ACTION MEMO

AC TRANSIT DISTRICT
Board of Directors
Executive Summary

GC Memo No. 06-031

Meeting Date: February 1, 2006

Committees:			
Planning Committee	☐	Finance Committee	☐
External Affairs Committee	☐	Operations Committee	☐
Board of Directors	☒	**Financing Corporation**	☐

SUBJECT:

CONSIDER THE ADOPTION OF RESOLUTION 06-002 TO:

(1) DETERMINE THAT THE DRAFT INITIAL STUDY PREPARED FOR THE ALAMEDA-CONTRA COSTA TRANSIT DISTRICT SERVICE DEPLOYMENT PLAN, PHASE 2 (NORTH ALAMEDA COUNTY/WEST CONTRA COSTA COUNTY), THE WEST CONTRA COSTA SERVICE PLAN AND THE FLEET COMPOSITION PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE CALIFORNIA ENVIRONMENTAL QUALITY ACT, ITS IMPLEMENTING GUIDELINES, AND BOARD POLICY 512;

(2) **DETERMINE THAT A NEGATIVE DECLARATION IS THE APPROPRIATE ENVIRONMENTAL DOCUMENT;**

(3) **SET PUBLIC HEARING(S) ON MARCH 15, 2006, (TIME(S) TO BE SPECIFIED) IN THE BOARD ROOM AT THE GENERAL OFFICE TO RECEIVE PUBLIC**

BOARD ACTION: **Approved as Recommended [ ] Other [ ]**
Approved with Modification(s) [x]

MOTION: PEEPLES/WALLACE to adopt **Resolution No. 06-002** as presented, confirm determinations outlined above and set the public hearings on **March 22, 2006 at 3:00 p.m. and 6:00 p.m**. instead of March 15, 2006 (7-0-0-0).

Ayes: Directors Peeples, Wallace, Jaquez, Hayashi, Kaplan, Vice President Bischofberger, President Harper - 7
Noes: None – 0
Abstain: None – 0
Absent: None – 0

The above order was passed on February 1, 2006.

Rose Martinez, District Secretary
By _____

COMMENT ON THE DRAFT IS/ND AND SERVICE CHANGES IN CENTRAL ALAMEDA COUNTY; AND

(4) **AUTHORIZE THE NOTICING OF THE DRAFT IS/ND AND SERVICE CHANGES IN CENTRAL ALAMEDA COUNTY FOR PUBLIC REVIEW IN ACCORDANCE WITH THE CALIFORNIA ENVIRONMENTAL QUALITY ACT**

RECOMMENDED ACTION:

☐ **Information Only** ☐ **Briefing Item** ☒ **Recommended Motion**

Adopt Resolution No. 06-002

Fiscal Impact:

Subsequent to approval of the environmental document the Board will make any decisions on route or service enhancements or adjustments. Any costs or savings that are related to those decisions would be included in the operating budget.

Background/Discussion:

On January 3, 2002, the Board adopted in concept the AC Transit Service Deployment Plan (the Plan), for the purpose of defining the project for environmental analysis. The Plan originally contemplated its implementation in four phases, but later, when the Board acted on the phases they were concentrated into two phases - Phase 1 (Central Alameda County) and Phase 2 (North Alameda/West Contra Costa Counties). Phase 1 was approved by Resolution No. 2058, adopted on June 20, 2002 and was partially implemented in September 2002. Phase 2 was approved by Resolution No. 2082, adopted on February 6, 2003 and partially implemented in June 2003.

Prior to the adoption of the aforementioned resolutions, an Initial Study was prepared that concluded that a Negative Declaration was the appropriate environmental document for the Plan. A public hearing on the Draft IS/ND was held on June 20, 2002 and approved the same day. Prior to the adoption of Resolution No. 2082 an Addendum to the Final IS/ND was prepared due to changes in Phase 2 that were recommended subsequent to the preparation and adoption of the original environmental document.

Prior to the consideration of the SDP, on April 4, 2002, the Board approved a proposed Fleet Composition Plan (the FCP). This plan identified the composition of the District's bus fleet to 2015. Under the FCP the thirty-one (31) gasoline-powered vans in the District's fleet would be removed from service and replaced with thirty-foot (30') diesel-powered buses. The last gasoline-powered vans were eliminated from service in

December 2003. No environmental document was prepared prior to the adoption of the FCP.

