area is available in Fairfield and connecting service to Sacramento is available in Davis.

Existing Rail Services

The Southern Pacific Railroad (SPRR) provides freight service to the City of Dixon. Rail passenger service is not provided to the city, although passenger trains utilize the rail line through the area. The SPRR right-of-way crosses the southeast corner of the project site. Amtrak services from the Bay Area to the Sacramento Region has already been implemented with three eastbound and three westbound commuter trains per day. Presently, the closest station is located in Davis approximately eight miles to the east.

Existing Transportation System Management

The City of Dixon Trip Reduction Ordinance (Ordinance Number. 9203) establishes Transportation System Management (TSM) requirements for employers in the city. The primary objective of the program is to reduce traffic congestion and vehicle emissions by reducing peak period traffic. Employers with 25 or more employees are required to post information concerning the availability and benefits of alternative commute modes, and to designate a Transportation Coordinator to coordinate with local transit and ridesharing

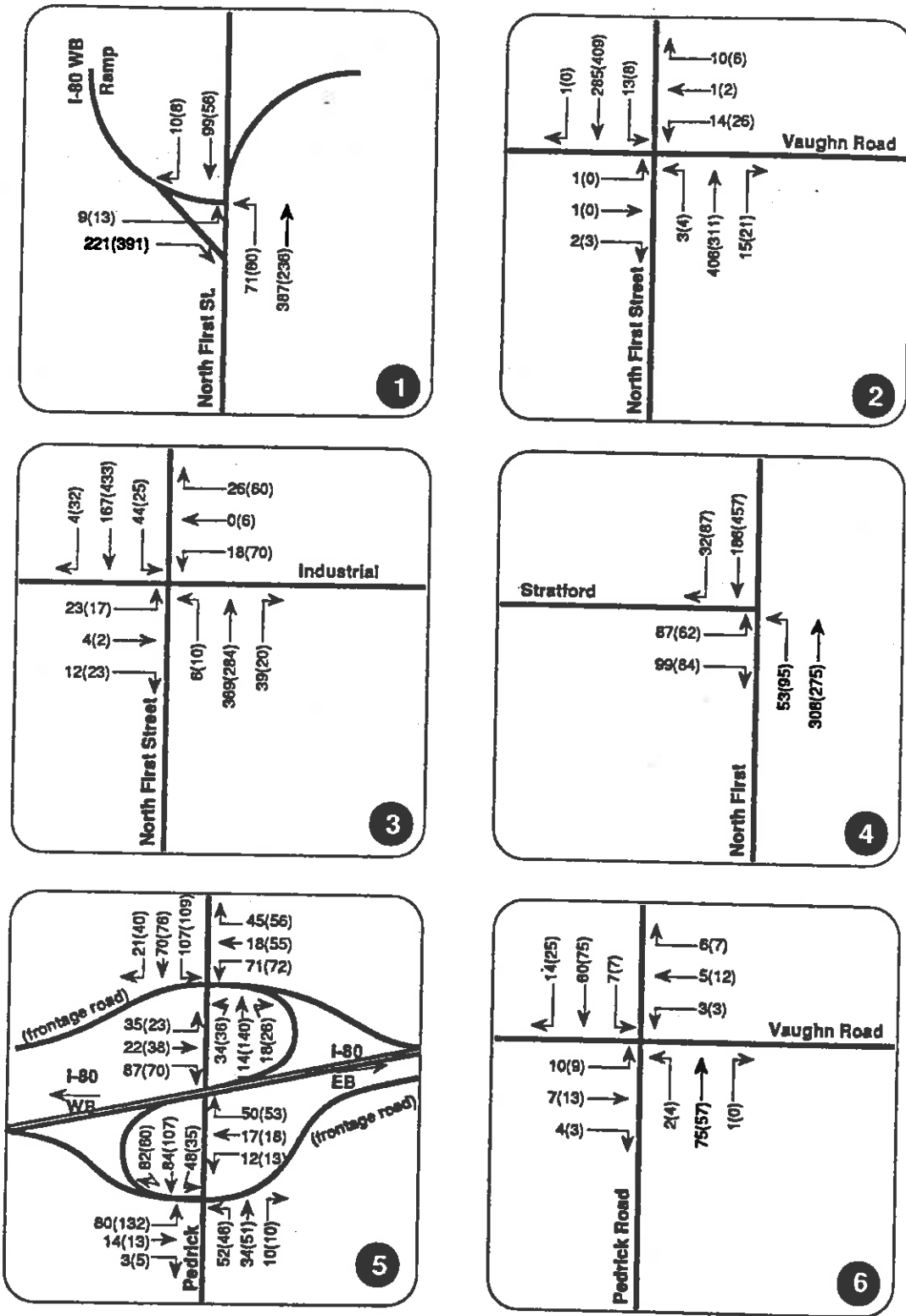
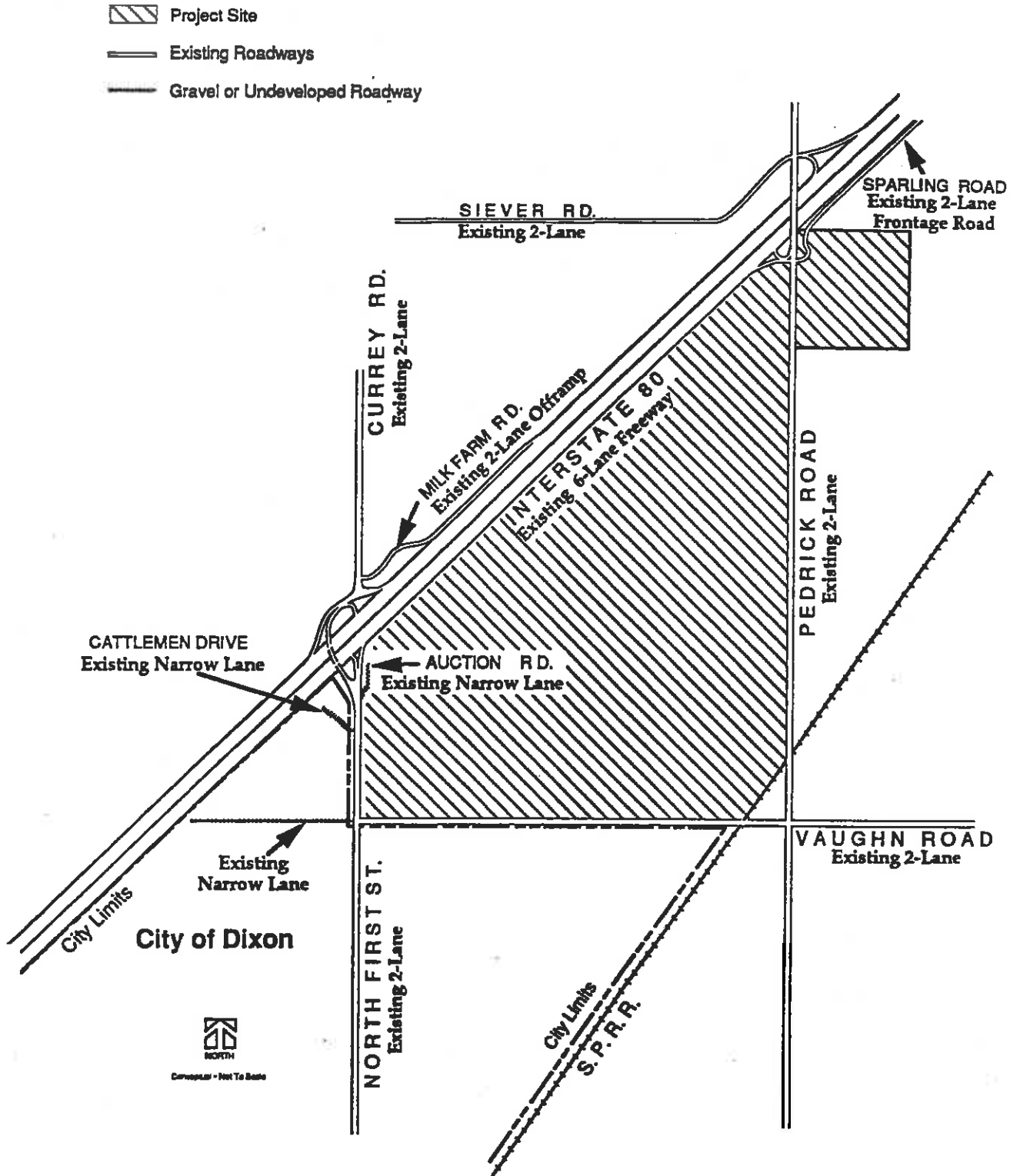


FIGURE 4.7.2
CURRENT PEAK HOUR TURNING VOLUMES



**FIGURE 4.7.3
EXISTING ROAD SYSTEM**

agencies. Employers of 100 or more employees are also required to file a Transportation Management Plan (TMP) which includes a description of TSM measures that will be implemented by the employer during the following year and a status report on current employee commute modes.

Trip reduction ordinances will attempt to effect a 25 percent reduction in commute trips. There are a number of TSM measures which can be implemented, as part of the TMP, to achieve a 25 percent reduction in commuter trips which may include:

- Distribution of information on alternative modes of travel (busses, bicycles, etc.) to employees within the project site.
- Carpool and vanpool matching services to assist employees with similar origins, destinations, and schedules in finding other employees with whom to share a ride.
- Showers and lockers at employee locations to encourage pedestrian and bicycle commuting.
- Designation of an on-site TSM coordinator to assist in disseminating information and monitoring the status of any transportation management activities.

PLANNED CONDITIONS

Planned Roadway Improvements

Although certain road improvements are not currently in place, they are planned to be completed within the time frame of the development of the proposed project. These improvements will be completed irrespective of whether the proposed project ever occurs, therefore the planned improvements are identified as part of the project existing conditions.

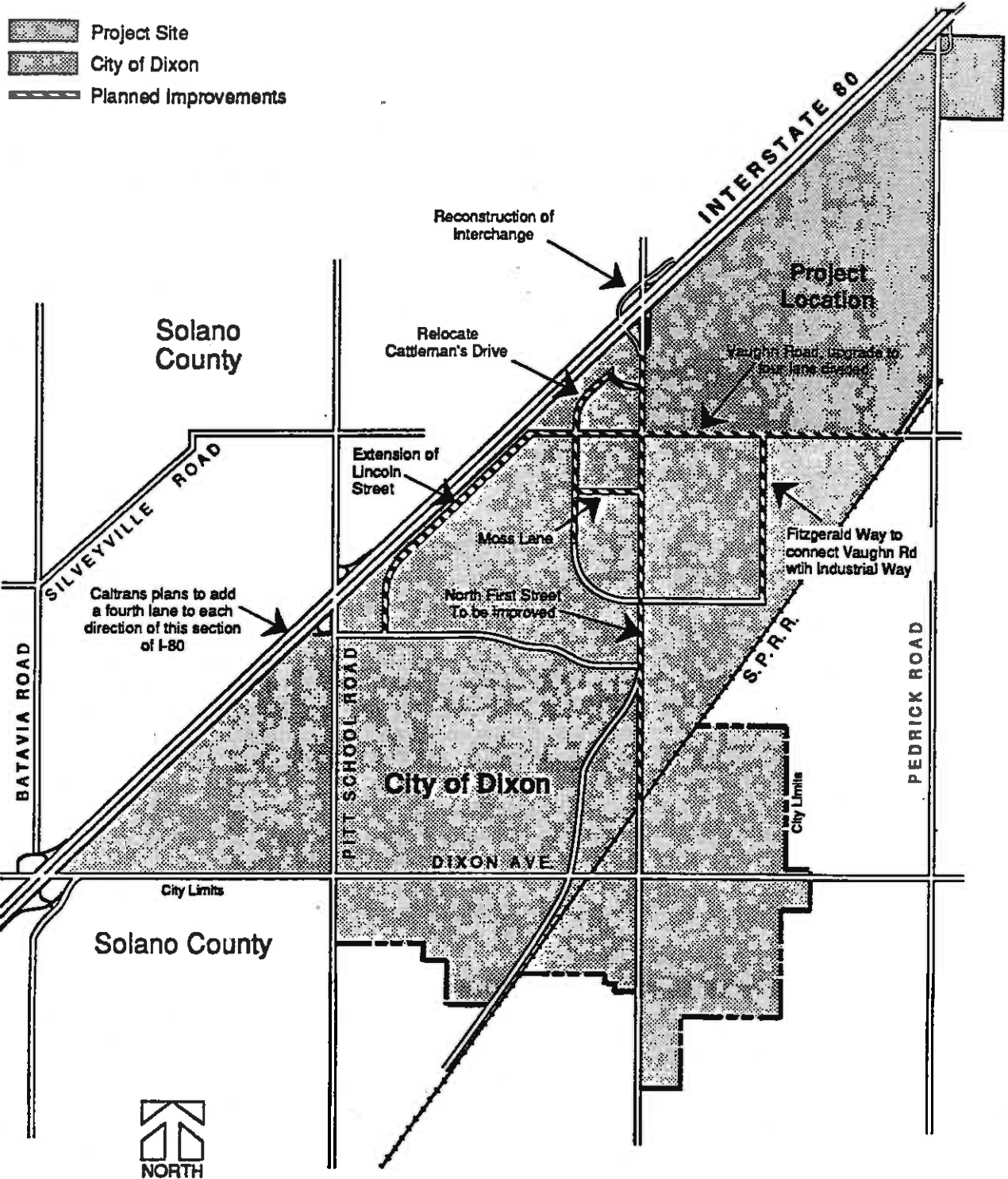
Most of the road improvements in the city are located in the project area and will be included in the North First Street Assessment District. The road improvements include:

- Improvement of Vaughn Road to a four lane divided cross-section;
- Extension of North Lincoln Street to Vaughn Road;
- Construction of Fitzgerald Way between Vaughn Road and Industrial Way;
- Improvement of North First St. north of the SP railroad tracks;
- Relocation of Cattleman's Drive; and
- Ultimately, Caltrans plans to add a fourth lane to each direction of this section of Interstate 80.

The planned improvements are illustrated in Figure 4.7.4.

Planned Bikeways

The City of Dixon has recently approved a Bikeways Master Plan which will be used to plan future extensions of the existing system and provide coordination with a regional bikeways plan. It will also be used in conjunction with the Dixon Unified School District (DUSD) to develop a "Suggested Route To School". A bike lane striping and delineation project was completed in 1993 using Transportation Development Act (TDA) Article 3 funding, and additional TDA funds have been requested for another project along North First Street to construct bike lanes in conjunction with the North First Street Assessment District (NFSAD). A longer term project is an inter-city bike path parallel to the SPRR tracks between Davis and Vacaville.



Conceptual • Not To Scale

**FIGURE 4.7.4
PLANNED ROADWAY IMPROVEMENTS**

Congestion Management Program

The Congestion Management Program (CMP) is a statutory requirement of counties that contain a population center of 50,000 or more. The Program is intended to enhance or maintain mobility on the transportation system, encourage examination of the links between land use decisions and the transportation system, arrange for mitigations for the effects of the land use decisions on a county-wide basis, improve air quality, increase the use of alternate transportation modes, improve the efficiency of the extant transportation system, and plan for the future coordination of land use and transportation decisions.

A CMP has five basic elements: 1) a system of streets and highways that is to be monitored annually; 2) standards for the frequency, routing and coordination of public transit services; 3) a trip reduction and travel demand element; 4) a program to analyze the impact of land use decisions on the transportation network and; 5) a seven year capital improvement program for transportation system improvements.

To make this as simple as possible, many of the tasks involved in the maintenance of the CMP have been placed on the shoulders of the individual jurisdictions. Each year, the jurisdictions must certify to the Authority that the requirements of the program have been fulfilled.

The Level of Service for the county CMP system has been set at Level of Service (LOS) E unless the roadway is already operating at LOS F. The transit frequency and routing standards vary according to the size of the jurisdiction. The standards range from hour headways serving 85 percent of the population in the largest jurisdiction to no standards at all in the sparsely populated unincorporated region. The transit coordination standards are those adopted by the Metropolitan Transportation Commission under the requirements of Senate Bill 602. The model trip reduction and travel demand ordinance crafted by the Citizens' Committee requires the distribution of alternate transportation mode information to individuals who have changed residences, employees of small employers and employees in existing complexes containing 100 or more employees. Large employers (over 100 employees) new complexes with over 100 employees on site and projects that will contain 100 or more employees are required to create a plan that will result in an average vehicle occupancy rate of 1.33 or greater. The analysis and mitigation of impacts to the transportation system caused by land use decisions will be completed for large projects by the jurisdiction in which that project is slated for construction.

Planned Rail Services

As this Environmental Impact Report is being prepared, the City of Dixon is considering the potential location of a commuter rail station within the city. The siting of a commuter station may occur along the existing rail line from Pedrick Road west to West A Street. A location in the Central Business District (CBD) near North First Street (SR 113) is currently under study. The location of the commuter rail station will have an influence on the circulation for this project. If the station is located in the CBD, a shuttle bus system would be appropriate to connect the commuter station to the employment center. If the station is located closer to, or within, the project area the emphasis will be on a local pedestrian circulation network in addition to the shuttle system.

4.7.2 THRESHOLD SIGNIFICANCE

LEVEL OF SERVICE (LOS) STANDARDS

Level of Service (LOS), the measure by which roads and intersections are analyzed, is an alphabetic performance rating of a facility from A (best) to F (worst). Table 4.7.1 summarizes the LOS criteria for signalized intersections in the Transportation Research Circular 212, Transportation Research Board, 1980.

**TABLE 4.7.1
LEVEL OF SERVICE DEFINITIONS FOR SIGNALIZED INTERSECTIONS**

Level of Service	Description	Range of Volume Capacity Ratio
A	Free Flow/Insignificant Delays: No approach phase is fully utilized by traffic and no vehicle waits through more than one red indication; excellent traffic operation.	0.00 - 0.59
B	Stable Operation/Minimum Delays: An occasional approach phase is fully utilized; platoons of vehicles are formed; very good traffic operation.	0.60 - 0.69
C	Stable Operation/Acceptable Delays: Major approach phase may become fully utilized; driver may occasionally have to wait through more than one indication; good traffic operation.	0.70 - 0.79
D	Approaching Unstable/Tolerable Delays: Queues may develop but dissipate rapidly without excessive delays; fair traffic operation.	0.80 - 0.89
E	Unstable Operation/Significant Delays: Volumes at or near capacity; vehicles may wait through several signal cycles, long queues form upstream from intersection; poor traffic operation.	0.90 - 0.99
F	Forced Flow/Excessive Delays: Represents jammed conditions; intersection operates below capacity with low volumes; queues may block upstream intersections.	1.00 - over

Source: 1980 Transportation Research Board Circular 212

LEVEL OF SERVICE AT A SIGNALIZED INTERSECTION

The service level at a signalized intersection was determined by computing the critical volumes approaching the intersection as a percentage of the total intersection capacity during the peak hour. The LOS for a signalized intersection is a function of the volume-to-capacity ratio computed for each peak hour.

LEVEL OF SERVICE AT A TWO-WAY STOP SIGN

The service level at a two-way stop-controlled unsignalized intersection was based on the reserve capacity method identified in the Highway Capacity Manual - Special Report 209, Transportation Research Board, 1985. This methodology computes the reserve capacity of each movement through the intersection; therefore, each turning movement has its own level of service. In almost all cases the left-turn movement from the minor to the major street is the most difficult movement at an unsignalized intersection. For simplicity, the operation of an unsignalized intersection is described by the level of service of this turn movement.

For an all-way stop controlled intersection, the average stopped delay was computed for the intersection according to the procedure identified in Transportation Research Circular 373, Transportation Research Board, 1991.

The service level at a signalized intersection was determined by computing the critical volumes approaching the intersection as a percentage of the total intersection capacity during the peak hour. The LOS for a signalized intersection is a function of the volume-to-capacity ratio computed for each peak hour.

The level of service for stop controlled intersections is expressed in terms of the reserve capacity to accommodate additional traffic volume. When demand volume exceeds the capacity of the lane, extreme delays will be encountered with queuing which may cause severe congestion affecting other traffic movements in the intersection. This condition usually warrants improvement to the intersection. Table 4.7.2 provides a level of service definition for stop controlled intersections.

TABLE 4.7.2
LEVEL OF SERVICE DEFINITIONS FOR STOP CONTROLLED INTERSECTIONS

Reserve Capacity (PCPH)	Level of Service	Expected Delay
≥ 400	A	Little or no delay
300-399	B	Short traffic delays
200-299	C	Average traffic delays
100-199	D	Long traffic delays
0-99	E	Very long traffic delays
less than 0	F	Severe congestion, intersection fails

Source: 1985 Highway Capacity Manual

STANDARDS OF SIGNIFICANCE

The City of Dixon established LOS standards for the various facilities in the study area. The General Plan establishes the basic policy on LOS throughout the city. Policy E.1. states:

"The City shall ensure that Dixon's existing and proposed street configuration and highway network maintains traffic operations at Level of Service "C" or better, while acknowledging that this objective may be difficult to achieve in those locations where traffic currently operates at Levels of Service below "C" for limited periods of time.
...."

This policy was further defined in a communication from the Dixon Community Development Department regarding minimum acceptable levels of service for intersections during morning (AM) and afternoon (PM) commute peak traffic hours. (Memorandum RE: Traffic Analysis Assumptions, Tasha Houston, Dixon Community Development Department, February 2, 1994).

Table 4.7.3 identifies the minimum LOS allowed at intersections during peak hours. This allows for different thresholds of significance for signalized intersections, all way stop intersections, stop sign controlled turn movement at minor intersections and mid-block roadway segments.

**TABLE 4.7.3
MINIMUM LEVEL OF SERVICE (LOS) AT INTERSECTIONS DURING PEAK HOUR**

Intersection Condition	Minimum LOS
Signalized intersections	D
All way stop intersections	D
Stop sign controlled turn movements at minor intersections	E
Mid-block roadway segments	D

Roadway segments and signalized intersections are considered to be impacted if the project causes a change in LOS from acceptable levels (LOS A, B, C, or D) to unacceptable levels (LOS E or F). For unsignalized intersections, the worst turning movement must not exceed LOS E.

The specific criteria for determining the significance of various circulation impacts is defined as follows:

1. When an intersection or roadway segment with an acceptable existing operation experiences an unacceptable level of service with the addition of project traffic.
2. When volumes at an unsignalized intersection are increased above peak hour signal warrant criteria levels.
3. When intersections with existing acceptable operation maintain acceptable operation with the addition of projected traffic, but project traffic increases existing volume levels by 10 percent or greater.
4. When intersections with existing unacceptable operation have their volume levels increased by two percent or greater.
5. When, in the opinion of a registered traffic engineer, a significant safety problem is created.

Source: Dixon Community Development Department, February 2, 1994

4.7.3 ENVIRONMENTAL IMPACTS

EXISTING LEVELS OF SERVICE

Impact T-1: Existing intersections and streets within the project area currently function within a level of service in conformance with the City's policies.

Significance: Less than significant

Morning (AM) and afternoon (PM) peak hour traffic counts were conducted at project intersections and at nearby intersections as part of the General Plan Update Traffic Analysis, Fehr & Peers Associates Inc., July, 1993 and City of Dixon, Environmental Assessment of the Hearing Draft General Plan, Responses To Comments, Appendix A, Traffic Analysis, Duncan & Jones, October 29, 1993.

Table 4.7.4 summarizes the existing levels of service for each study intersection. As expected in a relatively undeveloped area, the results indicate that each intersection operates within the city's threshold during the AM and PM peak hours. All intersections are currently unsignalized and operate at Level of Service (LOS) C or better during the AM peak hour. During the PM peak hour, six of the eight study intersections operate at LOS C or better. At the North First Street intersections with Industrial Way and Stratford Avenue, the left turns from the side street operate at LOS D during the PM peak hour.

Similar to the intersections, all roadway segments currently operate at acceptable levels, as shown on Table 4.7.5.

Residual Significance: Less than significant

LAND USE AND PROJECT CIRCULATION CONCEPT

Impact T-2: The NQSP establishes land use patterns and circulation concepts that must conform with the Dixon General Plan and the Solano County Congestion Management Plan.

Significance: Potentially significant

**TABLE 4.7.4
EXISTING INTERSECTION LEVEL OF SERVICE**

UNSIGNALIZED INTERSECTIONS	AM PEAK HOUR	PM PEAK HOUR
	LOS	LOS
North First Street/Vaughn Road (2)	B	C
North First Street/Industrial Way (3)	C	D
North First Street/Stratford Avenue (4)	C	D
Pedrick Road/Vaughn Road (6)	A	A
I-80 EB Ramp/North First Street (1)	B	A
I-80 WB Ramp/Curry Road (1)	A	A
I-80 WB Ramp/Pedrick* (5)	A	A
I-80 EB Ramp/Pedrick* (5)	A	A

(* 4-way stop-controlled.)

(1) Number corresponds with intersections on Figure 4.7.2

Source: City of Dixon

**TABLE 4.7.5
EXISTING STREET LEVEL OF SERVICE**

Road Segment	Travel Direction	AM Peak Hour		PM Peak Hour	
		V/C	LOS	V/C	LOS
Pedrick Rd s/o I-80	NB	0.12	A	0.13	A
	SB	0.12	A	0.16	A
Pedrick Rd n/o Vaughn	NB	0.11	A	0.09	A
	SB	0.10	A	0.13	A
Pedrick Rd s/o Vaughn	NB	0.10	A	0.08	A
	SB	0.08	A	0.10	A
Pedrick Rd n/o Dixon	NB	0.10	A	0.04	A
	SB	0.10	A	0.09	A
Pedrick Rd s/o Dixon	NB	0.05	A	0.04	A
	SB	0.04	A	0.04	A
Vaughn Rd w/o Pedrick	EB	0.03	A	0.03	A
	WB	0.03	A	0.05	A
Vaughn Rd e/o SH 113	EB	0.11	A	0.06	A
	WB	0.02	A	0.05	A
Vaughn Rd w/o SH 113	EB	0.05	A	0.17	A
	WB	0.01	A	0.06	A
SH 113 n/o Collector B	NB	0.46	A	0.32	A
	SB	0.32	A	0.45	A
SH 113 n/o Vaughn	NB	0.42	A	0.32	A
	SB	0.30	A	0.42	A
SH 113 s/o Vaughn	NB	0.42	A	0.34	A
	SB	0.30	A	0.44	A
SH 113 s/o Industrial	NB	0.41	A	0.31	A
	SB	0.20	A	0.51	A
SH 113 s/o H	NB	0.36	A	0.41	A
	SB	0.33	A	0.40	A
SH 113 n/o A	NB	0.24	A	0.38	A
	SB	0.24	A	0.41	A
SH 113 s/o A	NB	0.26	A	0.36	A
	SB	0.18	A	0.36	A

Source: City of Dixon, Environmental Assessment Responses to Comments, Hearing Draft General Plan, Duncan & Jones, October 29, 1994, Table A-4

LAND USE

The land use proposed in the plan include only highway commercial, commercial, professional office and administrative uses. The number of acres proposed for each use, the ratio of floor area to developable site area (Floor Area Ratio or FAR) and the total 1,000 square feet (KSF) in each use are tabulated in Table 4.7.6.

**TABLE 4.7.6
LAND USE SUMMARY**

LAND USES AND ZONING DESIGNATIONS	ACRES	FAR	KSF
Highway Commercial - (HC)	142.2	0.25	1,548.6
Community Commercial - (CC)	51.9	0.25	565.2
Professional and Administrative Office - (O)	105.4	0.30	1,377.0
Light Industrial - (ML)	214.4	0.25	2,334.8
Major Roads, Drainage Easements, and Open Space	129.1	0	
Total Land Use	643.0		5,825.6

ORGANIZATION OF LAND USE TO FACILITATE CIRCULATION

Land uses in the specific plan are organized to separate heavier truck traffic from passenger vehicle traffic, to facilitate shuttle bus service and ride sharing arrangements, and to facilitate pedestrian circulation. If the anticipated commuter rail station is located in the project area, these circulation design features will enhance and support the function of the station.

Traffic is segregated in zones corresponding to the primary land uses. In the east quadrant the primary land uses will be warehousing, manufacturing and truck service businesses. It is expected that the majority of the heavy truck traffic will enter and exit the project area along Pedrick Road. Truck traffic will penetrate the site from the east and will generally not extend beyond the central portion of the site. Direct routing through the site from east to west is limited.

Traffic on the west side of the site is expected to be directed primarily to the commercial and highway commercial uses and will be comprised primarily of passenger vehicles. The traffic in the central and south portions of the site will include both passenger vehicles and truck traffic relating to the business uses.

The internal circulation system is intended to allow for these different traffic types to enter and exit the plan area without necessarily intermixing with the other types. The circulation system does allow flexibility in routing and traffic can travel freely from one portion of the plan area to another. The basic internal circulation system is a looped street pattern with multiple exits to the perimeter arterial streets. The basic road system and the general traffic zone concept are illustrated in Figure 4.7.5.

The looped road system is intended to facilitate a local shuttle system connecting uses within the plan area and the future commuter rail station as well as ridesharing drop off and pick up.

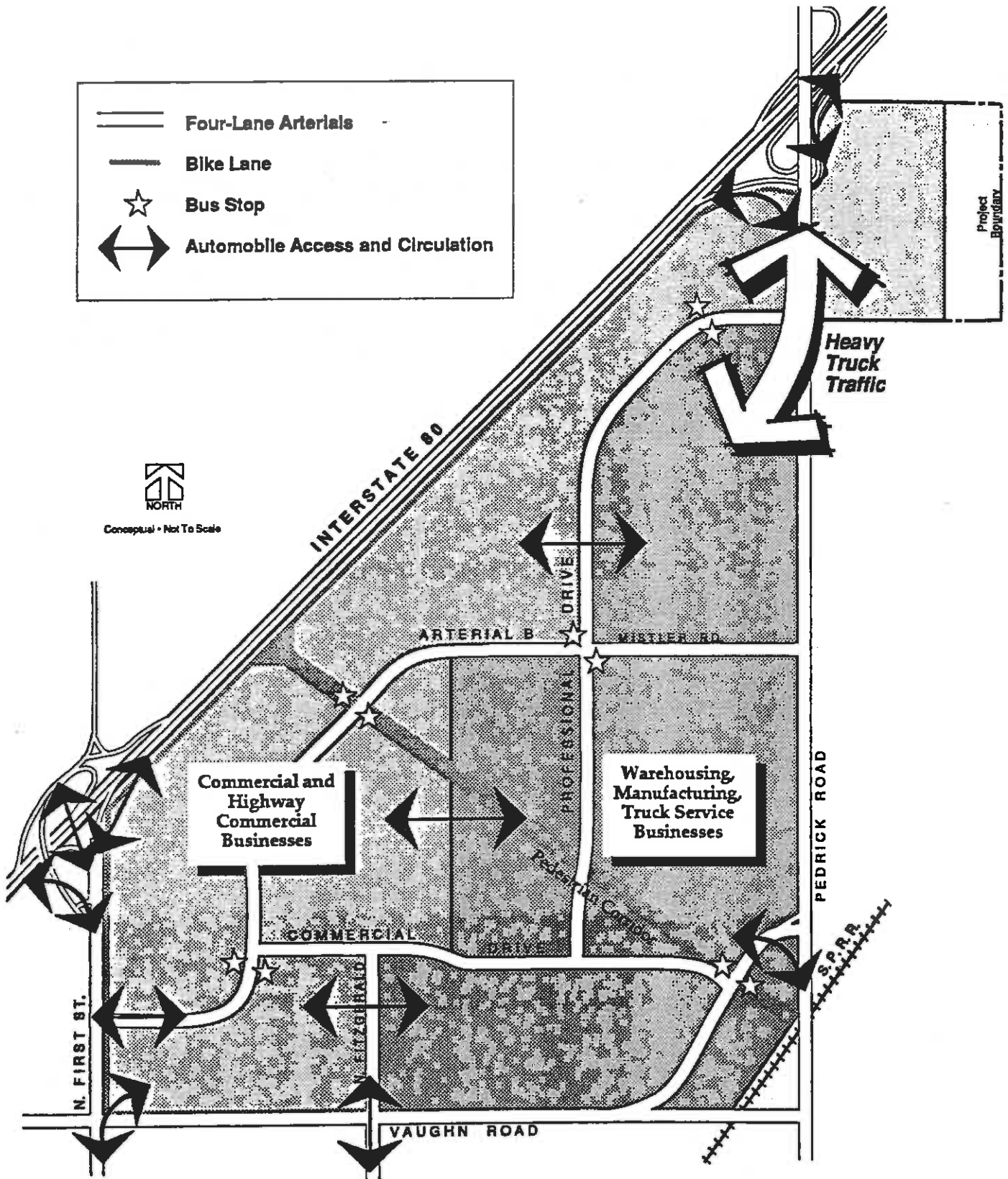


FIGURE 4.7.5
CONCEPTUAL TRAFFIC SEPARATION ZONES AND CIRCULATION NETWORK

TRANSPORTATION DESIGN GUIDELINES

Based on the lane assumptions in the Northeast Quadrant Specific Plan, Wade Associate, Pedrick Road, Vaughn Road and North First Street have been identified as four-lane arterial roadways. Arterial B, Mistler Road, Professional Drive and Commercial Drive are also identified as four-lane roads. The other major roads within the site are identified as commercial collectors, with provisions for two lanes. These should be sufficient flexibility in the further development's design to adjust these lane requirements, based on site specific traffic studies conducted as development applications are submitted.

The NQSP establishes General Design Guidelines that focus on the themes and design features typical in many of the land uses found throughout the plan area. Guidelines are included which detail the treatment of common elements or issues found in a number of different land use types. A primary focus is on the interface between individual uses that will provide for pedestrian access throughout the plan area.

The following transportation related design guidelines are generally applicable to all land uses within the plan area:

- Commercial uses shall have a comprehensive parking plan designed to maximize shared parking facilities, establish efficient circulation, promote the visual quality of the site, and accommodate pedestrian circulation. Angled parking with one-way circulation is to be utilized whenever feasible.
- Each commercial area shall be accessible from at least one major collector or arterial street, with sufficient design capacity to accommodate traffic generated by the businesses as well as other local traffic.
- Commercial areas shall be accessible by public transportation, and from pedestrian sidewalks and bicycle routes. Consideration shall be given at the design review stage to on-site transit stops, including but not limited to bus stops.
- The master plan for all parcels adjacent to potential light and heavy rail corridors shall take into consideration the possible future extension of light rail, including right-of-way and station needs.
- Bicycle racks, lockers, and showers for employees are generally encouraged to be placed within projects to promote walking and cycling to work. Bicycle parking should be provided in highly visible and convenient locations.

PEDESTRIAN CIRCULATION

The provision of convenient pedestrian access and circulation throughout the plan area is a principal goal in the organization of NQSP. In order to achieve a comprehensive and convenient pedestrian/bicycle system, continuity and integration is required between plan-wide pedestrianways and the individual facility accommodations for pedestrian users. The following guidelines address the specific requirements for achieving this continuity:

- Land uses shall be easily accessible by public transportation, pedestrian, and bicycle routes.
- All land uses shall be designed to facilitate pedestrian cross-connections to adjacent uses and access to the area-wide trail system.
- Pedestrian walkways in landscape corridors shall provide access from sidewalks into projects separate from major vehicular driveways and circulation. Connections

between private and public pathways shall be the responsibility of the project developer.

- To ensure pedestrian access within the plan area, clear connections should be provided between facilities and public pathways. Pedestrian pathway access should occur at the perimeter of a project and at a maximum interval of 300 linear feet. The location of pedestrian access should coincide with transit stop locations to facilitate the use of public transit. Pedestrian connections between public pathways and buildings will be the responsibility of the project developer.

BIKEWAYS/PEDESTRIAN PATHWAYS

Bicycling and walking are alternatives to driving that people will use regularly for short trips if the distance is sufficiently short and relatively safe. The strategic placement of land uses will reduce the travel distance between employment centers, services and shopping. Convenient access will be facilitated by providing an extensive network of walking and cycling paths.

The plan features a loop pathway system which serves cyclists and pedestrians. Sidewalks will be provided on all streets within the project area to serve pedestrian traffic. Class I bikeways will be provided on plan area arterial streets and commercial collectors. Class I bike paths along the arterial and collector streets consist of slightly undulating, eight-foot wide paved paths, separated from the streets within the landscape corridors. Pathways are designed to accommodate both pedestrians and cyclists. Since the bikeways are intended to provide a safe and convenient route for commuting cyclists at a reasonable speed, the alignment of the routes will not meander too greatly to impede the safe and convenient movement of cycle traffic.

Within commercial areas, pedestrian corridors will extend from buildings through parking areas to connect with plan arterials or other major roads. The pedestrian corridors will be landscaped walkways of sufficient width to allow groups of people to walk and to sit. Pathway landscaping will provide a shade canopy and will buffer pedestrians from adjacent parking. The corridor will include rest islands at the center medians, special lighting and paving and markings to facilitate pedestrian direction.

PUBLIC TRANSPORTATION

BUS SERVICE

The City of Dixon is currently served by two public transit systems. Greyhound provides commuter bus service between Dixon and Sacramento as well as inter- and intra-state service. The Dixon Redi-Ride provides regularly scheduled fixed route service. The Redi-Ride system will be expanded to the plan area as demand for these services occurs. Employees within the plan area will be in close proximity of a bus turnout.

RAIL SERVICE

The Southern Pacific Railroad crossing in the southeast corner of the plan area provides an opportunity for a future transit station. The specific plan has been designed to accommodate a future rail line or alternative transit use of the railroad easement. As an employment center, the plan area is located to optimize use of a rail line or other transportation facility that reduces daily automobile uses.

PARK AND RIDE & RIDESHARING

Park and ride lots will be located within the plan area to provide convenient places for commuter car pooling. Park and ride facilities are intended for commuters in the Dixon area who may utilize the plan area as a parking or meeting point to commute outside of the plan area. The park and ride lots will typically include approximately 25 to 50 spaces and be incorporated in the parking for a commercial, business-professional or light industrial uses.

Where park and ride lots are within a business parking area, they should be located so as to not interfere with business operations. The park and ride spaces may be included as part of the normal parking requirement for the planned business or commercial use if peak use of the park and ride does not coincide with peak use of the business or commercial use and if approved by the city. Park and ride spaces will be clearly marked through pavement markings and directional signage. Spaces are reserved exclusively for park and ride on Monday through Friday from 6:30 a.m. to 6:30 p.m.

Ridesharing facilities will be provided in plan area employment uses to promote alternatives to the use of automobiles for commuting to work. Ridesharing facilities consist of preferential parking or specialized facilities for vanpools, carpools or commuter buses.

TRANSPORTATION SYSTEM MANAGEMENT (TSM)

Traffic impacts on Dixon streets may be reduced through Transportation Systems Management (TSM) measures which encourage employees to rideshare and to use non-peak hours for travel. The Dixon Congestion Management Program requires a Trip Reduction Ordinance (TRO) to create a twenty-five percent (25%) reduction in commute trips. The following TSM measures will promote a reduction in vehicle commuting within plan area employment centers:

- Distribution of information on alternative modes of travel (buses, bicycles, etc.) to employees within the specific plan.
- Carpool and vanpool matching services to assist employees with similar origins, destination, and schedules in finding other employees with whom to share a ride.
- Showers and lockers at employment locations to encourage pedestrian and bicycle commuting.
- Designation of an on-site employment TSM coordinator to assist in disseminating information and monitoring the status of any transportation management activities.

Mitigation Measure T-A: Future development shall comply with the design guidelines included in the NQSP, ensuring that the project will comply with transportation congestion management and circulation policies in the General Plan and Solano County Plan.

Residual Significance **Less than significant**

PROJECT TRIP GENERATION

The NQSP will generate, at buildout, 7,826 AM peak hour trips and 9,786 PM peak hour trips with a total of 99,124 daily trips.

The amount of automobile traffic which could be expected to be generated by this project was estimated through application of trip generation rates developed through statistical analysis of similar uses which may exist elsewhere. For this project, such a procedure was utilized with consideration also given to the share of potential trips which would remain within the

City of Dixon. Table 4.7.7 provides the assumptions used in calculating the NQSP's trip generation potential.

**TABLE 4.7.7
TRIP GENERATION ASSUMPTIONS**

Land Use Type	Gross Daily Trip Rate	Pass-By Reduction	Internalization Reduction
Highway Commercial	120/1,000 sq.ft. ¹	60% ¹	20%
Community Commercial	70/1,000 sq.ft. ¹	30% ¹	20%
Service Commercial	25/1,000 sq.ft. ¹	0% ¹	20%
Office	8.7-15.6/1,000 sq.ft. of gross leasable area ²	0% ¹	20%
Light Industrial	6.97/1,000 sq.ft. of gross leasable area ³	0% ¹	20%

¹ Source: Memo from J. Daniel Takacs Dated September 30, 1993.

² Based on ITE Trip Generation Manual, 5th edition, 1991, page 492. The office trip rates varied based on the size of the parcel and expected quantity of building area. Eighty-five percent of the gross floor area was assumed to be leasable.

³ Based on ITE Trip Generation Manual, 5th edition, 1991, page 92. Eighty-five percent of the gross floor area was assumed to be leasable.

To complete a trip generation analysis for the proposed project, it was necessary to develop an understanding of the operational characteristics of the specific plan development. Once the trip generation rates were established, the rates were then adjusted for the retail uses by 30 percent (for the non-highway commercial uses) to 60 percent (for highway commercial) to account for the presence of pass-by traffic. As shown on Table 4.7.8, the proposed project is expected to generate 7,826 AM peak hour trips, 9,783 PM peak hour trips, and 99,124 daily trips.

PROJECT TRIP DISTRIBUTION

The distribution of project trips was identified by the City of Dixon. Different distribution assumptions were prescribed for the existing and cumulative scenarios. Table 4.7.9 summarizes the trip distribution percentages utilized for the assignment of project traffic for both the existing and cumulative scenarios.

Under existing plus project conditions, 52 percent of the project traffic is expected to access the site via Interstate 80, (east via I-80, 21%, west via I-80, 31%), with another 31% oriented to and from the south via Pedrick Road (6%) and North First Street (25%). In the cumulative condition, the estimated proportion of project traffic using Interstate 80 is 72 percent, with the majority of the remaining traffic dispersed to the south and north along Pedrick Road and North First Street. The percentages represent a summation of the rates of all land uses within the site. The totals were adjusted between existing and cumulative conditions given that changes in future year travel patterns should be anticipated due to changes in development patterns.

TABLE 4.7.8 TRIP GENERATION

Land Use	KSF	AM PEAK HOUR			PM PEAK HOUR			Total	Daily
		In	Out	Total	In	Out	Total		
Highway Commercial	1,548.55	2,378	2,378	4,756	2,674	2,676	5,350	59,608	
Community/Service Commercial	565.19	366	242	608	968	969	1,937	19,374	
Office (Professional/Admin)	1,314.63	1,045	117	1,162	215	865	1,080	8,316	
Light Industrial (PI)	<u>2,495.09</u>	<u>1,144</u>	<u>156</u>	<u>1,300</u>	<u>282</u>	<u>1,134</u>	<u>1,416</u>	<u>11,826</u>	
TOTAL:	5,923.46	4,933	2,893	7,826	4,139	5,644	9,783	99,124	

With: 60% Reduction for Pass By For Highway Commercial
 30% Reduction for Pass By for Community Commercial
 15% Reduction for Gross Leasable Area For PI & Office Uses
 20% Reduction For Internalization of Trips

**TABLE 4.7.9
PROJECT TRIP DISTRIBUTION**

DIRECTION*	EXISTING PLUS PROJECT PERCENTAGE*	CUMULATIVE PLUS PROJECT
East via I-80	21%	36
East via Vaughn Road	2%	1
West via I-80	31%	36
West via Vaughn Road	0%	8
South via Pedrick Road	6%	4
South via North First Street	25%	4
North via Pedrick Road	15%	11
TOTAL	100%	100%

(* The trip distribution was obtained by analyzing existing traffic patterns.)

For intersection operations, assumptions were made regarding the number of turn lanes based on the number of lanes of the cross streets. The following table displays the lane assumptions for intersections.

**TABLE 4.7.10
ASSUMED LANE GEOMETRY FOR FUTURE INTERSECTIONS**

Facility Type	Intersection Type	Intersection Approach Lanes		
		Left	Through	Right
4-lane arterial	Full	1	2	1
2-lane arterial	Full	1	1	1
4-lane arterial	T	2	0	1
2-lane arterial	T	1	0	1

EXISTING PLUS PROJECT TRAFFIC CONDITIONS

Impact T-3: The existing traffic conditions, plus the traffic generated by the NQSP will exceed the required LOS at four intersections. All intersections will warrant signalization.

Significance: Significant

The existing plus project traffic conditions will exceed the required LOS at four intersections. This includes:

- I-80 Westbound Ramps/Pedrick Road - operates at LOS F during the PM peak hour. The large volume of project traffic, particularly the westbound left turning movement, cannot be adequately accommodated by the existing intersection.
- I-80 Eastbound Ramps/Pedrick Road - operates at LOS F during both the AM and PM peak hours. Heavy eastbound right turns and northbound movements cause unacceptable operations.

- I-80 Eastbound Ramps/North First Street - operates at LOS E during the PM peak hour. This location is primarily affected by heavy northbound and eastbound turning movements.
- North First Street/Arterial B - operates at LOS F during the PM peak hour. Heavy southbound left turns and westbound right turns degrade the intersection operations.

For purposes of preparing the analysis of the existing conditions plus the project, five additional intersection were added to the analysis. These intersections are shown on Figure 4.7.6 and include:

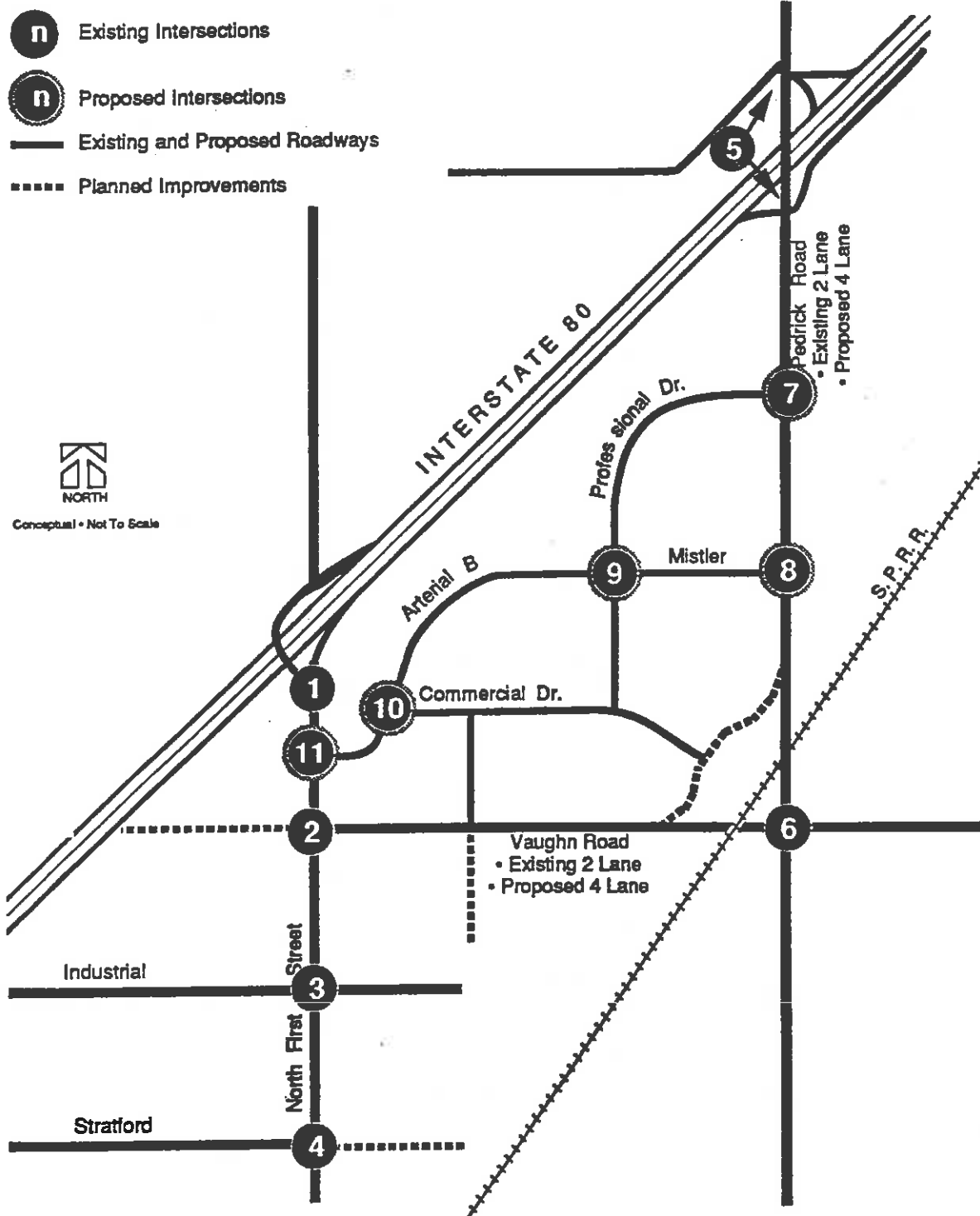
- Professional Drive/Pedrick Road (7)
- Mistler Drive/Pedrick Road (8)
- Arterial B/Professional Drive (9)
- Arterial B/Commercial (10)
- Arterial B/North First Street (11)

AM and PM peak hour trips projected to be generated by the proposed project were added to "existing base" intersection and roadway volumes. The "Existing Plus Project" daily peak hour volumes are displayed on Figures 4.7.6, 4.7.7 and 4.7.8, while Table 4.7.11 displays projected intersection LOS.