Subsequent to the adoption of Resolution No. 2082 and the implementation of the service changes in Phase 2, an unincorporated group of citizens (Livable Streets Network) and two individuals sued contending that the public hearing notices for the SDP and the actions taken by the District to adopt and implement Phase 2 of the SDP (including the removal of vans from Line 9) did not comply with the California Environmental Quality Act (CEQA) and its Guidelines.[1]

On December 1, 2004 the Honorable Bonnie Sabraw, Superior Court Judge, Alameda County rendered her decision that the District failed to adequately comply with the notice requirements of CEQA and the environmental document did not consider the impact associated with the elimination of the gasoline-powered vans and their replacement by diesel buses (as provided in the FCP). The remedy for the CEQA violation was determined on March 9, 2005 to wit:

(1) <u>New Environmental Review for Areas Outside of Central Alameda County.</u>

AC Transit shall complete a new Initial Study ("IS"). The new IS shall pertain to implementation of the Service Deployment Plan ("SDP") in North Alameda County/West Contra Costa County, but need not revisit the SDP's implementation in Central Alameda County.

The IS shall address the impact of the Fleet Composition Plan and the resulting replacement of gasoline vans with buses.

The IS shall include analysis of potential noise, vibration, air quality and transportation/traffic impacts.

(2) <u>District-Wide Public Notice and Comment for Entire SDP (including Central Alameda County IS *and* new IS.</u>

AC Transit shall provide an opportunity for public review and comment on the IS (and any related environmental document) prior to holding a noticed public hearing(s) and proceedings as required by law.

Because the Court found that notice for the initial ("Central County") IS was flawed District-wide (See Statement of Decision, pp. 17-19), the new

[1] A suit also was filed by residents in Berkeley and Kensington who live on the route for Line 67 under CEQA as a consequence of the elimination of vans and the replacement of diesel buses on that line, as well as a change in the route in Kensington. This suit (67 Neighbors Against Big Diesel Buses) has not been decided, but essentially is incorporated into the Court's decision for Livable Streets, i.e., the environmental document required by Livable Streets will address the issues raised in the Line 67 suit.

> public notice and comment period must include notice and comment opportunities pertaining to all phases, including Central Alameda County. In other words, a new study is not necessarily required for Central Alameda County, but further public notice/comment as to that phase *is* required.
>
> Accordingly, AC Transit shall provide Notice regarding both the "Central County" and new ("remaining phases") Initial Studies.

As a consequence of the Court's ruling the District proceeded to procure the services of an environmental consultant to prepare a new Initial Study. The Scope of Work and list of attachments provided to potential bidders is provided as Attachment 1. The Scope of Work included not only the Court's order, as provided above, but also called for an analysis of the environmental impacts of additional service changes identified in Phase 1 of a new plan for West Contra Costa County identified as the West Contra Costa Service Plan (WCSP).

The District contracted with CHS Consulting in June 2005 to prepare the Initial Study, which would determine the appropriate environmental document that would be in compliance with CEQA and the Court Order.

An Administrative Draft of the IS was received in early December 2005 and submitted for review by District staff and counsel for the District (both in-house and outside), as well as being provided to counsel for Petitioners. The Administrative Draft has been revised as a consequence of the comments received and is provided to the Board as the Draft Initial Study/Negative Declaration - Attachment 2. (No comments were received from Petitioners' counsel during the initial review period.)

The Initial Study indicates that a Negative Declaration is the appropriate environmental document for the project because there are no significant environmental impacts that have been identified nor any mitigation measures required.

Although not required by CEQA, it has been the District's practice to provide the environmental document to the Board in its draft stage for your review and concurrence that based on the information provided in the document a Negative Declaration is the appropriate environmental document before it is dissemination for public comment.

CEQA requires a minimum 20-day comment period on the draft IS/ND. While CEQA does not require a public hearing on a negative declaration, Board Policies No. 512 and 163 do require one. Board Policy No. 163 normally requires at least 28 days notice prior to the holding of a public hearing. Notwithstanding the above time limits, it is

recommended that the public hearing be set for March 15 in order to provide sufficient time for dissemination of the public hearing notices and the Draft IS/ND. [2]

The Board also needs to determine when and where the public hearing should occur. The options are to hold it in conjunction with the Board meeting on that day, prior to the consideration of other agenda items. This would place the public hearing at 2:00 P.M. However, given the magnitude of the project it is recommended that the Board hold a special meeting at 3:00 and 6:00 P.M. at the Board Room at the General Office (1600 Franklin Street, Oakland) to explain the project and receive public comment on it, as well as public comment on the Central County Phase of the SDP.

Prior Relevant Board Actions/Policies:
Fleet Composition Plan, adopted April 4, 2002
Resolution No. 2058, adopted June 20, 2002
Resolution No. 2082, adopted February 6, 2003
Board Policy No. 512, adopted July 1989
Board Policy No. 163, adopted January 1994 and last amended March 1998

Attachments:

1. Environmental RFP Scope of Work (pages 9 and 10)
2. Draft Initial Study/Negative Declaration
3. Draft Resolution 06-002

Approved by: **Kenneth C. Scheidig, General Counsel**
Prepared by: **Kenneth C. scheidig, General Counsel**
Date Prepared: **January 25, 2006**

[2] Because the Draft IS/ND for SDP Phase 2 and WCSP do not contain information about Central Alameda County, copies of the 2002 IS/ND will be distributed to various public locations (e.g., libraries, city halls, county administration buildings) in Central Alameda County. Separate public hearing notices also will be published in that area in order to provide any interested members of the public an opportunity to be informed of the service changes proposed for Central Alameda County in that document.

SCOPE OF WORK

1. INTRODUCTION/BACKGROUND

In June 2002 and February 2003 the Board of Directors of the Alameda-Contra Costa Transit District ("AC Transit" or "District") adopted, respectively, Resolution No. 2052 and 2084. The first resolution approved the Initial Study/Negative Declaration completed for the District's "Service Deployment Plan" "SDP" or "Plan") and the Central Alameda County phase of the Plan. The second resolution approved the North Alameda/West Contra Costa phase of the Plan using the IS/ND approved by Resolution No. 2052 and an Addendum prepared specifically for this phase of the Plan. The purpose of the SDP was to realign the District's bus service to allow the District to respond to changing financial conditions. While the Plan would allow for expansion and contraction of bus service, its initial intent was to realign service to save $4 million dollars.

On April 4, 2002, prior to the adoption of Resolution No. 2052, the Board of Directors had approved a Fleet Composition Plan "FCP"). The FCP was designed to reflect the composition of the District's bus fleet to 2015. One aspect of the FCP was the elimination of gasoline-powered vans from the fleet. At the time the FCP was adopted, the 30 vans in the fleet were nearing the end of their useful life. For this reason and for a variety of other concerns (lack of capacity, maintenance problems, inability to carry bicycles) the decision was made to eliminate vans from the fleet.[1] No environmental document was prepared prior to the adoption of the FCP.

Prior to the consideration of the above documents, in 1991 the District's Board approved a Negative Declaration and a Comprehensive Service Plan (CSP). In approving the motion included a requirement to use gasoline-powered vans at all times on Lines 9 and 7 with a review within 6 months of implementation to see how they were working. No review occurred and during the 1990s the lines that had vans were modified or discontinued so that by 2002 only Line 9 had vans that were required under the CSP.[2]

After the 2003 adoption of the SDP for North Alameda/West Contra Costa Counties, the District was sued by two individuals and a citizens group who resided in the Gilman/Hopkins area of Berkeley (served by Line 9). The principal allegations of the lawsuit were based on the failure of the District to file a Notice of Intent with the county clerks of the two counties, failure of the public notice in

[1]The last vans were eliminated from Lines 9 and 67 by December 2003. (Need to check date)

[2]Vans operated on Line 67 starting in 1996 on the District's own initiative as a result of interlining the service with Line 65, not as a requirement of the CSP.

the newspapers to comply with CEQA Guideline 15072 and the elimination of a mitigation measure (use of vans, particularly on Lines 9 and 7) without complying with the decision in *Napa Citizens for Honest Government v. Napa County Board of Supervisors* (2001) 92 Cal.App.4th 342.