**TABLE 4.7.11
EXISTING PLUS PROJECT INTERSECTION LEVEL OF SERVICE**

INTERSECTIONS	AM PEAK HOUR		PM PEAK HOUR	
	LOS	V/C	LOS	V/C
North First Street/I-80 EB Ramp (1)	B	0.62	D	0.86
North First Street/Vaughn Road (2)	C	0.78	D	0.87
North First Street/Industrial Way (3)	B	0.65	C	0.75
North First Street/Stratford Avenue (4)	B	0.60	C	0.77
Pedrick Road/I-80 WB Ramp (5)	C	0.76	F	1.14
Pedrick Road/I-80 EB Ramp (5)	F	1.26	F	1.26
Pedrick Road/Vaughn Road (6)	A	0.51	D	0.80
Pedrick Road/Professional Drive (7)	D	0.82	D	0.88
Pedrick Road/Mistler Road (8)	A	0.45	C	0.72
Professional Drive/Mistler Road (9)	B	0.66	B	0.69
Arterial B/Commercial Drive (10)	C	0.72	D	0.89
North First Street/Arterial B (11)	D	0.88	F	1.36

(1) Number corresponds with intersections on Figure 4.6.2



**FIGURE 4.7.6
EXISTING PLUS PROJECT INTERSECTIONS**

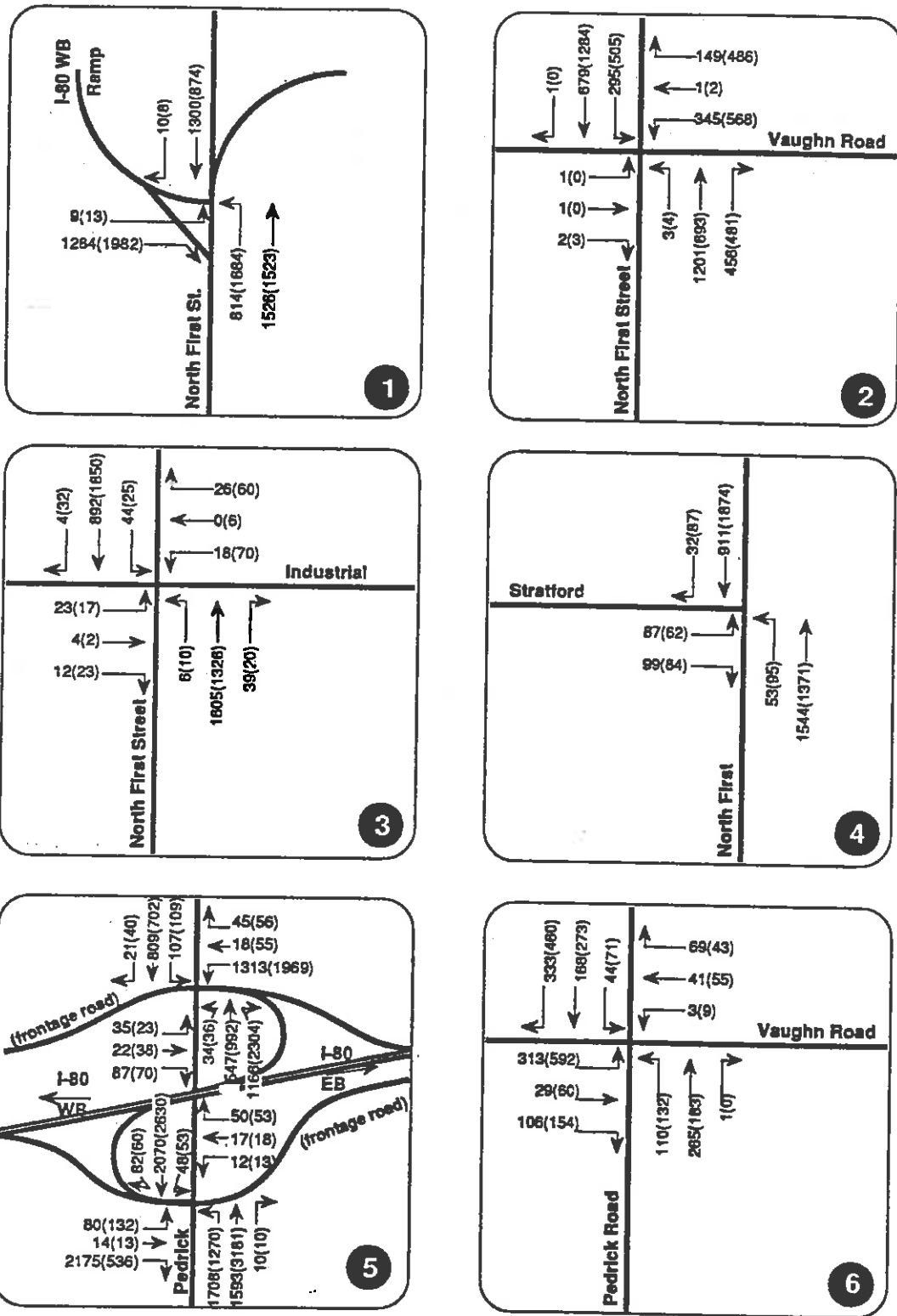


FIGURE 4.7.7
EXISTING PLUS PROJECT AM AND PM PEAK HOUR TRAFFIC VOLUMES

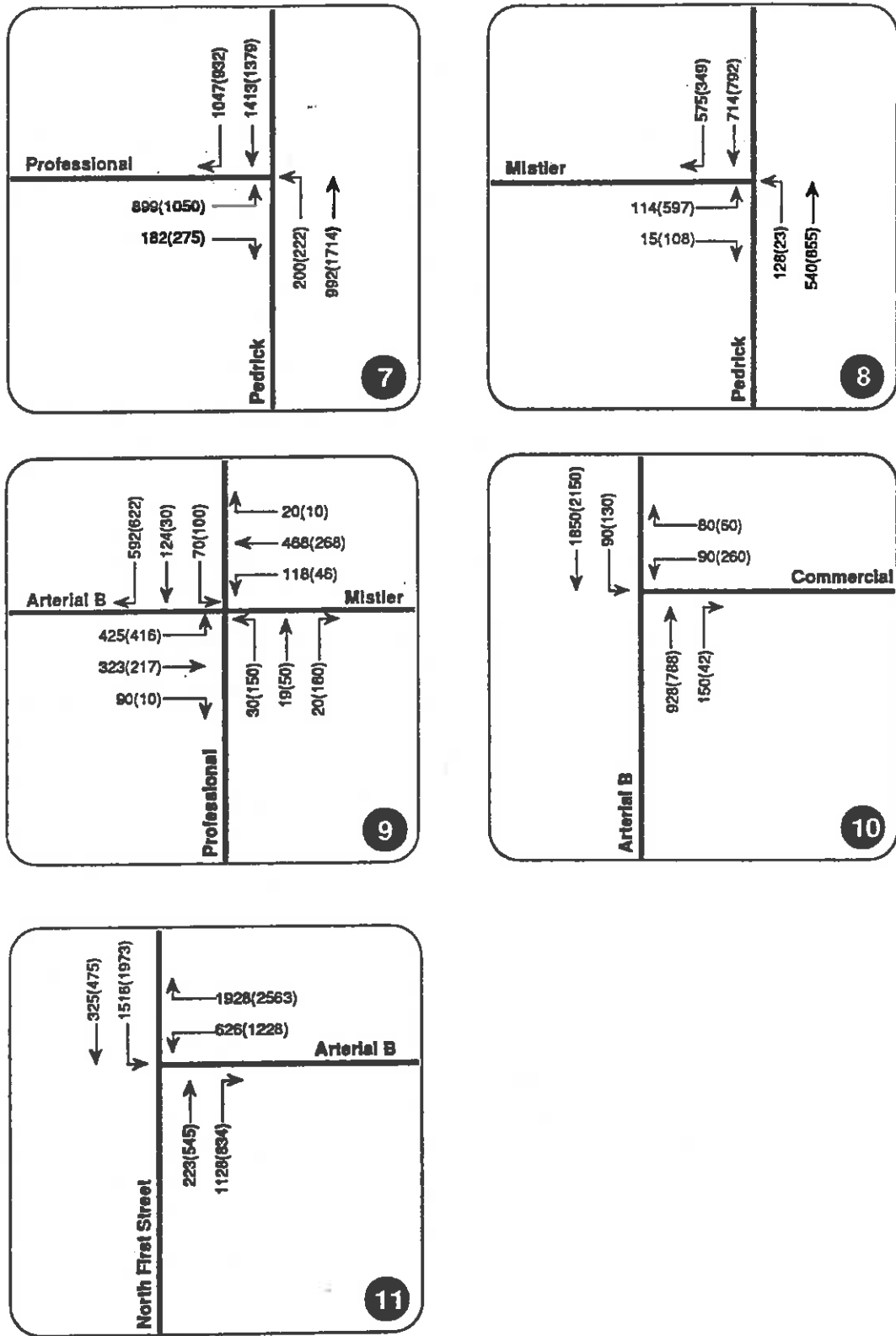


FIGURE 4.7.8
EXISTING PLUS PROJECT AM AND PM PEAK HOUR TRAFFIC VOLUMES

As shown on Table 4.7.10, the attraction of the commercial land uses along I-80 places a substantial burden on the interchanges with Pedrick Road and North First Street. The intersection of Arterial B with North First Street would require improvements as all project-bound (generated) traffic must enter the site via a left Turn at the intersection. In addition, the sections of Pedrick Road and North First Street between I-80 and the first major cross street would operate unacceptably as four-lane arterials.

Mitigation Measure T-B: All intersections identified in the EIR would warrant signalization. A specific analysis shall be prepared as part of any future development to determine the specific signalization required and the fair share contribution to funding such improvements.

Mitigation Measure T-C: Improve the Pedrick Road interchange with Interstate 80. Separate studies, such as Route Concept Approval Studies and Project Study Reports, should be performed in cooperation with Caltrans to determine the ultimate improvements to the interchange and mainline I-80.

Mitigation Measure T-D: Improve the North First Street interchange with Interstate 80. Separate studies such as Route Concept Approval Studies and Project Study Reports, should be performed in cooperation with Caltrans to determine the ultimate improvements to the interchange and mainline I-80. Direct access should be provided from the interchange ramps into the project site to avoid additional travel on the local street system.

Mitigation Measure T-E: Construct additional turn lanes at the North First Street/Arterial B intersection. Double left turn lanes are required for the southbound approach of North First Street and the westbound approach of Arterial B. Double right turn lanes are also required for the westbound approach of Arterial B.

Residual Significance: Less than significant .

Impact T-4 The existing plus project conditions will result in unacceptable levels of service for various road segments.

Based on the trip generation and the trip distribution of project traffic, it is estimated that this project will add approximately 51,500 trips per day to Interstate 80. In the cumulative condition, this total is expected to increase to approximately 71,000 trips per day. This includes significant volumes of pass-by traffic (i.e., traffic already on I-80, but stopping at the site), particularly for the highway commercial uses. The addition of this quantity of traffic constitutes a significant impact. The impact will be mitigated via recommendations of studies typically required by Caltrans and the Federal Highway Administration for local development projects including a Concept Approval Report for I-80 and Project Study Reports for the interchanges of Pedrick Road and North First Street. However, three major local road segments are projected to experience unacceptable levels of service as a result of the project.

- North First Street - between Interstate 80 and Arterial B. Heavy volumes entering and exiting the site will use this route causing unacceptable operations for this four lane road.
- Pedrick Road - between Interstate 80 and Professional Drive. This four-lane road will also experience unacceptable levels of service as a result of the project.
- Interstate 80 - Implementation of the project results in the addition of a significant volume of traffic on Interstate 80.

Significance **Significant**

Implementation of the following mitigation measures would be required to reduce the impacts to a less-than-significant level.

Mitigation Measure T-F: **Widen North First Street to six lanes between Interstate 80 and Arterial B.**

Mitigation Measure T-G: **Widen Pedrick Road to six lanes between Interstate 80 and Professional Drive.**

The above improvements should be implemented when the peak hour volume on the subject roads exceed 3,600 vehicles per hour.

Mitigation Measure T-H: **Contribute to improvements on Interstate 80 adjacent to the project site. A Route Concept Approval Study should be performed in cooperation with Caltrans to determine the ultimate improvements to Interstate 80. The project proponent shall contribute a fair share amount toward these improvements.**

Residual Significance **Less than significant**

Impact T-5: **Implementation of the project would introduce significant development to an area not directly served by public transit.**

Since the site is not in the City of Dixon, it is not directly served by public transit.

Significance: **Less than significant**

Since the specific plan includes the provision of bus routes, turnouts, transit shelters and park-and-ride lots and a Transportation Management Plan, sufficient facilities will be in place to accommodate the extension of transit services to the site. Therefore, no further mitigation measures are required.

Mitigation Measures: **No mitigation required**

Residual Significance: **Less than significant**

Impact T-6: **Implementation of the project would increase traffic volumes on surrounding streets which are planned to be used by bicyclists and pedestrians.**

Additional traffic-related conflicts will occur with bicyclists and pedestrians along the adjacent street system including Pedrick Road, North First Street and Vaughn Road.

- Significance:** Significant
- Mitigation Measure T-I:** Ensure Safety in the Design of Road Improvements. Design and implementation of roadway improvements shall ensure safe and efficient movement of bicyclists and pedestrians, including sidewalk paths, bicycle lanes and signalized crosswalks at major intersections, in accordance with City standards.
- Mitigation Measure T-J:** Implementation of the project includes a bikeway and pedestrian trail system for public use.
- Residual Significance:** Less than significant

4.7.4 CUMULATIVE IMPACTS - WITHOUT PROJECT

- Impact T-7:** The cumulative traffic impact in the City of Dixon without the development of the NQSP will require significant improvement to the interchanges of I-80 and Pedrick Road and North First Street, and to sections of both North First Street and Pedrick Road.

The results of the cumulative conditions analysis are similar to that for the existing plus project analysis in that the interchanges of Pedrick Road and North First Street with Interstate 80 will require significant improvement, along with sections of both North First Street and Pedrick Road. The peak hour traffic volumes (AM and PM) for the cumulative - no project scenario are shown on Figures 4.7.9.

- Significance:** Significant
- Mitigation Measure T-K:** The mitigation of traffic impacts associated with the cumulative - no project scenario would not be the responsibility of the proposed project. Therefore, no mitigation measures have been identified. However, it can be assumed that other projects that make up the cumulative scenario would be responsible for mitigating this impact, and that funding such improvements would be based on a "fair share" assessment based on all future development.
- Residual Significance:** Less than significant

4.7.5 CUMULATIVE IMPACTS - WITH PROJECT

- Impact T-8:** The cumulative traffic conditions would exceed LOS at six intersections.
- Significance:** Significant

Figures 4.7.10, 4.7.11 and 4.7.12 display the traffic scenarios and peak hour intersection traffic forecasts for the study locations roadways for the cumulative condition (2010) with the project, respectively. Table 4.7.12 summarizes the results of the intersection analysis for both cases.

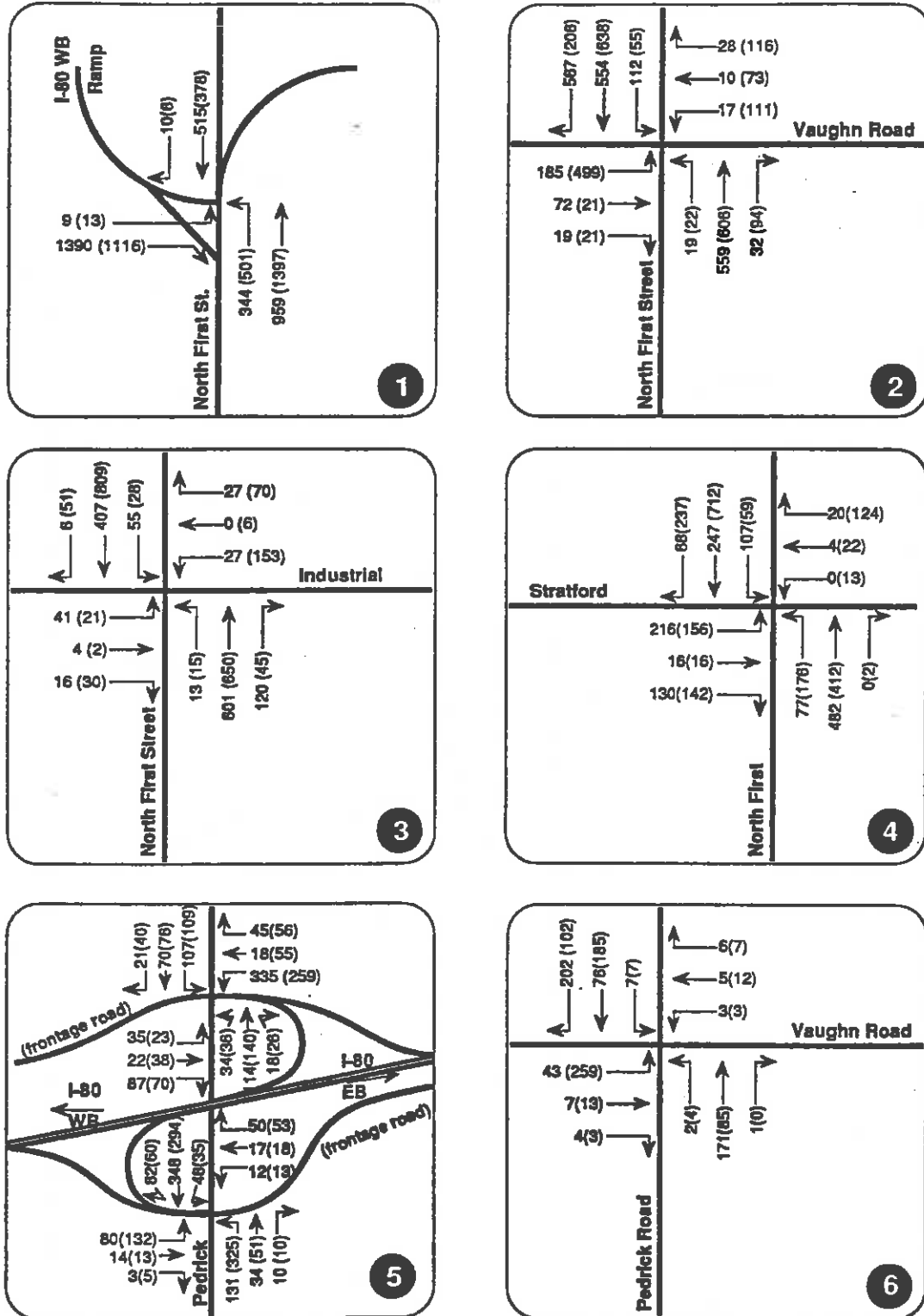


FIGURE 4.7.9
CUMULATIVE AM AND PM PEAK HOUR TRAFFIC VOLUMES (WITHOUT PROJECT)

n Corresponds to Traffic Figures 4.7.3, 4.7.4, 4.7.5, 4.7.7 and 4.7.8

..... Future (2010) Scenario

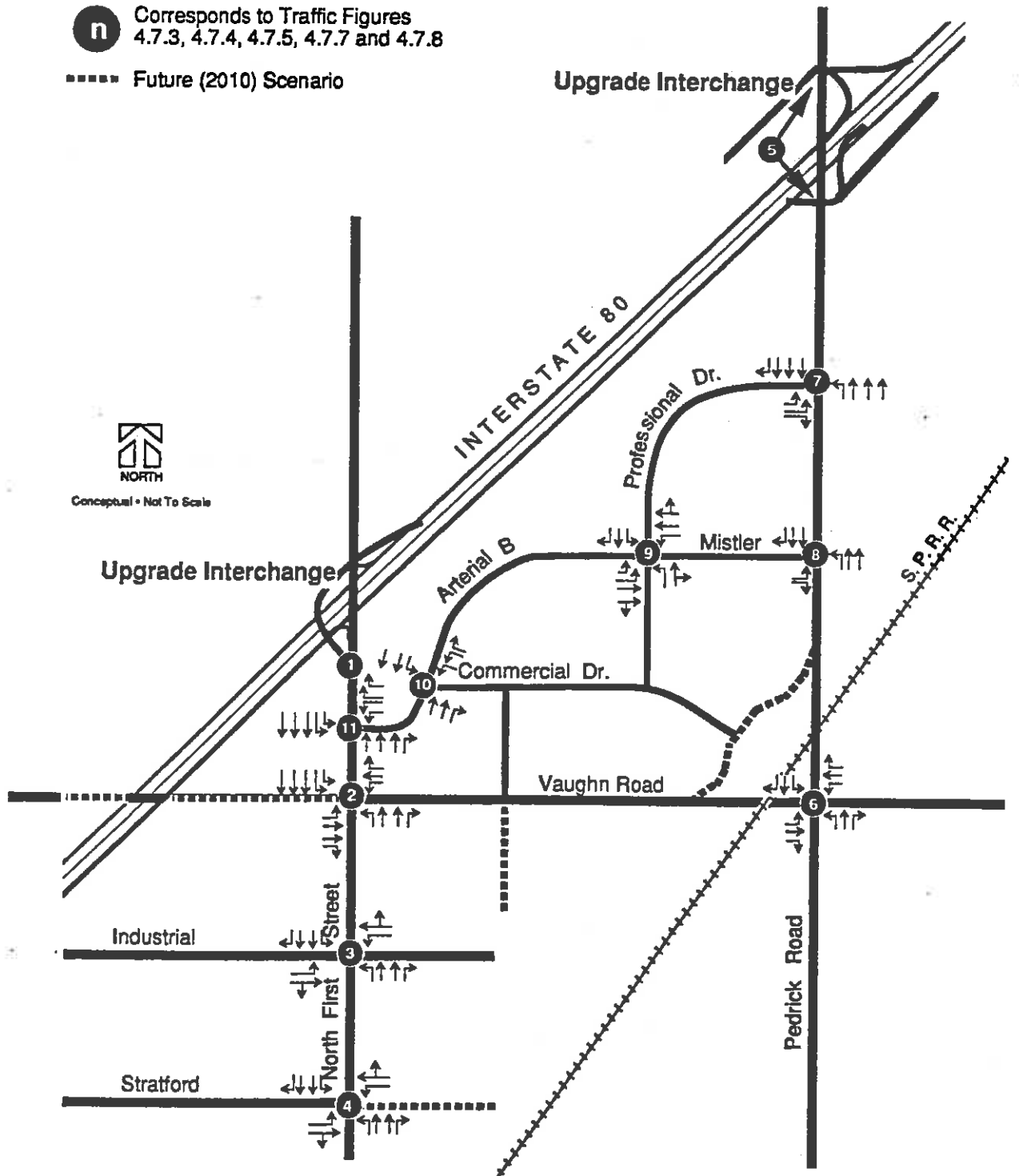


FIGURE 4.7.10
CUMULATIVE EXISTING INTERSECTIONS (WITH PROJECT)