A hearing was held before the Honorable Bonnie Sabraw, the CEQA judge for Alameda County, in November 2004 and a decision was rendered on December 1, 2004. Judge Sabraw found in favor of the Petitioners on the causes of action described above, but did not rule on the remedy until she issued a Judgment and Order on March 9, 2005. The judicial order requires the District to do the following:

A. Complete a new Initial Study (IS) related to the implementation of the SDP in North Alameda/West Contra Costa counties, but not the SDP's implementation in Central Alameda County. The IS must address the impact of the Fleet Composition Plan and the resulting replacement of gasoline vans with diesel powered buses, as well as include an analysis of potential noise, vibration, air quality and transportation/traffic impacts.

B. Provide an opportunity for public review and comment on the IS (and any related environmental document) prior to holding a noticed public hearing(s) and proceedings as required under CEQA. The new public notice and comment period must include notice and comment opportunities for all phases of the SDP, including Central Alameda County. Thus, AC Transit must provide Notice regarding both the "Central County" and new ("remaining phases") Initial Studies. Notice of the IS and any subsequent environmental documents must be provided in compliance with all applicable CEQA requirements.

C. The Court retained jurisdiction over the case and a Compliance Hearing is scheduled for July 20, 2005 at 9:00 a.m.

Separate and apart from the court action, in September 1, 2004 the staff proposed a plan for service changes in West Contra Costa County that were not consider at the time of the adoption of Resolution No. 2082 in February 2003 (the West County Service Plan). (See GM Memo No. 04-288, attached). The District staff has been authorized to proceed with the consideration of Phase 1 of the plan. Because the District must perform a new IS for the North Alameda/West Contra Costa Counties phase of the SDP, the consideration of the service changes proposed in Phase 1 of the West County Plan also should be included in that analyses.

2. SCOPE OF WORK

AC Transit is seeking the services of an environmental firm that is experienced in performing an Initial Study and the preparation of environmental documents (EIRs, NDs) to enable the District to comply in a timely and efficient manner with a judicial order of the Alameda County Superior Court. The scope of the work is defined by the Court's Order and explained more fully in the Scope of Work, as well as the West County Service Plan described in GM Memo No. 04-28, which are attached hereto and made a part of this RFP.

3. ATTACHMENTS

The following documents are provided with this RFP to enable responding parties to understand the work required:

A. Draft Initial Study/Negative Declaration for the Service Deployment Plan dated May 3, 2002 and prepared by ESA.

B. Resolutions 2058 and 2082 (with attachments not already provided)

C. Addendum to the IS/ND prepared in January 2003

D. Initial Study Comprehensive Service Plan - Phase 1 dated February 1990

E. Addendum to the Initial Study of the Comprehensive Service Plan - Phase 1 dated April 11, 1990

F. May 9, 1990 Minutes of Board of Directors approving the IS/ND for the CSP and adopting mitigation measure – pages 7 and 8

G. December 2004 Order and Statement of Decision in *Livable Streets Network v. AC Transit,* HG03-086477.

H. March 2005 Order On Remedy Portion Of Petition For Writ Of Mandate

I. District GM Memo No. 04-288, Initial Review and Proposal for the West County Service Plan and accompanying attachments referenced in the memo.

ALAMEDA-CONTRA COSTA TRANSIT DISTRICT

RESOLUTION NO. 06-002

A RESOLUTION (1) DETERMINING THAT THE DRAFT INITIAL STUDY PREPARED FOR THE ALAMEDA-CONTRA COSTA TRANSIT DISTRICT SERVICE DEPLOYMENT PLAN, PHASE 2 (NORTH ALAMEDA COUNTY/WEST CONTRA COSTA COUNTY), THE WEST CONTRA COSTA SERVICE PLAN AND THE FLEET COMPOSITION PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE CALIFORNIA ENVIRONMENTAL QUALITY ACT, ITS IMPLEMENTING GUIDELINES, AND BOARD POLICY 512; (2) DETERMINING THAT A NEGATIVE DECLARATION IS THE APPROPRIATE ENVIRONMENTAL DOCUMENT; (3) SETTING PUBLIC HEARINGS ON MARCH 15, 2006 AT 3:00 P.M. AND 6:00 P.M., IN THE BOARD ROOM AT THE GENERAL OFFICE TO RECEIVE PUBLIC COMMENT ON THE DRAFT IS/ND AND SERVICE CHANGES IN CENTRAL ALAMEDA COUNTY; AND (4) AUTHORIZING THE NOTICING OF THE DRAFT IS/ND AND SERVICE CHANGES IN CENTRAL ALAMEDA COUNTY FOR PUBLIC REVIEW IN ACCORDANCE WITH THE CALIFORNIA ENVIRONMENTAL QUALITY ACT