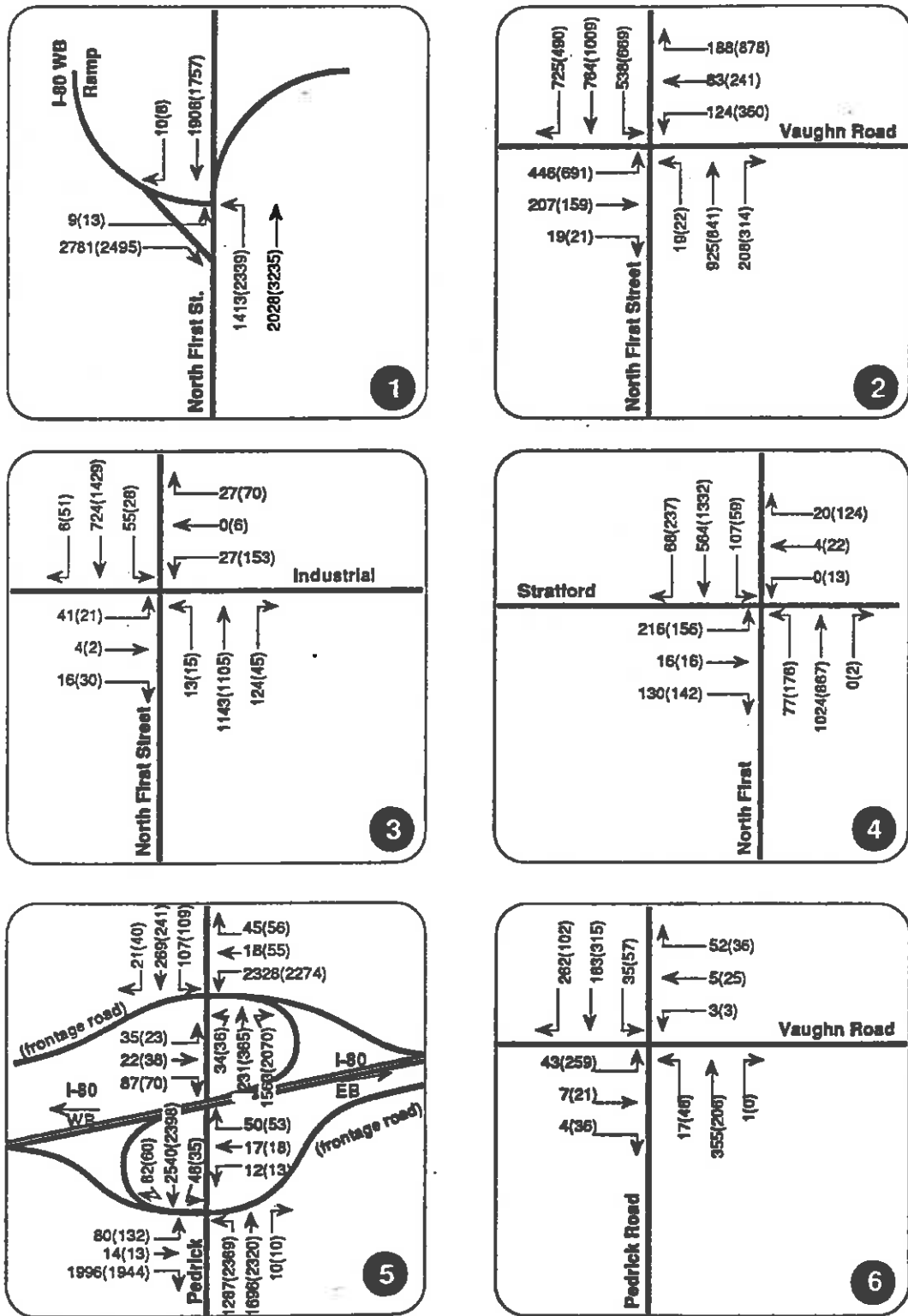


FIGURE 4.7.11
CUMULATIVE AM AND PM PEAK HOUR TRAFFIC VOLUMES

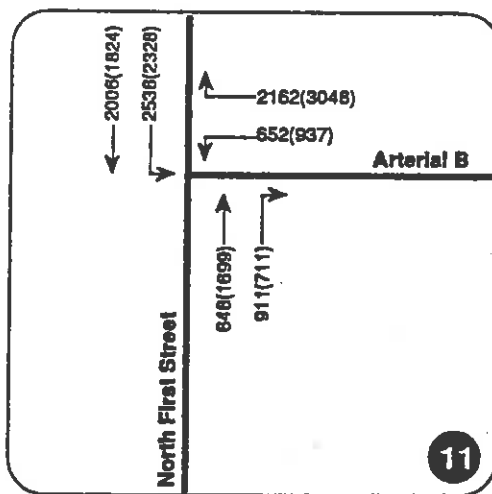
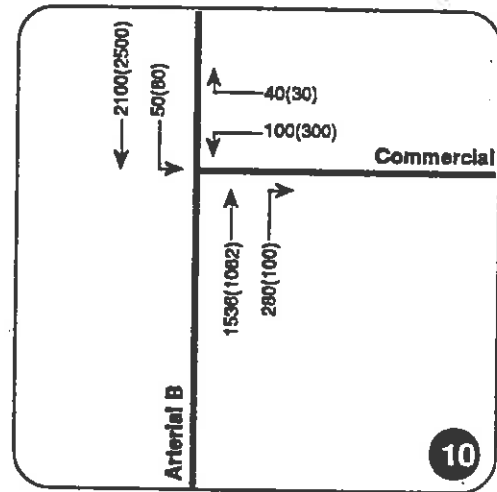
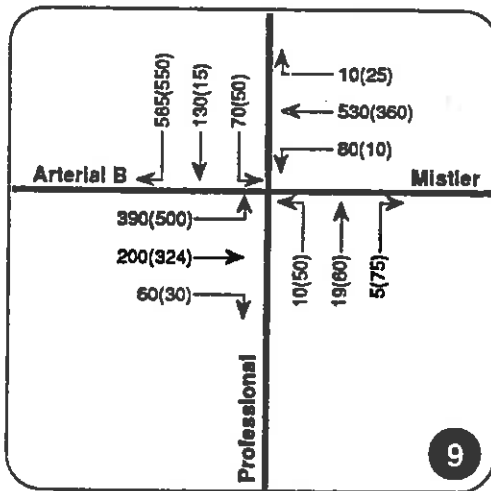
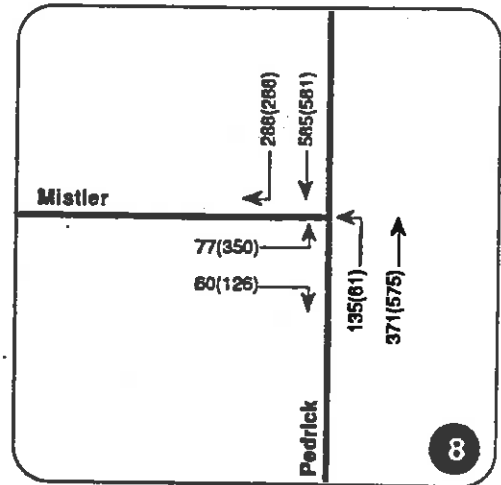
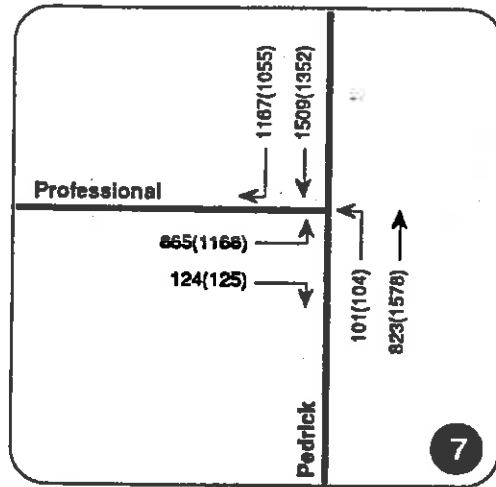


FIGURE 4.7.12
CUMULATIVE AM AND PM PEAK HOUR TRAFFIC VOLUMES

TABLE 4.7.12
CUMULATIVE AM AND PM PEAK HOUR INTERSECTION LEVEL OF SERVICE

INTERSECTIONS	AM PEAK HOUR		PM PEAK HOUR	
	LOS	V/C	LOS	V/C
North First Street/I-80 EB Ramp (1)	E	1.00	F	1.32
North First Street/Vaughn Road (2)	C	0.79	F	1.03
North First Street/Industrial Way (3)	A	0.51	B	0.67
North First Street/Stratford Avenue (4)	B	0.62	D	0.83
Pedrick Road/I-80 WB Ramp (5)	F	1.08	F	1.11
Pedrick Road/I-80 EB Ramp (5)	F	1.20	F	1.64
Pedrick Road/Vaughn Road (6)	A	0.34	A	0.47
Pedrick Road/Professional Drive (7)	C	0.76	D	0.84
Pedrick Road/Mistler Road (8)	A	0.55	A	0.49
Professional Drive/Mistler Road (9)	B	0.67	B	0.65
Arterial B/Commercial Drive (10)	D	0.81	E	0.99
North First Street/Arterial B (11)	F	1.45	F	1.86

Number corresponds with intersections on Figure 4.6.2.

(1)

The results of the cumulative conditions analysis are similar to that for the existing plus project analysis in that the interchanges of Pedrick Road and North First Street with I-80 would require significant improvements, along with sections of both North First Street and Pedrick Road. Within the project site, the intersection of Arterial B with Commercial Drive is expected to operate unacceptably during the PM peak hour. Like the interchange impacts, this deficiency is a result of the large volumes of traffic entering the site on Arterial B from I-80 via North First Street.

Unacceptable Levels of Service for Various Intersections, including:

- I-80 Westbound Ramps/Pedrick Road (5) - operates at LOS F during both the AM and PM peak hours. The large volume of project traffic, particularly the westbound left turning movement, cannot be adequately accommodated by the existing intersection.
- I-80 Eastbound Ramps/Pedrick Road (5) - operates at LOS F during both the AM and PM peak hours. Heavy eastbound right turns and northbound movements cause unacceptable operations.
- I-80 Eastbound Ramps/North First Street (1) - operates at LOS E during the AM peak hour and LOS F during the PM peak hour. This location is primarily affected by heavy northbound and eastbound turning movements.
- North First Street/Arterial B (11) - operates at LOS F during the AM and the PM peak hour. Heavy southbound left turns and westbound right turns degrade the intersection operations.
- North First Street/Vaughn Road (2) - operates at LOS F during the PM peak hour. The primary cause of the problem is the heavy southbound left turning movements and through movements on North First Street.
- Arterial B/Commercial Drive (10) - operates at LOS E during the PM peak hour because of large volumes of site traffic accessing the site via Arterial B.

Mitigation Measure T-L: Improve the Pedrick Road interchange with Interstate 80. Separate studies, such as Route Concept Approval Studies and Project Study Reports, should be performed in cooperation with Caltrans to determine the ultimate improvements to the interchange and mainline I-80.

Mitigation Measure T-M: Improve the North First Street interchange with Interstate 80. Separate studies, such as Route Concept Approval Studies and Project Study Reports, should be performed in cooperation with Caltrans to determine the ultimate improvements to the interchange. Direct access should be provided from the interchange ramps into the project site to avoid additional travel on the local street system.

Mitigation Measure T-N: Construct additional turn lanes at the North First Street/Arterial B intersection. Double left turn lanes are required for the southbound approach of North First Street and the westbound approach of Arterial B. Double right turn lanes are also required for the westbound approach of Arterial B. These improvements, along with the provision of direct site access from the I-80 interchange will improve the operations of the intersection.

Mitigation Measure T-O: Construct additional turn lanes at the North First Street/Vaughn Road intersection. Double left turn lanes are required for the southbound approach of North First Street and the eastbound approach of Vaughn Road. These improvements, along with the provision of direct site access from the I-80 interchange will improve the operations of the intersection.

The provision of direct site access from the I-80 interchange will reduce the overall traffic volumes at the Arterial B/Commercial Drive intersection, and therefore can improve the operations to acceptable levels.

Residual Significance: Less than significant

Impact T-9: The cumulative traffic scenarios for 2010 will result in unacceptable levels of service for various road segments.

Three major road segments are projected to experience unacceptable levels of service as a result of the project at the following roadways.

- North First Street - between Interstate 80 and Arterial B. Heavy volumes entering and exiting the site will use this route causing unacceptable operations for this four lane road.
- Pedrick Road - between Interstate 80 and Professional Drive. This four-lane road will also experience unacceptable levels of service as a result of the project.
- Interstate 80 - Implementation of the project results in the addition of a significant volume of traffic on Interstate 80.

Significance: Significant

Mitigation Measure T-P: Widen North First Street to six lanes between Interstate 80 and Arterial B.

Mitigation Measure T-Q: Widen Pedrick Road to six lanes between Interstate 80 and Professional Drive.

The above improvements should be implemented when the peak hour volume on the subject roads exceed 3,600 vehicles per hour.

Mitigation Measure T-R: Contribute to improvements on Interstate 80 adjacent to the project site. A Route Concept Approval Study should be performed in cooperation with Caltrans to determine the ultimate improvements to Interstate 80. The project proponent shall contribute a fair share amount toward these improvements.

Mitigation Measure T-S: The Pedrick Road Overcrossing of the railroad tracks is mentioned in the General Plan as a possible location to be considered as a part of a separate study. The overcrossing, if implemented, would cross over the railroad tracks and would not affect the traffic forecasts. This shall be considered with all future cumulative development implementing this project.

Residual Significance: Less than significant

Impact T-10 Since the site is not in the City of Dixon, it is not directly served by public transit.

Since the specific plan includes the provision of bus routes, turnouts, transit shelters and park-and-ride lots and a Transportation Management Plan, sufficient facilities will be in place to accommodate the extension of transit services to the site. Therefore, no further mitigation measures are required.

Significance: Less than significant

Mitigation Measures: No mitigation required

Residual Significance: Less than significant

Impact T-11: Implementation of the project would increase traffic volumes on surrounding streets which are planned to be used by bicyclists and pedestrians.

Significance: Significant

Additional traffic-related conflicts will occur with bicyclists and pedestrians along the adjacent street system including Pedrick Road, North First Street and Vaughn Road.

Mitigation Measure T-T: Ensure Safety in the Design of Road Improvements. Design and implementation of roadway improvements shall ensure safe and efficient movement of bicyclists and pedestrians, including sidewalk paths, bicycle lanes and signalized crosswalks at major intersections, in accordance with City standards.

Residual Significance: Less than significant

Impact T-12: Implementation of the project includes a bikeway and pedestrian trail system for public use.

Significance: Less than significant

Included in the Northeast Quadrant Specific Plan are provisions for a multimodal Class I trail system throughout the area. This is considered to be a *beneficial impact*. No mitigation is required.

4.7.6 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Implementation of the mitigation measures listed in Section 4.7.3 and 4.7.4 would reduce project specific and cumulative traffic and circulation impacts to a level below significant.

4.8 NOISE

The purpose of this section is to summarize the existing and future ambient noise environment within the vicinity of the proposed project, and to recommend noise mitigation measures for all identified significant noise impacts.

Noise is often described as unwanted sound and reactions to noise are subjective and variable. Researchers have generally agreed that A-weighted sound pressure levels (sound levels) are well correlated with subjective reaction to noise. Variations in sound levels over time are represented by statistical descriptors, and by time-weighted composite noise metrics such as Day-Night average level (Ldn). The unit of sound level measurement is the decibel (dB), sometimes expressed as dBA.

Representative noise sources and their corresponding noise levels are shown on Table 4.8.1.

TABLE 4.8.1
TYPICAL NOISE LEVELS

Noise Sources	Noise Level dBA (Leq)
Rustle of leaves in Wind	10
Whispering	20
Average Residence	30
Refrigerator	40
Average Office	50
Normal Speech	60
Vacuum Cleaner	70
Garbage Disposal	80
Food Blender	90
Automobile Horn	100

Source: Environmental Noise Pollution, Patrick F. Cuniff (1977)

EXISTING NOISE ENVIRONMENT

The existing ambient noise environment in the project vicinity is defined primarily by traffic on I-80 and Highway 113 (North First Street), and rail operations along the SPRR tracks that traverse the southeastern portion of the project site. Traffic along Pedrick Road and activities at the Dixon Canning Facility also contribute a minor amount of noise to the ambient noise environment, but to a much lesser extent.

To generally describe ambient noise levels in the project vicinity, the Dixon General Plan was consulted. As shown on Figure 4.8.1, 1993 noise contours indicate Interstate 80 as the major source of the most intense noise for the project area. The noise level immediately adjacent to the freeway is 80 CNEL (decibels stated as the Community Noise Equivalent Level), decreasing to 60 CNEL inside the site. The noise levels from the SPRR are 65 CNEL adjacent to the tracks, also decreasing to 60 CNEL inside the site. Ambient noise levels in the interior portion of the project site are below 60 CNEL.

SENSITIVE RECEPTORS

Some land uses are considered more sensitive to ambient noise levels than others, due to the amount of noise exposure (in terms of both time and insulation from noise) and the types of activities typically involved. Residences, motels and hotels, schools, libraries, churches, hospitals, nursing homes, auditoriums, parks and outdoor recreation areas are generally more sensitive than are commercial and industrial uses. There are eleven sensitive receptors (residences) located on the project site, including the Vaughn and Dudley homes built in the late 1800's and early 1900's. These residential structures are to be either relocated or demolished (Section 4.6, Cultural Resources).

There are no sensitive receptors adjacent to the project site.

STATE AND LOCAL NOISE GUIDELINES

There are state and local regulations for preventing environmental noise that can jeopardize the public health and welfare. The regulations which are applicable to the project site include those outlined by the California Department of Health Services (CDHS) and the City of Dixon.

CALIFORNIA DEPARTMENT OF HEALTH SERVICES NOISE GUIDELINES

The CDHS published guidelines in 1987 for the noise elements of local general plans. These guidelines identify noise levels which are compatible with different land uses. There are four categories of outdoor DNL ranges: normally acceptable, conditionally acceptable, normally unacceptable, and clearly unacceptable as shown on Figure 4.8.2.

Noise levels up to 65 DNL are normally acceptable for the non-residential uses. Levels from 65 DNL to 75 DNL are conditionally acceptable, requiring noise reduction measures.

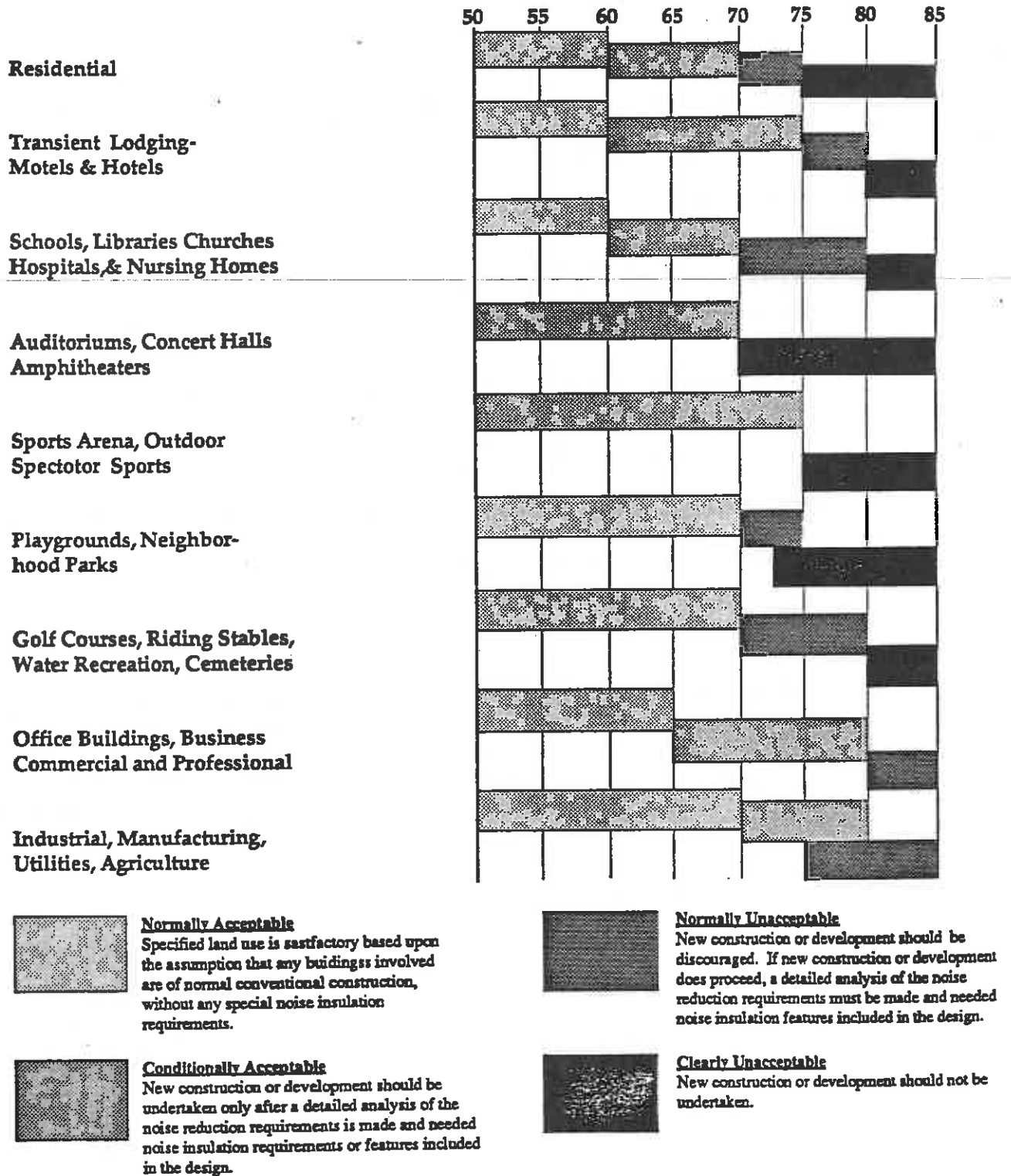
CITY OF DIXON GENERAL PLAN

The Dixon General Plan addresses noise impacts in its Natural Environment section. There are five policies outlined in this section:

- The city shall protect existing noise sources from future noise-sensitive development.
- The city shall establish performance standards to limit noise generation.
- The city shall establish physical development patterns compatible with the noise environment of Dixon.
- The city shall, where feasible, mitigate traffic and other noise to the levels defined as "Acceptable Levels of Noise Exposure." Areas in which noise levels currently exceed, or as a result of future development, will exceed these levels of noise exposure are deemed inappropriate for the development in question.

Land Use Category

Community Noise Exposure (DNL)



Source: State of California General Plan Guidelines, June 1987.

FIGURE 4.8.2
ACCEPTABLE LEVELS OF NOISE EXPOSURE

- The city shall develop buffering standards and procedures to protect residents from freeway/highway traffic and industrial noise. Acoustical design to reduce noise levels will be an important consideration in all projects and developments.

CITY OF DIXON ZONING ORDINANCE

The noise performance standards described in the Dixon Zoning Ordinance indicate that the maximum sound level permitted for commercial uses is 70 decibels, and 75 decibels for industrial uses (City of Dixon Zoning Ordinance, 1991 Update).

4.8.2 THRESHOLD SIGNIFICANCE

The City of Dixon Zoning Ordinance specifies noise performance standards and maximum exterior noise levels permitted for commercial and industrial uses. The noise performance standards indicate that maximum sound levels permitted for commercial uses is 70 dB and 75 dB for industrial uses.

A project is considered to have a significant impact on the environment if:

- a project results in a substantial increase in ambient noise levels at adjoining noise-sensitive land uses or if it violates noise compatibility guidelines for land use.

4.8.3 ENVIRONMENTAL IMPACTS AND MITIGATIONS

SHORT-TERM CONSTRUCTION

Impact N-1: Short-term construction noise impacts associated within the NQSP.

During project construction, noise from construction activities could dominate the noise environment, depending on the location of the actual construction operation. Construction activities could generate noise levels ranging from 78 to 89 dB at a distance of 50 feet as shown on Table 4.8.2. This exceeds the City's noise performance threshold of 70 dB for commercial and 75 dB for industrial uses. Construction noise levels can be attenuated to approximately 60 dB at about 1,200 feet from the noise source through mitigation measures.

**TABLE 4.8.2
TYPICAL CONSTRUCTION NOISE LEVELS**

CONSTRUCTION OPERATIONS	NOISE LEVEL DBA (LEQ) AT A DISTANCE OF 50 FEET
	Ground Clearing
Excavation	84
Foundations	89
Erection	78
Finishing	85
	89

Source: Bolt, Berdnek, and Newman, Noise from Construction Equipment and Operations, Building Equipment and Home Appliances (1971)

Construction activities would be temporary in nature, typically occurring during normal working hours. There are no sensitive receptors close enough to the project site to be adversely impacted by short-term noise from construction activities. In addition, the initial and final transport of construction equipment along local streets would not raise ambient noise levels noticeably.

Significance: Significant

Mitigation Measure N-A: All contractors shall comply with local, state and federal noise regulations, including fitting all equipment with mufflers according to the manufacturer's specifications.

Mitigation Measure N-B: Construction activities shall not take place between 7:00 p.m. and 7:00 a.m. on weekdays and Saturday, and shall not be permitted on Sunday or on federal holidays.

Residual Significance: Less than significant

LONG-TERM NOISE IMPACTS

Impact N-2: Long-term noise impacts associated with traffic.

Implementation of the proposed project is expected to generate approximately 99,124 average daily trips. A substantial percent of trips would be traveling to and from the project site via I-80 and would not affect noise adjacent to the east, south and west portions of the site. However, the remaining trips would travel south and west of the site into the existing City of Dixon.

Traffic generated by the proposed project would affect ambient noise levels over the long-term through related motor vehicle trips on roadways that would serve as access to the project site. Traffic noise generated by the project would have a significant impact on roadways in the vicinity of the project which already experience from 60 dB to 80 dB from I-80 and the existing SPRR.

Significance: Significant

Mitigation Measure N-C: Future development shall comply with the City of Dixon. Development criteria in the NQSP shall be required to demonstrate conformance with the City's noise standard or site specific mitigation measures to ensure that noise thresholds are not exceeded.

Residual Significance: Less than significant

Impact N-3: On-Site Noise

Implementation of the proposed project would introduce a variety of commercial, office and industrial uses to land that is located adjacent to I-80 and the SPRR.

Noise levels between 65-75 CNEL are conditionally acceptable and noise levels greater than 75 CNEL are normally unacceptable, according to guidelines established by the CDHS (Figure 4.8.2). Levels greater than 80 CNEL are considered either normally or clearly unacceptable for these uses.

The portion of the project site within 1,000 feet of I-80 and 200 feet of the SPRR are subject to relatively higher noise levels of 65 dB to 70 dB. Areas directly adjacent to the freeway (within 200 feet of the Caltrans right-of-way) are subject to noise levels that are potentially above 70 dB.

Significance: Significant

Mitigation Measure N-D: Residential land uses are not proposed for this project. Commercial and office uses located within the proposed year 2010 70 CNEL noise contour, and industrial uses proposed within the 75 CNEL noise contour (Figure 4.8.1), shall be sited and designed to be sensitive to the adjacent I-80 noise source by incorporating appropriate building materials and design techniques to improve both the interior and exterior noise environment. In addition, the use of landscape barriers shall be explored to reduce noise levels adjacent to I-80.

Residual Significance: Less than significant

4.8.4 CUMULATIVE IMPACTS

Impact N-4: Cumulative noise impacts

Implementation of cumulative development in the vicinity of the proposed project and within the City of Dixon would contribute to increases in noise exposures for locations already experiencing noise levels above local and state standards, including land located along I-80. The city is implementing noise performance standards as part of their General Plan update program to protect existing and future sensitive land uses. The potential for increased noise associated with cumulative development would be controlled with these standards and required mitigation measures.

Significance: Less than significant

4.8.5 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Implementation of the mitigation measures recommended in Sections 4.8.3 and 4.8.4 would reduce short- and long-term noise impacts to levels below significance.

4.9 PUBLIC SERVICES AND UTILITIES

The intent of this section is to: 1) describe the current capabilities of the various public services and utility companies and agencies that might be affected by implementation of the proposed project; 2) present a quantitative analysis, whenever possible, of the project-related impacts to these agencies; and 3) provide suggestions and recommendations in the form of mitigation measures to reduce project-related impacts to below significant levels, if feasible.

4.9.1 WATER

4.9.1.1 ENVIRONMENTAL SETTING

Domestic water service in the vicinity of the project site and within the City of Dixon is provided by two water purveyors, including the Dixon-Solano Municipal Water Service (DSMWS) and the California Water Service Company (CWSC). The remainder of water in the area is extracted from private water wells and used, for the most part, for agricultural irrigation.

Water in the vicinity is produced from alluvial deposits recharged from rainfall and irrigation from the Sacramento Valley floor area. The aquifer in the Dixon area is plentiful, with limitations to existing or proposed development in the region (Personal conversation, Darrell Rosenkild, Director of Water Operations, SID). The groundwater quality in the area is very good, with natural filtration taking place as water percolates through the porous layers of the soil. Because the water is drawn from deep, protected aquifers, very little treatment is required to ensure a safe palatable supply. Only chlorine is added to the domestic water supply to provide residual disinfection in system pipelines. All wells in the area generally have high yields, ranging from 675 to 1,250 gallons per minute (gpm). The average depth of groundwater in the vicinity is approximately 40-45 feet.



Approximately half of the proposed project is located within the service district boundaries of the Dixon-Solano Municipal Water Service (DSMWS) (see Figure 4.9.1). The remaining portion of the site is not served or located with a designated water service area. DSMWS currently maintains 12-inch water mains in Vaughn Road and North First Street and provides irrigation water to a number of customers in the area.

DIXON-SOLANO MUNICIPAL WATER SERVICE

The Dixon-Solano Municipal Water Service (DSMWS) was established in 1987 under a joint powers agreement between the City of Dixon and the Solano County Irrigation District. The DSMWS currently serves the Dixon Industrial Park, the Watson Ranch Subdivision, the Pheasant Run Subdivision, portions of the West "A" Street Assessment District and the Regency and Connemara Subdivisions. Water in the DSMWS system is extracted from groundwater from naturally occurring aquifers. Three wells pump this water from hundreds of feet below the ground surface into the overall distribution system. The total capacity of these wells is 3,990 gpm at a pressure range of 57 to 61 pounds per square inch (psi). Total water delivered in 1992 was 575-acre-feet. The peak water demand for July 1994 was 1,387,677 gpd. The average daily demand for water in 1993 was 730,353 gpd. Storage capacity will be over one million gallons within the next year. It is the policy of the DSMWS to serve all new developing areas within the city limits of Dixon. There are presently no water limitations to accommodate planned development.

CALIFORNIA WATER SERVICE COMPANY

The California Water Service Company (CWSC) currently serves the remainder of developed land within the City of Dixon. The CWSC operates eight wells having a capacity to produce approximately 5,760 gpm at a pressure ranging from 40 to 55 psi. This production capacity can provide an average of 1.34 million gallons of water per day (gpd) and 489 million gallons of water per year, although a maximum consumption has been 2.9 million gallons per day (mgd). The estimated safe yield of 5,760 gpm equates to approximately 829 million gallons per year.

 North First Street Assessment District Water Supply Service Area
 Areas Not Located Within A Water Service Area

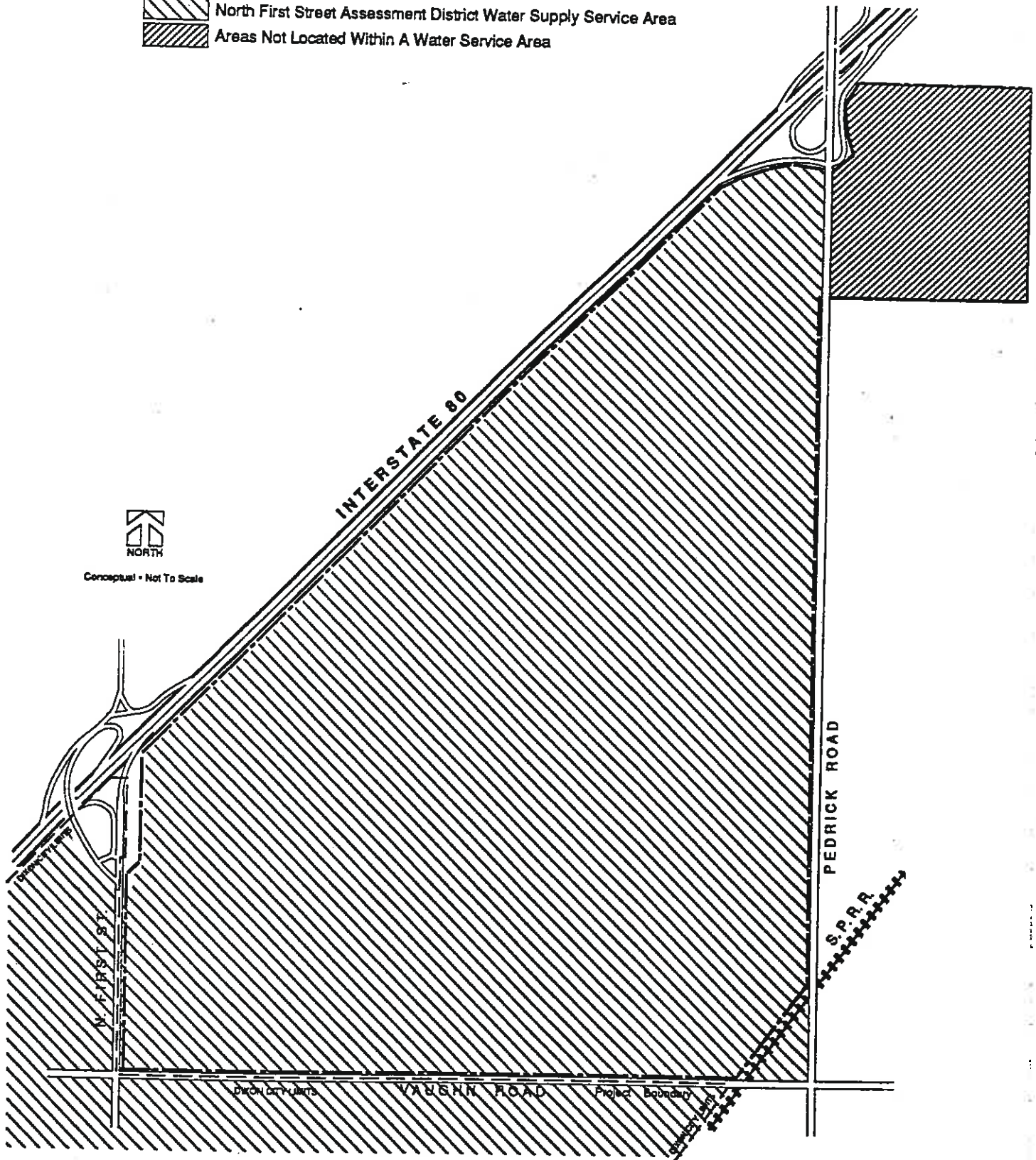


FIGURE 4.9.1
WATER SERVICE BOUNDARIES

4.9.1.2 THRESHOLD SIGNIFICANCE

A project is considered to have a significant impact on the environment if:

- a groundwater resource is substantially depleted
- a local water supply or distribution facilities were not adequate to meet future demand.

4.9.1.3 ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Impact PS-1: Approximately half of the NQSP land area is currently not within the NFSAD and does not have access to a municipal water system.

Significance: Significant

Mitigation Measure PS-A: Prior to approval of the NQSP, the entire project area shall join the NFSAD to ensure water supply services.

Residual Significance: Less than significant

Impact PS-2: Implementation of the NQSP would generate a substantial need for domestic water, increasing current municipal water storage requirements.

The demand for water availability has been estimated to be approximately 2,331,435 gpd or 2.3 mgd as shown on Table 4.9.1. This is three times greater than the 1993 average daily demand. It should be noted that usage rates on Table 4.9.1 include the use of water for maintaining proposed ornamental landscaping within each land use category.

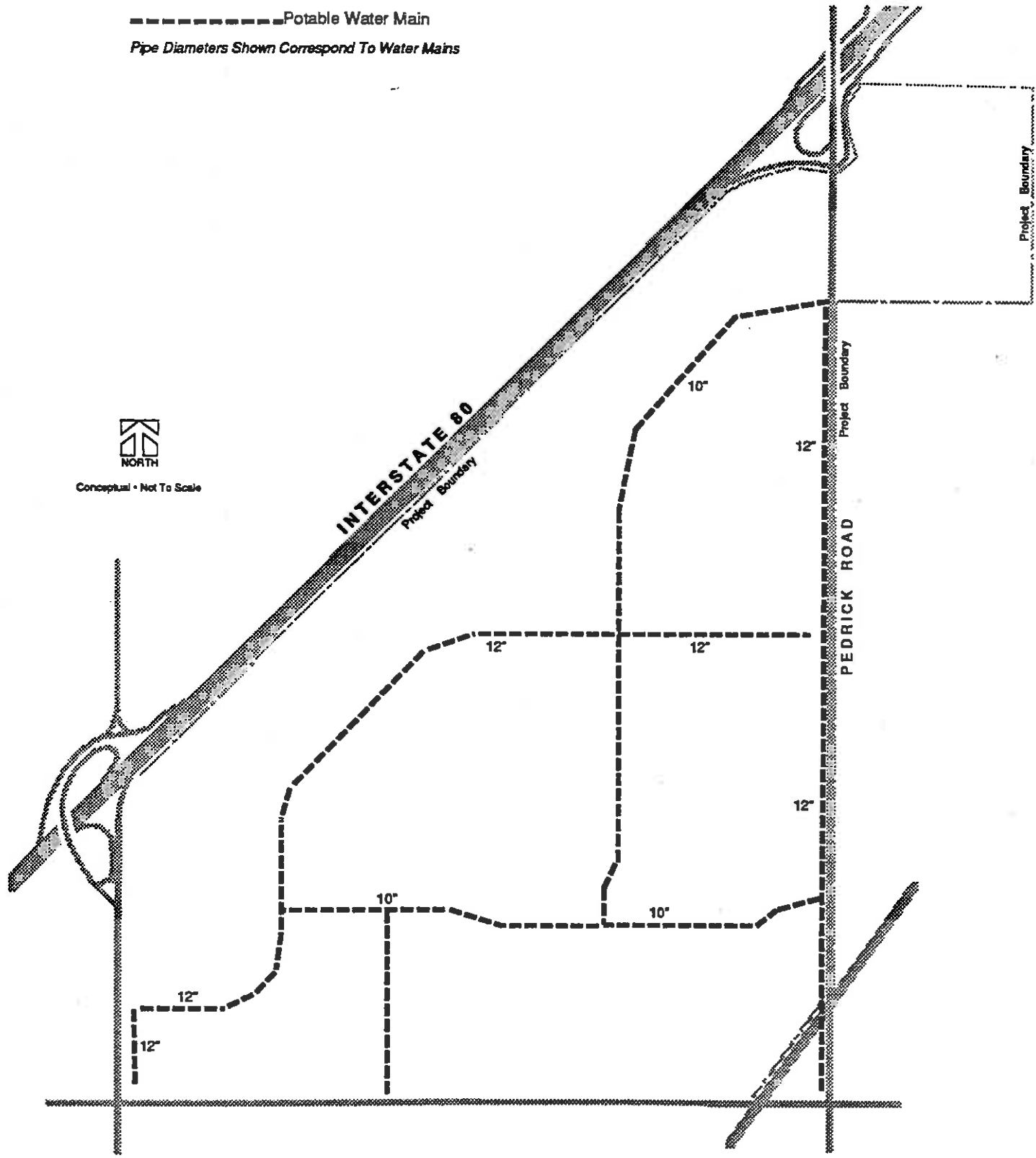
Significance: Significant

**TABLE 4.9.1
ESTIMATED WATER DEMAND**

Land Use	Acres	Rate (gpd)*	Water Demand (gpd)
Commercial	194.1	5,760	1,118,000
Professional Offices	105.4	2,880	303,552
Light Industrial	214.4	2,880	617,472
Drainage Easements and Open Space			
Irrigation	<u>129.1</u>	<u>2,265</u>	<u>292,411</u>
	643.0 acres		2,331,435 gpd (2.3 mgd)

* Based on projections contained in the Northeast Quadrant Specific Plan

The NQSP proposes that domestic water would be distributed throughout the project site by a series of 10- and 12-inch water mains as shown in Figure 4.9.2.



**FIGURE 4.9.2
PROPOSED WATER SYSTEM**

In addition, the system would include the extension of existing 12-inch water mains in Vaughn Road and North First Street into the project site at Arterial 'B', Pedrick Road, and Fitzgerald Way. The system would be designed to meet the requirements of the DSMWS with fire hydrants and mains installed to meet current fire prevention standards.

Present expansion plans of the DSMWS water service area include two new storage tanks which would increase capacity to 1.4 million gallons. Upon completion, overall pumping capacity of the system is expected to be 13,000 gallons per minute (gpm) or 18.7 million gallons per day (mgd) which will be reached at projected buildout date of 2005.

Mitigation Measures PS-B: Prior to the issuance of a building permit, the project proponent shall obtain evidence that a water supply is available to meet the minimum demand (2.3 mgd) of the project and submit this evidence (will serve letter) to the City of Dixon.

Residual Significance: Less than significant

4.9.1.4 CUMULATIVE IMPACTS

Impact PS-3: Implementation of cumulative development in the area would generate the need for additional water supply, conveyance, treatment and storage facilities and services.

Significance: Less than significant

Cumulative development would generate the need for approximately 5 mgd of water. This impact is not considered to be significant because the City of Dixon is currently anticipating growth (as identified in the general plan) and public services and utility districts are planning to serve this future growth. It is unlikely that cumulative water needs would exceed the service capacity of local water purveyors if the development of each cumulative project is contingent upon providing evidence for or acquiring an adequate water supply.

Residual Significance: Less than significant

4.9.2 WASTEWATER

4.9.2.1 ENVIRONMENTAL SETTING

The City of Dixon provides domestic wastewater collection and treatment for land within the corporate boundaries of the city as well as several unincorporated areas in the vicinity of the project site. Most other areas of unincorporated Solano County utilize individual septic systems. The City of Dixon wastewater treatment plant is located three miles south of the city. Treatment capacity is currently approximately 0.73 mgd. Current average daily flow into the treatment plant is approximately 1.2 mgd, which represents approximately 164 percent of existing capacity. A treatment capacity expansion project is currently under consideration which would expand primary treatment capacity to a total range of 1.8 mgd.

Existing sewer collection infrastructure in the vicinity of the project site consists of 10- and 12-inch sewer lines in North First Street. The remainder of wastewater generated by development in the city is collected by sewer lines varying in size from 6 - 27 inches in diameter.

It is anticipated that future services will be provided via a new 21-inch sewer line extending from the existing line on Industrial Way east, and north on Fitzgerald Way to the NQSP area. However, this is not planned to accommodate the region's ultimate capacity for the North First Street Assessment District. Future sewer trunk line capacity will require further expansion to the sewer line to accommodate the ultimate projected flows from the northeast area of Dixon to the sewage treatment plant.

As shown on Figure 4.9.3, the westerly most portion of the project site is located within the existing service area of the city. The remaining portion of the project site west of Pedrick Road is currently located within the North First Street Assessment District service area. Portions of the project site located east of Pedrick Road are not currently located within an existing service district boundary.

4.9.2.2 THRESHOLD SIGNIFICANCE

The following significance criteria were considered when determining the significance of the proposed project. Impacts to wastewater would be considered to be significant if the proposed project would:

- create a potential public health hazard or involve the use, production or disposal of waste materials which pose a hazard to people or to animals;
- contaminate a public water supply; and
- generate wastewater and local collection and treatment facilities where not adequate to meet this demand.

4.9.2.3 ENVIRONMENTAL IMPACTS

Impact PS-4: Buildout of the proposed NQSP would generate an average of 694,320 gpd and a peak flow of approximately 1.7 mgd of wastewater. Existing wastewater collection infrastructure would need to be extended to serve the project site.

Significance: Significant

The existing wastewater treatment facility is operating at 164% of capacity. Expansion plans will increase capacity to 1.89 mgd. Tables 4.9.2 and 4.9.3 show the wastewater projections of the NQSP as determined by the project's preliminary investigation of wastewater improvements prepared by Morton & Pitalo, Inc. This shows a projected average flow of 694,320 and a peak flow wastewater generation of 1,735,800 gpd based on the proposed land uses and acreages.