WHEREAS, on January 3, 2002, the Board adopted in concept the AC Transit Service Deployment Plan (the Plan), for the purpose of defining the project for environmental analysis. The Plan originally contemplated its implementation in four phases, but later, when the Board acted on the phases they were concentrated into two phases - Phase 1 (Central Alameda County) and Phase 2 (North Alameda/West Contra Costa Counties); and

WHEREAS, Phase 1 was approved by Resolution No. 2058, adopted on June 20, 2002 and was partially implemented in September 2002. Phase 2 was approved by Resolution No. 2082, adopted on February 6, 2003 and partially implemented in June 2003; and

WHEREAS, prior to the adoption of the aforementioned resolutions, an Initial Study was prepared that concluded that a Negative Declaration was the appropriate environmental document for the Plan; and

WHEREAS, a public hearing on the Draft IS/ND was held on June 20, 2002 and approved the same day; and

WHEREAS, prior to the adoption of Resolution No. 2082 an Addendum to the Final IS/ND was prepared due to changes in Phase 2 that were recommended subsequent to the preparation and adoption of the original environmental document; and

WHEREAS, prior to the consideration of the SDP, on April 4, 2002, the Board approved a proposed Fleet Composition Plan (the FCP) that identified the composition

of the District's bus fleet to 2015, removing the thirty-one (31) gasoline-powered vans in the District's fleet and replacing them with thirty-foot (30') diesel-powered buses; and
WHEREAS, no environmental document was prepared prior to the adoption of the FCP; and

WHEREAS, subsequent to the adoption of Resolution No. 2082 and the implementation of the service changes in Phase 2, an unincorporated group of citizens (Livable Streets Network) and two individuals sued contending that the public hearing notices for the SDP and the actions taken by the District to adopt and implement Phase 2 of the SDP (including the removal of vans from Line 9) did not comply with the California Environmental Quality Act (CEQA) and its Guidelines; and

WHEREAS, On December 1, 2004, Alameda County's CEQA judge concurred with most of Livable Streets' arguments and on March 9, 2005, determined the appropriate remedy was:

(1) <u>New Environmental Review for Areas Outside of Central Alameda County.</u>

AC Transit shall complete a new Initial Study ("IS"). The new IS shall pertain to implementation of the Service Deployment Plan ("SDP") in North Alameda County/West Contra Costa County, but need not revisit the SDP's implementation in Central Alameda County.

The IS shall address the impact of the Fleet Composition Plan and the resulting replacement of gasoline vans with buses.

The IS shall include analysis of potential noise, vibration, air quality and transportation/traffic impacts.

(2) <u>District-Wide Public Notice and Comment for Entire SDP (including Central Alameda County IS *and* new IS.</u>

AC Transit shall provide an opportunity for public review and comment on the IS (and any related environmental document) prior to holding a noticed public hearing(s) and proceedings as required by law.

Because the Court found that notice for the initial ("Central County") IS was flawed District-wide (See Statement of Decision, pp. 17-19), the new public notice and comment period must include notice and comment opportunities pertaining to all phases, including Central Alameda County. In other words, a new study is not necessarily required for Central Alameda County, but further public notice/comment as to that phase *is* required.

Accordingly, AC Transit shall provide Notice regarding both the "Central County" and new ("remaining phases") Initial Studies; and

WHEREAS, the District contracted with CHS Consulting in June 2005 to prepare an Initial Study to identify any environmental impacts resulting from the project and to determine the appropriate environmental document that would be in compliance with CEQA and the Court Order; and

WHEREAS, an Administrative Draft of the IS was received in early December 2005 and submitted to counsel for Petitioners for review and comment, but none was received within the comment period; and

WHEREAS, the Initial Study indicates that a Negative Declaration is the appropriate environmental document for the project because the study failed to identify the existence of any significant environmental impacts that would cause the preparation of an environmental impact report or any mitigation measures for a mitigated negative declaration; and