**TABLE 4.9.2
ESTIMATED WASTEWATER DEMAND - AVERAGE FLOW**

Land Use	Net Developable Acres	Average Flows (gpd)	Wastewater Generated (gpd)
Commercial	194.1	1,600	310,560
Professional Offices	105.4	1,200	126,480
Light Industrial	214.4	1,200	257,280
	513.9		694,320 gpd

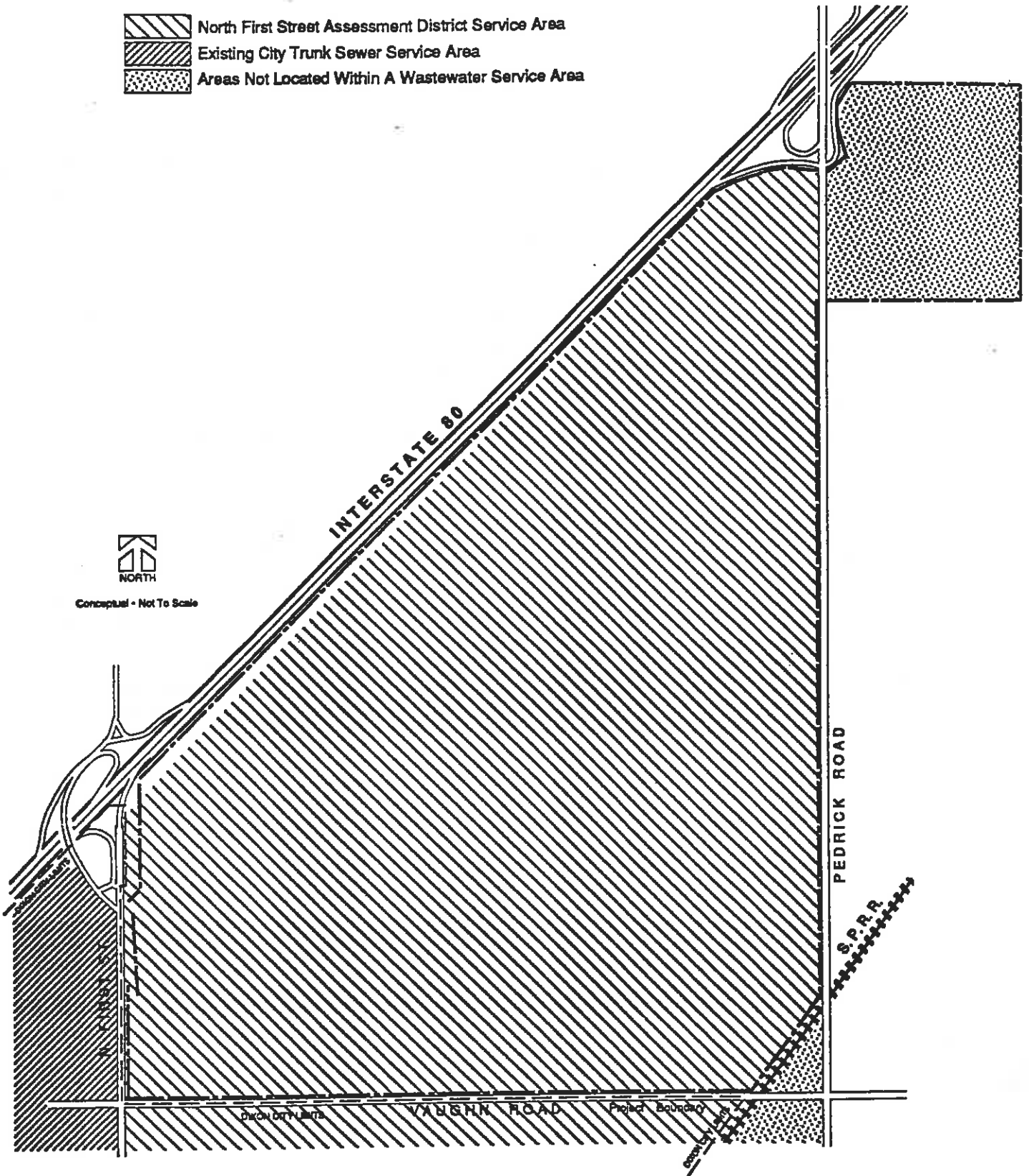


FIGURE 4.9.3
WASTEWATER SERVICE BOUNDARIES

TABLE 4.9.3
ESTIMATED WASTEWATER DEMAND - PEAK FLOW

Land Use	Net Developable Acres	Peak Flow (gpd)	Wastewater Generated (gpd)
Commercial	194.1	4,000	776,400
Professional Offices	105.4	3,000	316,200
Light Industrial	214.4	3,000	643,200
	513.9		1,735,800 gpd

As shown on Figure 4.9.4, the NFSAD trunk sewer system would be extended from Fitzgerald Way to the intersection of Vaughn Road and Fitzgerald Way. The main collection system would then be extended eastward along Vaughn Road and north along Pedrick Road with branch lines connecting at Commercial Drive, Mistler Road and Professional Drive to serve the eastern half of the NQSP area. A lift station would be constructed at the intersection of Mistler Road and Pedrick Road. A second collection system would be extended north at Fitzgerald Way and west at Commercial Drive to collect wastewater from the western portion of the project site.

An area-wide assessment, including areas beyond the project site boundaries, may be required to fund the construction of the planned parallel 36-inch diameter trunk south of Hall Park to the wastewater treatment plant. The City of Dixon Public Works Department has indicated that the existing 27-inch trunk in First Street is nearing capacity and that a proposed parallel 36-inch main would need to be installed to serve future developments within the City of Dixon.




Prior to providing the necessary wastewater infrastructure and obtaining capacity at the city's wastewater treatment plant, portions of the project site not currently located within a sewer service area would need to be annexed to be considered for future service.

Mitigation Measure PS-C: Prior to the issuance of a building permit, evidence that the city's wastewater treatment plant has capacity to accommodate the proposed project shall be submitted to the City of Dixon.

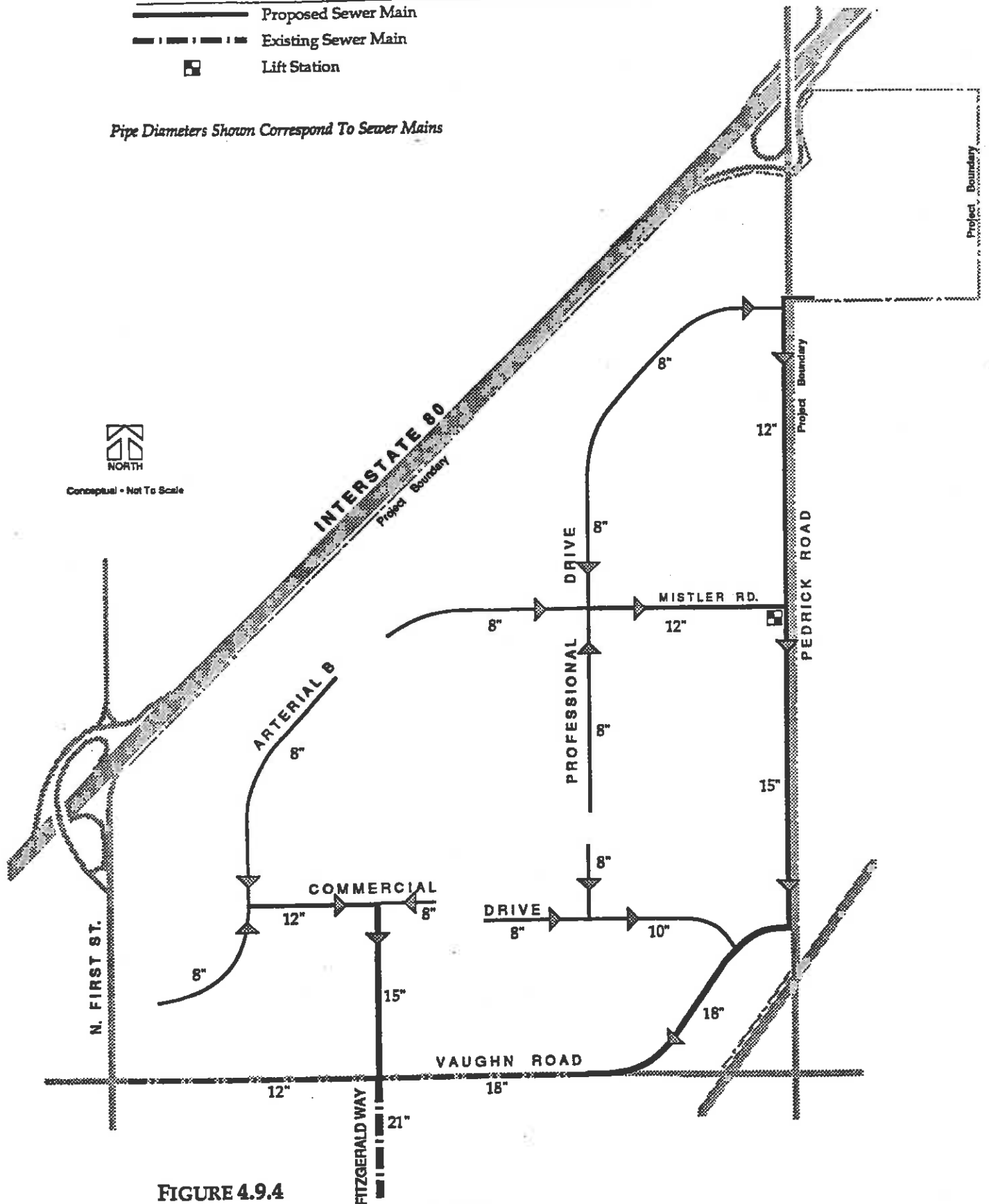
Mitigation Measure PS-D: Prior to the issuance of a building permit, the 60 acres of the project site located east of Pedrick Road shall be annexed into the service district boundaries of the city's sewer service area.

Mitigation Measure PS-E: The project proponent shall be responsible for contributing to the appropriate hook-up fees to help offset the costs of necessary sewage treatment facility expansions. In addition, the project proponent shall be responsible for the construction of sewer lift stations, sewer mains and any other facility improvements deemed necessary to serve the proposed project.

Residual Significance: Less than significant

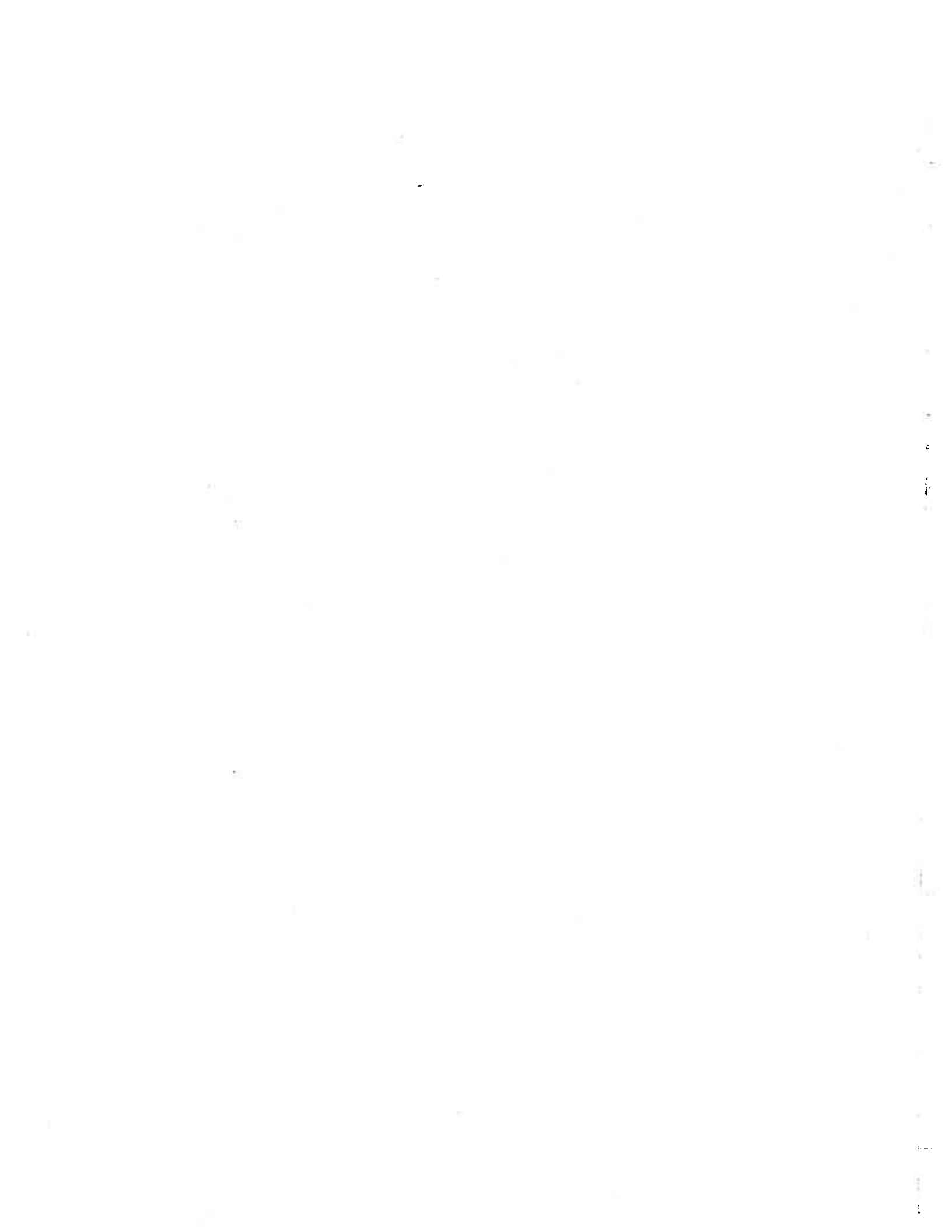
-  Proposed Sewer Main
-  Existing Sewer Main
-  Lift Station

Pipe Diameters Shown Correspond To Sewer Mains




NORTH
Conceptual - Not To Scale

**FIGURE 4.9.4
PROPOSED WASTEWATER SYSTEM**



4.9.2.4 CUMULATIVE IMPACTS

Impact PS-5: Implementation of cumulative development in the area would generate wastewater which would need to be treated at the City of Dixon wastewater treatment plant.

Significance: Less than significant

Mitigation Measures: No mitigation required

Cumulative development would generate approximately 2.5 mgd of wastewater. This impact is not considered to be significant because the City of Dixon is currently anticipating growth and public service and utility districts are planning to serve this future growth. It is unlikely that cumulative wastewater generation would exceed the service capacity of the City of Dixon wastewater treatment plant if the development of each project is contingent upon providing evidence or acquiring an adequate amount of capacity at the plant.

Residual Significance: Less than significant

4.9.3 SOLID WASTE

4.9.3.1 ENVIRONMENTAL SETTING

The Dixon Sanitary Service, a private waste disposal company, provides collection and transfer services for solid waste generated within the City of Dixon and in the vicinity of the project site. They also serve Vacaville and Northern Solano County. There is generally one collection per week in residential, commercial, and light industrial area while the frequency of collection increases to three times per week for heavy industrial uses.

The solid waste collected in the vicinity is transported to the B&J Landfill located at 6426 Hay Road, west of State Highway 113, approximately eight miles south of the City of Dixon. This landfill is rated Class II, accepting only municipal waste. The landfill is currently several hundred acres in size with a 30 - 40 year life expectancy remaining. The current average daily quantities received at the landfill is 250 tons.

Recycling programs for glass, aluminum and paper are privately operated and are located in the City of Dixon. In addition, tires, auto batteries, freon and white goods (refrigerators and other household appliances) are recycled at the landfill by Vacaville Sanitary Service.

4.9.3.2 THRESHOLD SIGNIFICANCE

The following significance criteria was considered when determining the significance of the proposed project. Impacts to the collection, transfer and storage of solid waste would be considered to be significant if:

- local solid waste collection and disposal services and facilities were not adequate to accept solid waste;
- opportunities for feasible recycling of substantial amounts of resources would be neglected; or
- collection services were substantially impeded.

4.9.3.3 ENVIRONMENTAL IMPACTS

Impact PS-6: Implementation of construction activities would generate lumber, sheetrock, and other scrap materials during construction. In addition, implementation of the proposed project would generate approximately 138,992 pounds of solid waste per day.

Significance: Significant

Materials not suited to be disposed of in a Class II landfill may also be generated within the proposed project. Please refer to Section 4.11 for a complete discussion of the generation of hazardous materials.

Mitigation Measure PS-F: Prior to final map approval, the project proponent shall submit a construction waste; commercial and industrial; and an open space waste recycling program for long-term handling of recycled waste from the project site.

Mitigation Measure PS-G: The project proponent shall provide provisions for an on-site recycling center for commercial and industrial uses. In addition, adequate collection facilities for recyclable materials shall be located throughout the project site including outside storage and collection containers.

Mitigation Measure PS-H: Grass clippings, prunings and other organic waste resulting from open space maintenance are classified as clean waste and shall be made available for composting or recycling.

Residual Significance: Less than significant

4.9.3.4 CUMULATIVE IMPACTS

Impact PS-7: Implementation of cumulative development in the area would generate solid waste which would need to be disposed of in the B&J Landfill.

Significance: Less than significant

Mitigation Measures: No mitigation required

Cumulative development would generate approximately 228,698 pounds of solid waste. This impact is not considered to be significant because this facility is expecting growth. It is unlikely that cumulative solid waste generation would exceed the service capacity of the landfill if development of each cumulative project was to provide and encourage recycling as well as obtain a will serve letter prior to approval of each project.

Residual Significance: Less than significant

4.9.4 FIRE PROTECTION SERVICES

4.9.4.1 ENVIRONMENTAL SETTING

Fire protection services in the City of Dixon and in surrounding unincorporated areas is provided by the Dixon Fire Department. The Dixon Fire District includes a 300-square mile rural area extending from the community of Winters to Rio Vista. The Dixon Fire Department operates from three stations with a staff of four paid firefighters, 56 volunteer firefighters and one part-time office clerk. The department's main station, located on North Jackson Street in central Dixon, is considered the first response station for the proposed project and maintains an eight-minute response time to the project site.

The City of Dixon is served by Foothill Ambulance, which provides basic and advanced life support, emergency and non-emergency services. The ambulance service is located in the City of Davis and average response times for emergency calls originating in the City of Dixon involve approximately 12 minutes.

The City of Dixon currently collects fire protection impact fees, consistent with Assembly Bill 1600, to fund the expansion of existing fire protection facilities. Current development fees for impacts on fire protection services are \$600/single family unit, \$655/multi-family unit, \$0.18/square foot of industrial uses and \$0.15/square foot of commercial uses.

4.9.4.2 THRESHOLD SIGNIFICANCE

A project is considered to have a significant impact to existing fire protection services if:

- a response time is greater than five minutes;
- less than one firefighter per an additional 1,000 population exists;
- commercial structures larger than 4,000 square feet do not have built-in fire protection provisions;
- fire stations are further than one and one-half miles from new development; or
- water systems cannot provide flows of 4,000 gpm for a minimum two hour period.

4.9.4.3 ENVIRONMENTAL IMPACTS

Impact PS-8: The substantial increases in employees and structures associated with implementing the NQSP would increase the demand for fire protection and emergency medical aid services provided by the Dixon Fire Department and Foothill Ambulance.

Implementation of the proposed project would result in a net new daytime employment population of approximately 11,000 and 512 acres of commercial, business-professional, and light industrial structures and uses. Both the Dixon Fire Department and Foothill Ambulance currently do not have the employees, facilities, or the equipment to handle the response required from the proposed project.

Significance: Significant

Mitigation Measure PS-I: Prior to recordation of a final map or issuance of a grading permit, the project proponent shall either dedicate land for a fire station and provide financial contributions toward equipment and/or personnel or shall participate in

establishment of an assessment district in which all property owners in the area would dedicate funds towards establishment of adequate fire protection facilities.

Mitigation Measure PS-J: Prior to the issuance of building permits, the project proponent shall design and submit a plan to the Dixon Fire Department showing all required fire hydrant locations, detailed calculations to determine fire flow based on future structural design requirements, and access to all developed areas in accordance with city standards.

Mitigation Measure PS-K: Prior to the issuance of building permits, the project proponent shall prepare and submit a plan for emergency response including details of each proposed facility and the business conducted, an inventory of hazardous materials handled or stored on-site and a training program for employees.

Residual Significance: Less than significant

4.9.4.4 CUMULATIVE IMPACTS

Impact PS-9: Cumulative development in the area would impact existing fire protection and emergency medical aid services.

Significance: Less than significant

Mitigation Measures: No mitigation required

This impact is not considered to be significant because existing agencies and services are anticipating growth and future growth would be expected to pay its fair share for facilities and equipment. It is unlikely that cumulative projects would exceed the service capacity of the responsible fire protection agency if they are mitigated with the measures identified above

Significant impacts to existing fire protection and emergency medical aid services would be reduced to a level below significant, if the identified mitigation measures in the previous section are implement.

Residual Significance: Less than significant

4.9.5 POLICE PROTECTION

4.9.5.1 ENVIRONMENTAL SETTING

Law enforcement in the vicinity of the project site is currently provided by the Solano County Sheriff's Department. In addition, the Dixon Police Department (DPD) responds to urgent calls in areas adjacent to the City of Dixon, including the project site. The DPD is located near the intersection of South Jackson and "A" Streets, in the City of Dixon and employs 21 employees. The department employs 17 sworn officers, who are responsible for conventional law enforcement tasks (making arrests, traffic stops, serving warrants etc.) and four non-sworn personnel responsible for administrative and community service duties.

4.9.5.2 THRESHOLD SIGNIFICANCE

A project is considered to have a significant impact to existing police protection services if:

- additional personnel and/or equipment is required, based on department standards for service calls per officer, and no commitment has been made for a long-term funding source for this additional service; or
- a project would significantly hinder police access and surveillance capabilities.

4.9.5.3 ENVIRONMENTAL IMPACTS

Impact PS-10: Implementation of the proposed project would increase the daily population in the City of Dixon which would generate additional traffic on local roadways. Implementation of the project would also generate additional traffic accidents, vehicle thefts, office burglaries, vandalism, and personal disputes.

The exact number of crimes associated with the proposed project cannot be accurately forecasted, however, the project would generate the need for additional police protection services. Although existing law enforcement staffing levels are adequate at present, existing staff and equipment are not adequate to maintain a sufficient level of service at buildout of the proposed project.

The DPD has indicated that upon annexation into the city, the department would provide police protection services to the site. The department does not anticipate the need for a new substation, however, Chief Fuller has indicated that the proposed project would require the need to establish a new beat which would necessitate one additional officer per shift. This would result in a total of four additional officers. This increase is mainly expected due to the higher service needs associated with the proposed highway commercial uses.

Significance: Significant

Mitigation Measure PS-L: Prior to final map approval or issuance of a building permit, the project proponent shall request the city to commit to increase funding for necessary police services and required equipment. The city shall also verify that funding can be increased during buildout of the proposed project, through either a combination of impact fees imposed on new development and/or an increase in general fund allocations. In any event, the project proponent shall be responsible for paying its fair share for additional staff and equipment to serve the project site. This shall be established prior to occupancy of any structure occupying the project site.

Mitigation Measure PS-M: The project proponent shall be responsible for providing an on-site private security staff to adequately serve the proposed project. This staff would be responsible for securing future structures and providing security in parking lots during and after normal business hours.

Residual Significance: Less than significant

4.9.5.4 CUMULATIVE IMPACTS

Impact PS-11: Cumulative development in the area would impact existing police protection services.

Significance: Less than significant

Mitigation Measures: No mitigation required

This impact is not considered to be significant because existing agencies are anticipating growth and future growth would be expected to pay its fair share for additional staff, facilities and equipment. It is unlikely that cumulative projects would exceed the service capacity of the DPD if projects are required to mitigate impacts with mitigation measures similar to the mitigation presented below.

Residual Significance: Less than significant

4.9.6 EDUCATIONAL FACILITIES

4.9.6.1 ENVIRONMENTAL SETTING

The proposed project is located within the boundaries of the Dixon Unified School District (DUSD) which serves the City of Dixon and the northern portion of Solano County. The DUSD serves kindergarten through grade twelve at one of six educational facilities. Student enrollment in grades K-12 in 1992 was 3,006 students with a capacity of 3,332. This indicates that existing educational facilities are below capacity, however, actual capacity at each school and within each classroom fluctuates.

The DUSD is constantly expanding its facilities to serve the existing and proposed student populations. The District has recently completed construction of a new elementary school as well as a continuation high school. Additional elementary schools are also planned to be constructed to serve new residential development within the area.

4.9.6.2 THRESHOLD SIGNIFICANCE

A project is considered to have a significant impact to existing educational facilities if:

- school capacities would be substantially exceeded, due to new students generated by a proposed project.

4.9.6.3 ENVIRONMENTAL IMPACTS

Impact PS-12: Implementation of the proposed project would increase the daily population in the City of Dixon, however, it would not directly increase student enrollment at any of the existing educational facilities.

According to the DUSD's Twenty year Facilities City-Wide Plan non-residential development does indirectly impact the capacity of educational facilities and should have to contribute its fair share to fund future facilities.

Significance: Potentially significant

Mitigation Measure MS-N The project proponent shall be responsible for paying \$0.27 per square feet of commercial and industrial development consistent with Assembly Bill 2926, which requires the contribution of developer's fees to fund future educational facilities.

Residual Significance: Less than significant

4.9.6.4 CUMULATIVE IMPACTS

Impact PS-13: Implementation of cumulative development in the area could impact existing educational facilities and services.

Significance: Less than significant

Mitigation Measures: No mitigation required

However, this impact is not considered to be significant because existing agencies are anticipating growth and future growth would be expected to pay its fair share for additional teachers, facilities, and equipment. It is unlikely that cumulative projects would exceed the service capacity of the DUSD if projects are required to mitigate impacts with mitigation measures similar to the one presented below.

Residual Significance: Less than significant

4.9.7 ELECTRICITY AND NATURAL GAS

4.9.7.1 ENVIRONMENTAL SETTING

Electricity and natural gas in the vicinity of the project site is currently provided by Pacific Gas & Electric Company (PG&E). The project site is currently served by several 12 kilovolt (kV) overhead electrical lines located along North First Street, Vaughn, and Pedrick Roads to serve the on-site existing residences and the B&M Trucking Operation. While no natural gas distribution facilities are currently available to serve the project site, existing natural gas mains, maintained by PG&E, are located within the right-of-ways of North First Street, Vaughn and Pedrick Roads.

4.9.7.2 THRESHOLD SIGNIFICANCE

A project is considered to have a significant impact to existing electricity and natural gas facilities if:

- existing or proposed electrical and natural gas distribution facilities were not adequate to serve the proposed project.

4.9.7.3 ENVIRONMENTAL IMPACTS

Impact PS-14: Implementation of the proposed project would generate the need for electricity and natural gas services.

Significance: Less than significant

Mitigation Measures: No mitigation required

PG&E has indicated that it would be able to serve the proposed project as long as distribution capabilities were increased. In addition, the project proponent would be responsible for upgrading existing electrical and natural gas mains, distribution facilities and substations to serve the project site.

Residual Significance: **Less than significant**

4.9.7.4 CUMULATIVE IMPACT

Impact PS-15: **The project will cumulatively contribute to the need for energy in the project area.**

Significance: **Less than significant**

Mitigation Measures: **No mitigation required**

Residual Significance: **Less than significant**

4.9.8 TELECOMMUNICATIONS

4.9.8.1 ENVIRONMENTAL SETTING

Telecommunications in the vicinity of the project site is currently provided by the Pacific Bell Telephone Company. The project site is currently served by overhead telephone lines located along Vaughn Road.

4.9.8.2 THRESHOLD SIGNIFICANCE

A project is considered to have a significant impact to existing telecommunications facilities if:

- existing or proposed telephone facilities were not adequate to serve the proposed project.

4.9.8.3 ENVIRONMENTAL IMPACTS

Impact PS-16: **Implementation of the proposed project would generate the need for telecommunications services and facilities.**

Pacific Bell has indicated that it would be able to serve the proposed project.

Significance: **Less than significant**

Residual Significance: **Less than significant**

4.9.9 PARKS AND RECREATIONAL FACILITIES

4.9.9.1 ENVIRONMENTAL SETTING

Parks and recreational facilities in the vicinity of the project site are currently operated and maintained by the City of Dixon. The city currently has responsibility to operate and maintain four municipal parks which serve the existing population of the area. Hall Park consists of 32 developable acres and provides tennis courts, ballfields, a swimming pool,

children's play equipment, picnic facilities and an amphitheater. Northwest Park consists of 22 acres and provides facilities for soccer games. Women's Improvement Club Park provides one-acre picnic facilities. In addition to the three active parks, the city also maintains a one-acre linear greenbelt which provides for passive recreational and visual amenities.

4.9.9.2 THRESHOLD SIGNIFICANCE

A project is considered to have a significant impact to existing parks and recreational facilities if:

- existing or proposed facilities were not adequate to serve the proposed population of a project.

4.9.9.3 ENVIRONMENTAL IMPACTS

Impact PS-17: Implementation of the proposed project would involve construction of commercial, administrative office, and industrial uses and would not generate the need for additional public parks and recreational facilities. The need for private recreational facilities would be necessary for future employees who might want to exercise during lunch or in the evening.

Proposed zoning would allow the development of a private recreational facility or club. In addition, most larger employers are incorporating recreational facilities within existing business establishments.

Significance: Less than significant

Mitigation Measures: No mitigation required

Residual Significance: Less than significant

4.9.9.4 CUMULATIVE IMPACTS

Impact PS-18: The project will have a minimal impact on cumulative park and recreation facilities.

Significance: Less than significant

Mitigation Measures: No mitigation required

Residual Significance: Less than significant

4.9.9.5 LEVEL OF SIGNIFICANCE AFTER MITIGATION

The implementation of the NQSP will potentially have a significant impact on water, wastewater, solid waste, fire protection, police protection, educational facilities and electrical and natural gas. However, the mitigation measures identified for each impact can reduce the impact to a less-than-significant level.

4.10 VISUAL RESOURCES

4.10.1 ENVIRONMENTAL SETTING

EXISTING VISUAL CHARACTER OF THE REGION

The existing visual character of the City of Dixon is characterized by urban uses (residential, commercial establishments, industries, roadways, a railroad line, schools, parks and the supporting infrastructure) surrounded by agricultural uses. The architectural features associated with some of the structures within the Dixon area lend a certain historical character to the area and reflect a period when the City of Dixon served as the primary service center for a population which was, for the most part, actively involved in agricultural operations.

The undeveloped portions of the city retain the visual characteristics associated with active agricultural operations and there are no physical landmarks which dominate the generally flat visual landscape of the area.

EXISTING VISUAL CHARACTER OF THE PROJECT SITE

The existing visual character of the project site is determined by land forms, land uses, vegetation, structures, and roads. The existing visual character exhibits some variation in color, form and texture resulting from planting and harvesting seasonal crops. The site consists of topography that is essentially flat, with vertical variations of approximately twenty-five feet between the lowest and highest portions within the 643-acre site. The man-made boundaries of the site include Interstate 80 to the north, Vaughn Road to the south, Pedrick Road and agricultural land to the east and North First Street to the west as shown.

The project site does not contain any visually distinctive topographic features. The fairly level site is the result of geologic and hydrologic processes and of continued agricultural production. Historically, the site has been intensively cultivated to grow field and orchard crops. At present, approximately 580 acres of the site is used for field and row crops, and the remainder of the project site contains a livestock auction facility, Christmas tree farm (vacant), a trucking and maintenance operation, industrial fabrication/storage facility, a farm and eleven residential structures. The project site provides a substantial area of visual open space adjacent to I-80 because of the predominantly agricultural uses.

Surrounding undeveloped areas are visually similar to the project site, characterized by relatively flat topography and either used for agricultural production or vacant. Existing urban development is located adjacent to the west, south and east boundaries. Interstate 80 traverses the northern portion of the project site and further north there are several farms, a building supply facility and a produce stand. South of Vaughn Road lies the Kragen Auto Distribution Center, the SPRR and a metal fabrication facility. East of Pedrick Road lie several storage tanks, a trucking facility, the Dixon Canning facility, a farm, and agricultural uses. West of the project site and North First Street lie the Farm Credit Bureau and Cattlemen's Restaurant. All development on and adjacent to the project site is fairly visible from all portions of the subject site and from roadways in the vicinity, including Interstate 80, North First Street, Vaughn Road and Pedrick Road.

PROJECT VIEWSHEDS

The project site is highly visible from Interstate 80, Vaughn Road, Pedrick Road, and North First Street. Except for some partial screening due to intermittent trees, there are broad vistas from the Interstate along the entire site. Open views are afforded along North First Street, except where obscured by the Christmas tree farm and the auction facility. The northwest corner of the project site is the most obscured as a result of the farm related tree cover and the I-80/S.R. 113 Interchange. The northeast corner of the site is completely exposed with open views from both Pedrick Road and I-80. The southwest corner is somewhat screened by the existing facilities and the surrounding walnut orchard. Partial views are possible from Vaughn Road with orchards limiting much of the area north of the project site.

Figure 4.10.1 displays a photograph location key and Figures 4.10.2 - 4.10.5 depict views of the site and surrounding land uses.

SCENIC HIGHWAY DESIGNATIONS

The Scenic Roadways Element of the County of Solano's General Plan designates North First Street south of Interstate 80 and the segment of Interstate 80 adjoining the project site as "scenic roadways". The element states that commercial and industrial development along designated scenic roadways should be subject to design review procedures, and that the placement of off-site advertising should be prohibited, except for standardized sign programs that provide signage for roadway related services. The element identifies foreground and distant components that are important visual features along designated scenic roadways and contains specific policies to preserve these features. The foreground components identified within the project site include flat croplands and grasslands. Distant view components are made up of open fields, windbreaks and, to the west, the English Hills and Vaca Mountains.

DIXON GENERAL PLAN

Policy II-22 in the updated City of Dixon General Plan supports the preservation and maintenance of visual separation between developed areas of City of Dixon and the freeway corridor. Elements used to create a sense of separation may include vegetation, landscaping, berms, and devices other than standard acoustical walls.

4.10.2 THRESHOLD SIGNIFICANCE

The CEQA Guidelines state that significant effects on the environment include substantial, or potentially substantial, demonstrable adverse changes on objects having aesthetic significance. Under CEQA Guidelines Appendix I, two criteria for determining significant aesthetic effects are obstruction of a scenic vista or public view, and creation of an aesthetically offensive site open to public view. Another criterion of the CEQA Guidelines in determining a project's potential to result in a substantial, negative aesthetic effect is the potential for impairment of scenic quality, considered under CEQA Guidelines to be part of the resource base.

Analysis of aesthetic impacts under CEQA Guidelines criterion of significance requires identification of important public views of, and through the project site, and evaluation of the following two types of potential adverse effects:

- the effects of the project on the availability of important public views; and
- the effects of the project on the scenic quality of the project site or on objects of aesthetic significance (the site itself or features of the site).

Note: Arrows Correspond To Photographs On Figures 4.9.2 - 4.9.5

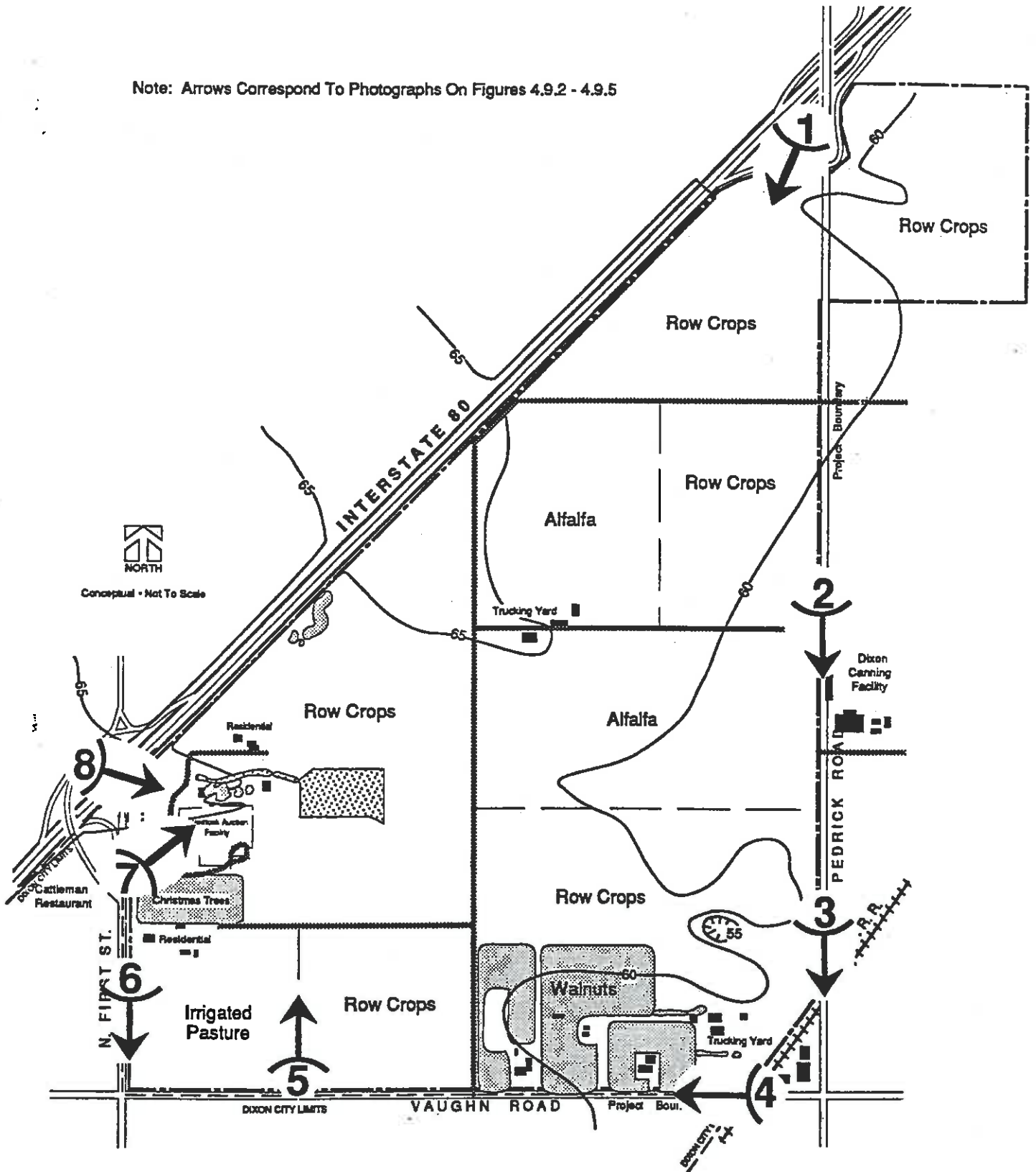
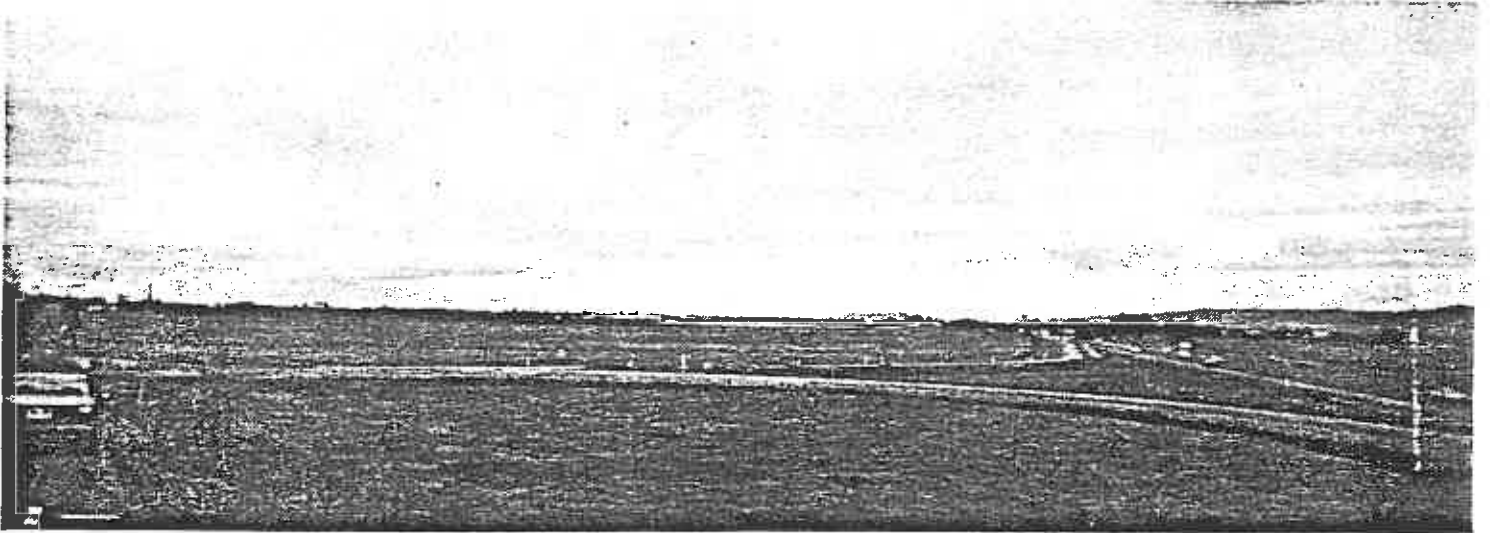


FIGURE 4.10.1
PHOTOGRAPH LOCATION KEY



Photograph 1: View looking south at the northeast portion of the project site from the Pedrick Road/I-80 Interchange.

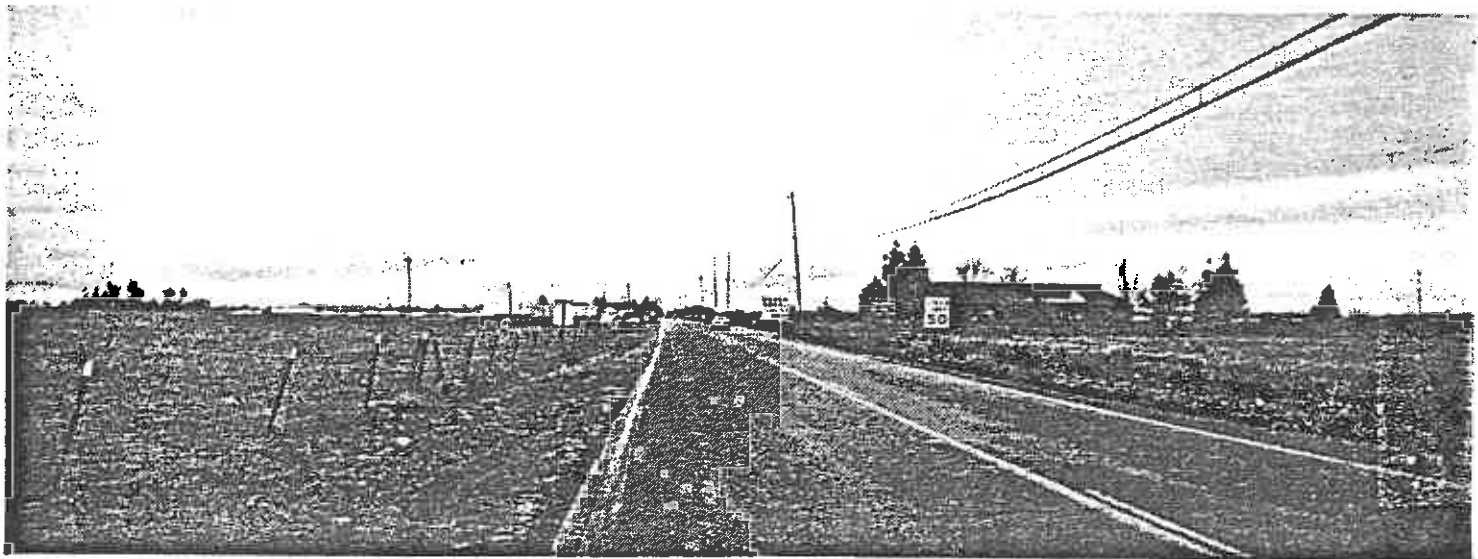


Photograph 2: View looking south on Pedrick Road. The Dixon Canning Facility is located on the left side of Pedrick Road and the project site is located on the right.

**FIGURE 4.10.2
SITE PHOTOGRAPHS**

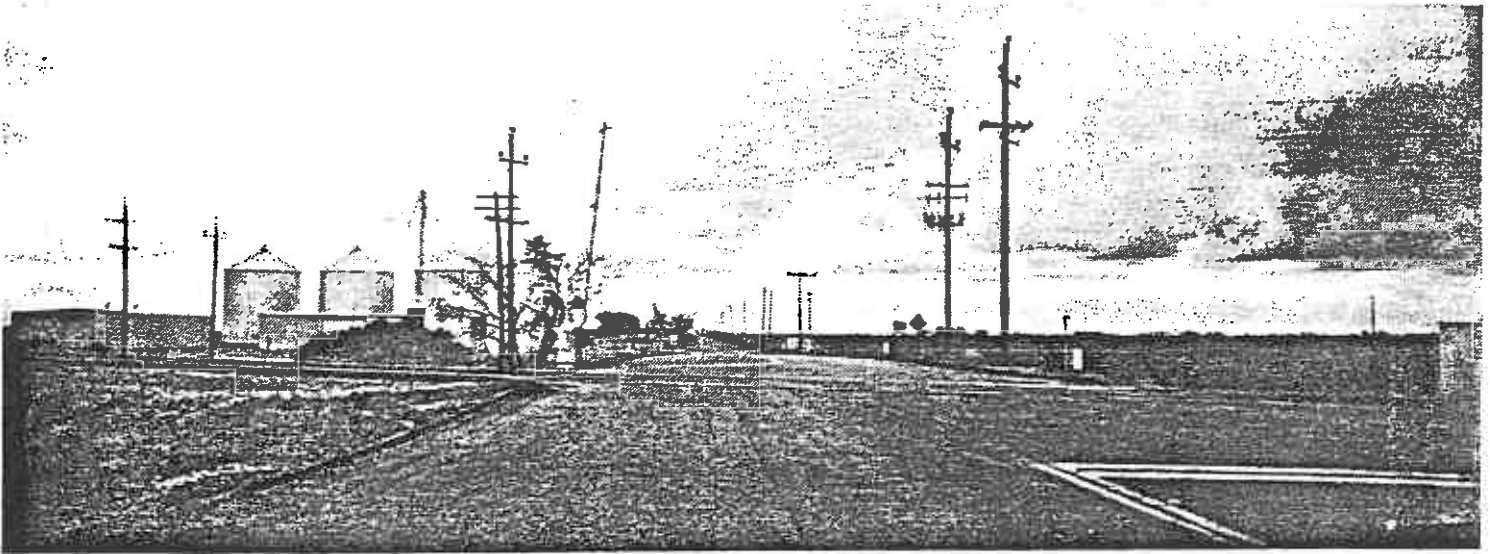


Photograph 3: View looking northwest on the project site. The field yields row crops.



Photograph 4 : View looking south on North First Street. The Farm Credit Bureau is located on the right and the project site is located on the left.

**FIGURE 4.10.3
SITE PHOTOGRAPHS**



Photograph 5: View looking south on Pedrick Road at the Southern Pacific Railroad and some existing storage tanks. The project site is located on the right side of the project site.

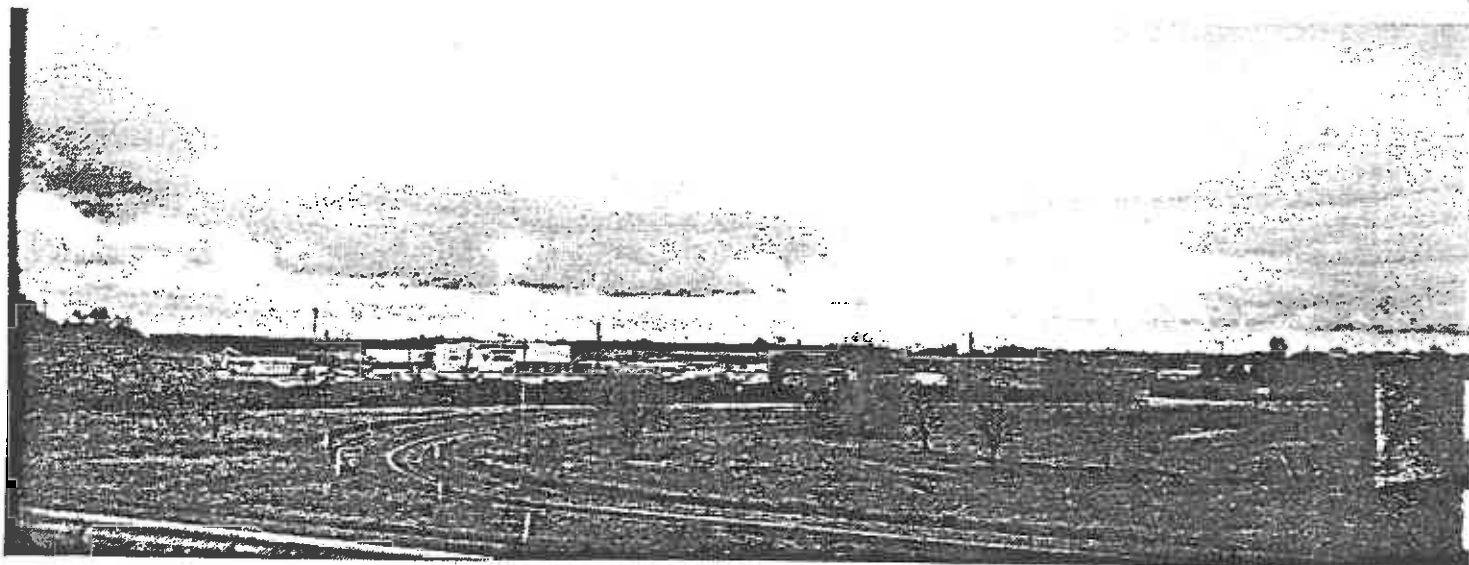


Photograph 6: View looking west on Vaughn Road at the Kragen Auto Distribution Center to the left and the existing walnut orchard (right) located on the project site.