WHEREAS, at its meeting of February 1, 2006, the Board received and considered the content of GC Memo 06-031 and the attachment to that memo;

NOW, THEREFORE, THE BOARD OF DIRECTORS OF THE ALAMEDA-CONTRA COSTA TRANSIT DISTRICT DOES RESOLVE AS FOLLOWS:

SECTION 1. Determines that the Draft Initial Study prepared for the Alameda-Contra Costa Transit District Service Deployment Plan, Phase 2 (North Alameda County/West Contra Costa County, the West Contra Costa Service Plan and the removal of vans from the District's bus fleet under the Fleet Composition Plan has been prepared in accordance with the California Environmental Quality Act, Its implementing Guidelines and Board Policy 512.

SECTION 2. Determines, based on the content of the Initial Study referenced above, that a Negative Declaration is the appropriate environmental document for the project and authorizes the appropriate box in the Initial Study to be checked to that effect.

SECTION 3. Determines that a public hearing(s) on the Draft IS/ND to receive public comment on Phase 1 (Central Alameda County) of the SDP be set for March 15, 2006, at ____ p.m. and ____ p.m. at the Board Room, 1600 Franklin Street, Oakland, California.

SECTION 4. Authorizes District staff to cause appropriate notices of the Draft IS/ND and the public hearing to be provided as required by CEQA.

SECTION 5. This resolution shall become effective immediately upon its passage by four affirmative votes of the Board of Directors.

PASSED AND ADOPTED THIS 1st day of February 2006.

Greg Harper, President

ATTEST:

Rose Martinez, District Secretary

I, Rose Martinez, District Secretary for the Alameda-Contra Costa Transit District, do hereby certify that the foregoing Resolution was passed and adopted at a Regular Meeting of the Board of Directors held on the 1st day of February 2006 by the following roll call vote:

AYES: DIRECTORS:
NOES: DIRECTORS:
ABSENT: DIRECTORS:
ABSTAIN: DIRECTORS:

Rose Martinez, District Secretary

Approved as to Form:

Kenneth C. Scheidig, General Counsel

GC Memo 06-031
Attachment #2

Draft

Initial Study/Negative Declaration for the Alameda Contra Costa Transit District Service Changes in North Alameda/ West Contra Costa Counties

Prepared for:

Alameda Contra Costa Transit District
1600 Franklin Street
Oakland, CA 94612
Contact: Anthony Bruzzone
510/891-7175

Prepared by:

CHS Consulting Group
130 Sutter Street, Suite 468
San Francisco, CA 94104
Contact: Debra Jones
415/392-9688

January 2006

CHS Consulting Group. 2006. *Initial study for the Alameda Contra Costa Transit District Service Changes in North Alameda/West Contra Costa Counties.* Draft. January. (CHS 05-1021.) San Francisco, CA. Prepared for Alameda Contra Costa Transit District, Oakland, CA.

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Figures

1.0 INTRODUCTION

1.1 Purpose of this Document

This initial study (IS) assesses the environmental impacts of the Alameda-Contra Costa Transit District (AC Transit) proposed service changes in North Alameda and West Contra Costa County as required by the California Environmental Quality Act (CEQA) (California Public Resources Code [PRC] 21000 et seq.) and in compliance with the State CEQA Guidelines (14 California Code of Regulations [CCR] 15000 et seq.).

CEQA requires state and local government agencies to consider the environmental consequences of projects over which they have discretionary authority. An IS is a preliminary analysis prepared by the lead agency under CEQA to determine what type of environmental document must be prepared for the proposed project—a negative declaration (ND), mitigated negative declaration (MND), or environmental impact report (EIR). If the agency finds no substantial evidence that the proposed project would cause a significant impact on the environment, an ND may be prepared. If the agency finds that the proposed project would have a significant impact that would be reduced to a less-than-significant level with mitigation, an MND may be prepared. If the agency finds that the proposed project would have a significant impact that would not be reduced to a less-than-significant level with mitigation, an EIR must be prepared (State CEQA Guidelines Section 15074[b]). This IS does not identify any significant impacts that would result from the proposed project, therefore, a ND is proposed.