**FIGURE 4.10.4
SITE PHOTOGRAPHS**



Photograph 7: View looking north at the existing livestock auction facility.



Photograph 8: View looking southeast at the project site from the North First Street/I-80 interchange. The majority of the project site is visible from I-80.

**FIGURE 4.10.5
SITE PHOTOGRAPHS**

4.10.3 ENVIRONMENTAL IMPACTS

Identification of the first type of potentially adverse effects consists of a determination as to whether the project would obstruct important public views currently available. Identification of the second type of potentially significant adverse effects consists of an assessment of the project in regard to introduction of an "aesthetically offensive" site, or from the degradation of a visual feature that has aesthetic significance. Types of physical changes that may result in the obstruction of important public views or in the creation of an "aesthetically offensive" site include grading and excavation, new structures, changes in the scale, form and color of natural and cultural visual features existing on the site(s), and the creation of light and glare effects. Creation of daytime glare effects would be considered a significant impact if it created a safety hazard by interfering with motorists' vision, or disrupted normal activities. The addition to a site of nighttime lighting would be considered a significant impact under circumstances where it would be substantial enough to disrupt normal nighttime activities in adjacent residential areas, or would disrupt normal nighttime activities of the project developments.

METHODOLOGY

Visual elements of the proposed project were evaluated in relation to the existing visual character of the site and the visual context of the surrounding area. Consideration was given to general visual compatibility between land uses proposed and the potential for the project site and land uses existing and proposed for adjacent and surrounding areas. Potential light and glare impacts were evaluated based on the potential for light and glare created on the project site effecting adjacent areas.

Four basic steps were involved in the assessment of aesthetic impacts. The first step was to make a determination as to whether or not important public views are currently available through the project site. The second step was to make a determination as to whether or not the project would obstruct important public views currently available. The third step was to make an identification of any visual feature that has aesthetic significance currently on the project site. The fourth step was to assess potentially significant adverse effects of the proposed project in regard to introduction of an "aesthetically offensive" site, or from the degradation of a visual feature that has aesthetic significance.

Assessment of the physical modification of the site with the project was made in regard to the degree to which this physical modification would impede the scenic quality of views from sensitive locations.

EXISTING VIEWS

Impact VR-1	Implementation of the proposed project would result in the elimination of views of the existing open space and agricultural uses.
Significance:	Less than significant
Mitigation Measures:	No mitigation required

Because the project site is surrounded by substantial areas of existing agricultural land to the north and west, elimination of agricultural uses would not constitute a significant adverse aesthetic effect. Further, the policies provided for in the NQSP will ensure the protection on visual open space and will enhance the scenic quality of the area. Specific policies from the

NQSP include provisions for the NQSP area to function as a principal entry or gateway to the City of Dixon. The special landscape enhancement along the frontage area of Interstate 80 and North First Street serves the dual purpose of complimenting the adjoining land uses while accentuating the gateway environment to the City Scenic Roadway Landscape Treatment. Special landscape provisions are required for areas along the Interstate 80 and North First Street rights-of-way to create a variegated edge of open space, landscaping and development. The NQSP also provides numerous policies to ensure the visual enhancement of future development within the plan area including: Project Design Guidelines (3.2.1); Pedestrian Circulation (3.2.2); General Architectural Guidelines (3.2.3) Street Landscape Guidelines (3.2.4); Landscape Adjacent to Natural Open Space Areas (3.2.5); Screening and Fencing Guidelines (3.2.6); Lighting Guidelines (3.2.7); Signage (3.2.8); and Street Furniture (3.2.9).

Residual Significance: **Less than significant**

FUTURE DEVELOPMENT

Impact VR-2: **Development of the proposed project would change existing views from I-80, North First Street, Vaughn Road and Pedrick Road.**

Significance: **Less than significant**

Mitigation Measures: **No mitigation required**

The proposed Northeast Quadrant Specific Plan (Appendix C) proposes special landscaping and design guidelines and screening provisions for areas of the site that are adjacent to scenic highways and roadways. The plan further establishes siting and design requirements and review procedures to ensure visual compatibility and aesthetic appropriateness of the proposed uses along I-80, North First Street, Vaughn Road and Pedrick Road. No further mitigation is required.

Residual Significance: **Less than significant**

LIGHT AND GLARE

Impact VR-3: **Implementation of the proposed project would generate daytime glare and reflections off building finishes and vehicles in parking lots. In addition, the project would result in an increase in nighttime lighting from adjacent locations and scenic highways.**

Significance: **Significant**

The Northeast Quadrant Specific Plan proposes a set of lighting guidelines which are intended to provide safety and security as well as mitigate nighttime glare for project occupants, adjacent land uses and motorists. The guidelines address the use of high pressure sodium vapor lights with cutoff-style fixtures to reduce flare impacts.

The inclusion of the following mitigation measure will further reduce the potential impact of daytime glare:

Mitigation Measure VR-A: **Bare metallic surfaces such as pipes, vents, gutters, and flashings shall be painted or concealed from view in a**

manner harmonious to the structure. All flashing and sheet metal must be treated to match the adjacent materials.

- Mitigation Measure VR-B: Primary roofing materials shall be non-reflective.
- Mitigation Measure VR-C: Monolithic glass structures shall not be allowed unless used as a portion of a building to highlight an entry.
- Mitigation Measure VR-D: Building mass colors shall be of varied hues that minimize glare with bright colors limited to use around doors, trims, awnings and other pedestrian-oriented features.
- Residual Significance: Less than significant

4.10.4 CUMULATIVE IMPACTS

Impact VR-4: The long-term visual aesthetic issue associated with implementation of cumulative development generally includes the replacement of visual qualities of natural and altered open space with urban uses associated with development.

Significance: Less than significant

Mitigation Measures: No mitigation required

The Dixon General Plan, Solano County General Plan, the Dixon Northeast Quadrant Specific Plan and all other specific plan documents associated with the cumulative development of the region have established goals, policies, guidelines and/or standards for development occurring in the area. As future development projects are proposed, each individual project is subject to separate environmental review by city and county staff members to ensure that visual effects and impacts are minimized. Therefore, cumulative development would not result in cumulative visual aesthetic impacts.

Residual Significance: Less than significant

4.10.6 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Implementation of the Dixon Northeast Quadrant Specific Plan reduces most visual impacts to a level below significant while the mitigation measures VR-A, -B, -C, and -D reduce impacts associated with daytime glare to non-significant levels. Therefore, the project will have a less-than-significant impact on visual resources.

4.11 PUBLIC HEALTH AND SAFETY

The following section describing the public health and safety of the project site was compiled from information contained in a Preliminary Site Assessment prepared by the Anderson Consulting Group (1993). Appendix E of the Technical Appendices contains a copy of the project site specific Preliminary Site Assessment.

4.11.1 ENVIRONMENTAL SETTING

A number of properties may cause a substance to be considered hazardous, including toxicity, ignitability, corrosivity or reactivity. For the purposes of this discussion, a hazardous material is defined as a substance or combination of substances which, because of its quantity, concentration, physical, chemical or infectious characteristics, may either: 1) cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible or incapacitating reversible illness; or 2) pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported or disposed of or otherwise managed according to the California Code of Regulations, Title 22, Division 4, Environmental Health, Section 66084.

Once a hazardous material is ready for discard, it becomes a hazardous waste. The same criteria that renders a material hazardous make a waste hazardous: toxicity, ignitability, corrosivity or reactivity. Toxic, ignitable, corrosive and reactive materials are all subsets of hazardous materials and wastes. For example, if a material is toxic, it is hazardous, but not all hazardous materials are toxic.

PRELIMINARY SITE ASSESSMENT

EXISTING LAND USES

The preliminary site assessment performed in July of 1993 identified five businesses located on the project site including: 1) Dixon Livestock Auction Yard; 2) Mistler Trucking Facility; 3) Bartholomew Enterprises; 4) plumbing business; and 5) former Budget Inn property. With the exception of the fifth business, which has closed, all of these facilities currently handle hazardous materials. The following concerns were noted at these sites:

- There were two independent fuel storage tanks at the Dixon Livestock Yard, which may be 40 years old, or older. At the time of the preliminary assessment the tanks were not used and were scheduled for removal in 45 days.
- Areas of soil staining from petroleum spillage were noted in both the livestock yard and the Mistler Trucking/Mistler Farms property.
- A trench containing garbage was noted on the Mistler Trucking/Mistler Farms site.
- Equipment for steam cleaning was noted on the Mistler Trucking/Mistler Farms property, and at the Bartholomew Enterprises property. If steam cleaning has been done, automotive fluids from the vehicles could have infiltrated the soil in this area, resulting in soil contamination.
- A gas well was noted east of the Mistler yard. If the well's use is to be discontinued in the future, it is important that the well be properly abandoned. Otherwise, petroleum products from the well may continue to contaminate the shallow groundwater aquifers.
- Three underground fuel-storage tanks were removed from the Bartholomew Enterprises site in 1985: one 550-gallon tank with unleaded gasoline, one 550-gallon tank with leaded gasoline, and one 1,000-gallon tank with diesel fuel.

In addition to the above mentioned business, there are a total of eight single-family residences located on-site. The residences are equipped with garages, barns, and various out-buildings. It should be assumed that each of these properties may have at one time maintained underground storage tanks to store heating fuel and possibly vehicle fuels. Given the agricultural setting, it is also likely that these properties have been used to store and mix pesticides.

The fields on the site have been used to grow tomatoes, almonds, hay, alfalfa, dry grains, and other miscellaneous row crops, as well as to graze sheep. A large number of pesticides may have been applied to these crops over the years.

According to Mr. Mack Cody of the Solano County Agricultural Commissioner's Office (Personal communication), the following pesticides may have been used on the site:

- Dry Grains and Wheat: 2, 4-D, MCPA, Banville, Disyston;
- Tomatoes: Sevin, Diazinon, Lannate, Disyston, Parathion, Methyl Parathion, Other General Organophosphates, Other General Carbamates;
- Sugar Beets: Disyston, Lannate, Monitor, Phosdrin, Parathion, Methyl Parathion, Sevin, Metasystox, Other General Organophosphates, Other General Carbamates;
- Alfalfa: Furadan, 2,4-D, Gromoxyn, Paraquat;
- Corn: Lasso, 2, 4-D, Banville, Parathion, Methyl Parathion;
- Almonds: Benolate Copper, Captan, Diazinon, Parathion, 2, 4-D, Princep, Karmax;
- Walnuts: Benolate Copper, Captan, Diazinon, Parathion, 2, 4-D, Princep, Karmax, Lorsban;
- Insect control at Auction Yard: Malathion, Coopertex.

SURROUNDING LAND USES

The project site is surrounded with commercial, industrial, and agricultural, uses including: 1) a Caltrans maintenance yard; 2) five service stations (closed); 3) a warehouse for Kragen Auto Parts; 4) a cashew treating facility (closed) which had stored large quantities of Anhydrous ammonia; 5) the Dixon Canning Company; and 6) Smith's Auto Repair.

At the time of the preliminary site assessment, environmental investigations were underway at four of the five former service stations, and the Caltrans yard. Information that is currently available does not indicate that the project site has been adversely affected by surrounding uses.

REGULATORY SETTING

The management, transportation, and disposal of hazardous materials and wastes in Solano County are regulated by the Environmental Protection Agency (EPA), U.S. Department of Transportation (DOT), California Department of Health Services (CDHS), California State Water Resources Control Board, and California Regional Water Quality Control Board (CRWQCB), California Highway Patrol (CHP), and the State Fire Marshal. In addition, all development must be in compliance with the following state and federal regulations pertaining to hazardous waste materials.

HAZARDOUS SUBSTANCE ACCOUNTACT (CALIFORNIA SUPERFUND PROGRAM)

In 1981, the California Legislature enacted California's Superfund Program with the passage of the Carpenter-Presley Tanner Hazardous Substance Account Act (HSAA). The HSAA, which is administered by the Department of Toxic Substances Control (DTSC) of the California EPA, gives the state authority to order, oversee, and perform cleanups of hazardous substance releases. The act also provides for compensation of persons injured by hazardous substances and provides funds for California's mandatory 10 percent contribution toward California site cleanup costs covered by the federal Superfund law, the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA),

Another set of provisions that bear closely on the HSAA subject matter are the Hazardous Waste Control Law provisions regarding others for compliance or correction of violations, and imposition of use restrictions on property contaminated by hazardous materials releases and on adjacent "border zone" property.

Plans to develop a property for residential, hospital, school or similar purposes may require a review by the State of California (Cal-EPA), if the site in question is located within 2,000 feet of a state or federally listed Superfund site ("Border Zone Property Law", State of California Health and Safety Code Article 11 Sections 25220-25241). These regulation do not usually apply to commercial, industrial, and agricultural developments. The project site is not located within 2,000 feet of a Superfund site and therefore should not qualify as a border zone property as defined by this statute.

HAZARDOUS WASTE CONTROL LAW

The primary state statutory provisions governing hazardous waste management are contained in Chapter 6.5 of Division 20 of the Health and Safety Code, entitled "Hazardous Waste Control". These provisions are referred to as the Hazardous Waste Control Law (HWCL). The HWCL directs the State Department of Toxic Substances Control (DTSC) within the California Environmental Protection Agency (Cal-EPA), formerly the Toxic Substances Control Program of the CDHS, to adopt regulations to adopt the statute and the DTSC has adopted a substantial body of regulations that were recodified in 1991.

It is unlawful to "manage" hazardous waste except as provided in the HWCL and the regulations adopted by the DTSC thereunder (Health and Safety Code Section 25154). "Management" of hazardous waste is broadly defined to include virtually everything that is performed with a material once it becomes a waste, including holding ("storing") it. Thus, the statute has a broad impact, regulating hazardous waste from cradle (*i.e.*, generation) to grave (*i.e.*, final deposition). The HWCL scheme is generally similar to the federal scheme for regulating hazardous waste under the Resource Conservation and Recovery Act (RCRA).

Under the federal RCRA, the generator is responsible for its hazardous waste from "cradle to grave." Once the generator produces a waste material, the generator is responsible for its location at any time and is liable for any future degradation attributable to it. It is the responsibility of the waste generator to ascertain the degree of risk associated with the produced material and to determine the appropriate handling measures.

SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT (PROPOSITION 65)

The Safe Drinking Water and Toxic Enforcement Act (Proposition 65) was enacted in 1986. Cal-EPA has been designated by the Governor as the lead governmental agency to implement the Proposition's provisions; Governor's Reorganization Plan Number One [dated April 16, 1991 and effective July 17, 1991]; Executive Order W-13-91). Within the Cal-EPA, the Office of Environmental Health Hazard Assessment is responsible for Proposition 65 enforcement.

Proposition 65 applies to certain listed chemicals and to defined business activities. The Act has two operative provisions. The provision with the broader impact requires, generally, that businesses warn people prior to exposing them to certain amounts of any chemical. This provision has broad impact because: it effects chemicals commonly found in businesses, such as benzene and tobacco smoke; the threshold of exposure requiring a warning is quite low; and, it effects out-of-state businesses shipping material into California as well as in-state businesses. The other operative provision of the Act prohibits businesses from discharging significant amounts of listed chemicals into, or where they probably will migrate into,

sources of drinking water. This provision does not impact nearly as many businesses as the warning requirement, but its impact can be more severe because it prohibits discharges of listed chemicals that may otherwise be permitted by law.

UNDERGROUND STORAGE OF HAZARDOUS SUBSTANCES

In 1983, California became one of the first states in the nation to regulate the construction, permitting, and monitoring of underground storage tanks (USTs) containing hazardous substances by adopting provisions entitled Underground Storage of Hazardous Substance. The statute directs the State Water Resources Control Board (SWRCB) to adopt regulations governing underground storage tanks.

The federal program regulating USTs was established by Title VI of the Hazardous and Solid Waste Amendments of 1984 to the federal Resource Conservation and Recovery Act (RCRA). The EPA promulgated final regulations in 1988 with respect to tank construction and monitoring methods.

The federal regulations set standards for new UST system design, construction, installation and notification, upgrading UST systems, general operating requirements, release detection, reporting and investigation, corrective action and out-of-service and closed UST systems. The EPA regulations also impose financial responsibility requirements on all regulated UST owners and operators to be promulgated in the future.

HAZARDOUS MATERIALS INVENTORIES AND EMERGENCY PLANS

California has adopted statutory provisions relating to emergency responses to hazardous materials releases or threatened releases and to avoidance of accidents involving certain hazardous materials. These provisions require preparation of area plans by local agencies and business plans by businesses for responding to releases or threatened releases as well as submission of registration forms for some businesses handling acutely hazardous materials and risk management and prevention programs to prevent accident risks by some businesses handling such materials. The statutory provisions also require immediate notice to state and local emergency response agencies of releases or threatened releases of hazardous materials.

In addition to developing an emergency response program, the state has begun to focus on reducing the volume of hazardous materials. Regulations implementing the inventory and reporting provisions have been adopted by the Office of Emergency Services (OES), however, the provisions are in large part administered by counties, or by cities that have assumed responsibility.

The provisions of state hazardous materials disclosure laws are in addition to the federal Emergency Planning and Community Right-To-Know Act requirements adopted by Title III of the Superfund Amendments and Reauthorization Act (SARA).

CALIFORNIA ENVIRONMENTAL QUALITY ACT

The California Environmental Quality Act (CEQA) is the principal statute mandating environmental impact review of governmental actions in California. The Act applies generally to all activities undertaken by state and local agencies, and to private activities financed, regulated or approved by state and local agencies.

There are two sections of CEQA that address hazardous waste sites. CEQA Section 21151.8, involves school site acquisition on hazardous waste disposal sites. This section does not apply to the project site as no school site is proposed within the area.

Section 21092.6 deals with the location of projects on hazardous waste sites lists. Various government agencies compile lists of sites which they believe may be contaminated with hazardous materials. These agencies also create inventories of facilities that handle or create hazardous waste, but may not be contaminated. These lists are not comprehensive but rather list known problems, or sites which are known to handle hazardous materials. Lists were examined to determine whether the site, or any neighboring sites, are included. This list does not include uses on the project site. (Appendix E of the Technical Appendices).

4.11.2 THRESHOLD SIGNIFICANCE

According to CEQA standards, a project would have a significant impact on the environment or to the public health and safety of humans or animals if:

- the use, production or disposal of materials that pose a hazard;
- it would interfere with emergency response plans or emergency evacuation plans; or
- it would expose building occupants to working situations that exceed health standards or that would present an undue potential risk for health-related accidents.

4.11.3 ENVIRONMENTAL IMPACTS AND MITIGATIONS

UNDERGROUND STORAGE TANKS

Impact PH-1: **Underground storage tanks presently exist on the project site.**

Implementation of the proposed project would create the need to condemn existing land uses occurring on-site including the Dixon Livestock Auction Yard. The auction yard contains two underground fuel storage tanks that may be approximately 40-years old. In addition, the fuel storage tanks that were removed from the Bartholomew Enterprises site in 1985 might have contaminated the soil beneath the project site. These tanks may have leaked which might have caused contamination to the soil and/or groundwater.

Significance: **Significant**

Mitigation Measure PH-A: **A qualified geotechnical engineer shall excavate existing tanks and inspect the areas where tanks have been previously removed. Soil samples shall be taken from the base of the excavations and analyzed for contamination. If contaminants are found, additional sampling shall be required to determine the extent of the contamination and how it will be remediated (excavation, removal and/or venting). If groundwater is found in the base of the excavation or in bore holes, the CRWQCB may require the installation and sampling of one or more monitoring wells. If groundwater contamination is identified and the levels of contaminants do not appear to decrease over time, remediation of the groundwater may also be required.**

Residual Significance: **Less than significant**

PESTICIDES AND HERBICIDES

Impact PH-2: Pesticides and herbicides may have been used on the project site.

Current and past occupants of the project site may have used and disposed of pesticides and pesticide containers. The soil and possibly the groundwater, in specific locations identified in the Preliminary Site Assessment, may have been contaminated with petroleum contaminants and pesticide residuals. This also includes areas of the project site that were used to grow tomatoes, walnuts, almonds, hay, alfalfa, dry grains and other miscellaneous row crops.

Significance: Significant

Mitigation Measure PH-B: Soil samples in areas identified in the Preliminary Site Assessment shall be taken. These areas include locations where pesticides were stored, mixed and applied.

Mitigation Measure PH-C: The entire site occupied by Mistler Trucking/Mistler Farm operations shall be excavated and surveyed for contaminants. A Level One Toxic's Analysis shall be prepared by a qualified geotechnical engineer to define the level of contamination and any required remediation techniques. This analysis shall be performed prior to grading or construction activities to reduce potential exposure of construction workers and the general public to hazardous materials.

Residual Significance: Less than significant

AIRBORNE PESTICIDES AND HERBICIDES

Impact PH-3: Airborne pesticides and herbicides in the project vicinity could impact future development.

Crop spraying of agricultural land in the vicinity of the project site could expose future occupants of the site to airborne pesticides and herbicides.

Significance: Significant

Mitigation Measure PH-D: The restrictions of the Solano County Agricultural Commissioner on pesticide and herbicide spraying shall be followed, especially conditions restricting the aerial spraying of specific chemicals in proximity to the project site. If regulations concerning pesticide and herbicide spraying are not being enforced effectively, the Cal-EPAs Department of Pesticide Regulation shall be notified and enforcement action requested.

Residual Significance: Less than significant

PRESENCE OF HAZARDOUS MATERIALS

Impact PH-4: Hazardous materials may be used and stored in association with future development.

Industrial uses proposed within the project site would contribute to an increase in the transportation, storage and use of hazardous materials and hazardous waste generation. In California, as with the remainder of the nation, hazardous waste landfills are reaching capacity. In addition, the EPA has begun to restrict the type of wastes that can be sent to landfills. In California, hazardous waste landfill capacity is limited. Treatment capacity is also limited and is likely to increase as technologies are developed and implemented in order to safely and effectively treat hazardous waste.

On a national level, hazardous waste landfill space is currently available. Future capacity will depend on a number of factors, including: 1) the success of hazardous waste minimization nationwide; 2) the capability of new techniques for reducing the hazard level of hazardous wastes; and 3) the permitting of new treatment or disposal capacity. As of mid-1989, there were 24 hazardous waste landfills in the United States that were open to commercial hazardous waste generators.

The EPA is sponsoring research on alternatives to landfill disposal of hazardous waste. New technologies are being developed, and some private entities are pursuing siting for facilities exploiting existing alternatives to landfill disposal. While California continues to develop hazardous waste treatment and disposal capacity, California generators rely on out-of-state treatment and disposal facilities to meet hazardous waste disposal needs.

Significance: Significant

Mitigation Measure PH-E: A hazardous waste reduction program shall be prepared prior to leasing a portion of the site to a business handling hazardous materials. The goal of the hazardous waste reduction program is to reduce the project site's contribution to hazardous waste generation and disposal. This program shall consider the wastes generated by the occupants of the site, except for occupants required by law to implement similar programs because they generate substantial quantities of hazardous waste greater than those triggering the legal requirements for waste minimization.

Residual Significance: Less than significant

4.11.4 CUMULATIVE IMPACTS

Impact PH-5: Cumulative impacts to public health and safety.

Significance: Less than significant

Mitigation Measures: No mitigation required

Development within the NQSP would contribute to the increased presence of hazardous materials in the region. Slight increases of hazardous material shipments, storage and use are not expected to impact public health and safety or the environment as all uses are expected to obey local, state and federal regulations.

Residual Significance: Less than significant

4.11.5 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Implementation of the mitigation measures identified in Section 4.11.3 will reduce all impacts to public health and safety to a less than significant level.