AC Transit, as the lead agency under CEQA, will consider the potential environmental impacts of the proposed project when it considers whether to approve the proposed project. This IS is an informational document to be used in the local planning and decision-making process. The IS does not recommend approval or denial of the proposed project.

1.2 Scope of this Document

This IS describes the proposed project; environmental setting, including existing conditions and regulatory setting as necessary; and potential environmental impacts of the proposed project on the following resource topics:

- aesthetics,
- agricultural resources,
- air quality,
- biological resources,
- cultural resources,
- geology and soils,
- hazards and hazardous materials,
- hydrology and water quality,
- land use planning,
- mineral resources,
- noise,
- population and housing,
- public services,
- recreation,

- transportation/traffic, and
- utilities and service systems

1.3 Impact Terminology

The following terminology is used in this IS to describe the levels of significance of impacts that would result from the proposed project:

- The proposed project is considered to have *no impact* if the analysis concludes that it would not affect a particular resource topic.

- An impact is considered *less than significant* if the analysis concludes that the proposed project would cause no substantial adverse change to the environment and that impacts would not require mitigation.

- An impact is considered *less than significant with mitigation incorporated* if the analysis concludes that the proposed project would cause no substantial adverse change to the environment with the inclusion of mitigation measures to which the applicant has agreed.

- An impact is considered *potentially significant* if the analysis concludes that an impact of the proposed project exceeds applicable regulatory thresholds of significance and the impact could not be reduced to a less-than-significant level with mitigation. If a potentially significant impact were identified, an EIR would be prepared. No such impact has been identified for this project.

1.4 Organization of this Document

The content and format of this IS, described below, are designed to meet the requirements of CEQA.

- Chapter 1, "Introduction," identifies the purpose, scope, terminology, and organization of the IS.

- Chapter 2, "Project Description," identifies the location, background, and planning objectives of the proposed project; describes the proposed project in detail; identifies the permits and approvals required for the proposed project; and identifies public involvement procedures.

- Chapter 3, "Environmental Checklist," presents the checklist responses for each resource topic. This chapter includes a brief environmental setting description for each resource topic and identifies the proposed project's impacts on those resource topics.

- Chapter 4, "References Cited," identifies all printed references and personal communications cited in this IS.

- Chapter 5, "List of Preparers," identifies the individuals involved in preparing this IS and their areas of technical specialty.

2.0 PROJECT DESCRIPTION

In early 2003 the Alameda-Contra Costa Transit District (AC Transit) adopted changes to the local bus service network in North Alameda and West Contra counties through the phased implementation of its Service Deployment Plan (SDP)[1]. The adopted service changes were implemented in June 2003, and include improvements to existing service within northern Alameda County (within the cities of Berkeley and Albany), and a restructuring of the route network in West Contra Costa County (within the cities of San Pablo, Richmond and El Cerrito). During this period, AC Transit also phased out its existing fleet of gasoline-powered vans at the same time and replaced them with 30-foot diesel buses, pursuant to a fleet plan adopted in 2002. A legal challenge to the environmental review for the SDP resulted in a court order requiring that a new initial study be completed for implementation of the SDP in North Alameda County/West Contra Costa County, and that the new initial study address the impacts of replacing gasoline vans with buses as provided by the adopted Fleet Composition Plan (FCP). This Initial Study has been prepared in compliance with the Court's order.

In addition, since the adoption of the North Alameda/West Contra Costa County portion of the SDP AC Transit has proposed additional service changes which are included in a proposed West County Service Plan (WCSP). The changes resulting from the North Alameda/West Contra Costa portion of the SDP, the elimination of gasoline-powered vans, and the changes proposed under the WCSP are the subject of this environmental review and together comprise the projects reviewed in this Initial Study.

2.1 Project Overview

AC Transit is the third-largest public bus system in the state, serving 13 cities and adjacent unincorporated areas in Alameda and western Contra Costa Counties. AC Transit serves approximately 220,000 daily weekday riders, with a fleet of more than 640 buses. AC Transit buses connect with nine other public and private bus systems, 21 San Francisco Bay Area Rapid Transit District (BART) stations, six Amtrak stations, and three ferry terminals. Approximately 1.5 million people live in AC Transit's 364-square-mile service area, which includes:

- **Alameda and Contra Costa Counties:** Alameda, Albany, Berkeley, El Cerrito, Emeryville, Fremont, Hayward, Newark, Oakland, Piedmont, Richmond, San Leandro, and San Pablo
- **Unincorporated Areas:** Ashland, Castro Valley, Cherryland, El Sobrante, Fairview, Kensington, Irvington, North Richmond, and San Lorenzo

AC Transit also serves downtown San Francisco via the Bay Bridge, and Foster City and San Mateo via the San Mateo-Hayward Bridge, and the Stanford University campus in Palo Alto, via the Dumbarton Bridge.

AC Transit has been developing improvements to its route network for several years. Currently, the District has a strategic vision for enhancing service and improving mobility for its passengers. With the economic fluctuations of the past 10 years, bus service in North Alameda and West Contra Costa counties has expanded and contracted to meet increasing demands or District budgetary constraints. To implement Service Deployment Policies adopted in early 2002, the District undertook the development of a Service Deployment Plan that would allow for the expansion or contraction of bus services, depending on the District's revenue, while still providing essential bus services, given economic constraints. One portion of

[1] See further discussion on the creation of the SDP in Sub-Section 2.3.2, "Background".

the SDP, adopted in 2003, included the service area of North Alameda and West Contra Costa counties. Also, in 2002 the District considered the composition of its fleet as older equipment reached the end of its useful life, the needs and demands of its passengers changed over that life span, and the District became able to obtain new buses that better suited its needs. In accordance with the Fleet Composition Plan FCP) that was adopted in 2002, gasoline-powered vans were phased out, with the last vans eliminated from the District's fleet in late 2003. They were replaced with 30-foot diesel powered buses from the District's existing bus fleet. These buses were purchased in the early 1990's and are scheduled to be replaced in 2006 with new 30-foot buses manufactured by Van Hool of Belgium/ABC Companies. 61 of the state-of-the-art "Advanced Design Urban Transit Buses" will be produced for AC Transit, and up to 10 of them will be gas-electric powered hybrids.

In addition, subsequent to the adoption of the changes in the North Alameda/West Contra Costa area as a portion of the SDP, the District undertook a further review of the service needs in the West Contra Costa County area. Based upon that review, the District proposes to restructure the West Contra Costa County route network to meet the area's needs, and is proposing the WCSP to implement the proposed restructuring.

In compliance with the court order relating to the environmental review performed for the North Alameda/West Contra Costa counties portion of the SDP and the elimination of vans, as well as the need for environmental review of the proposed modifications to bus service under the WCSP, this environmental document is being prepared in accordance with the requirements of the California Environmental Quality Act (CEQA).

2.2 Project Location

The Proposed Project would include service improvements and route restructuring, as well as changes in the fleet located within the cities of Berkeley and Albany in Northern Alameda County, and in the cities of El Cerrito, Richmond, and San Pablo in West Contra Costa County.

2.3 Project Purpose and Need

2.3.1 Introduction

AC Transit provides diesel bus transit service throughout its jurisdiction and into areas adjacent to, but not part of, the District's formal boundaries. AC Transit has conducted extensive data analysis for all routes throughout its transit network. The analysis identified productive service areas within North Alameda and West Contra Costa counties. The changes included in the SDP and proposed in the 2005 WCSP are designed to maximize transit resources where they can produce the most riders for the public investment, develop an attractive and well-used transit option, help to eliminate unproductive segments, reallocate extra running time on existing routes to create a more streamlined route network, and to provide the appropriate equipment on those routes. The stated need is therefore to improve service deficiencies and inefficiencies in these communities. The Proposed Project meets this stated need by making revisions to the route structure in North Alameda and West Contra Costa counties, and by deploying appropriate transit vehicles to provide the service improvements.

2.3.2 Background

AC Transit is a Special District, organized under the laws of the State of California. It is the public entity successor to the private Key System that provided rail and bus service to the East Bay and over the Bay Bridge to San Francisco since the turn of the twentieth century. AC Transit began providing diesel bus

service within its service area and to the Transbay Terminal in San Francisco in 1960. In the late 1980s/early 1990s the District undertook a complete review of its service network and developed the Comprehensive Service Plan (CSP), which was adopted in 1991. Although originally a five phase restructuring plan, only the first two phases were implemented due to major funding constraints.

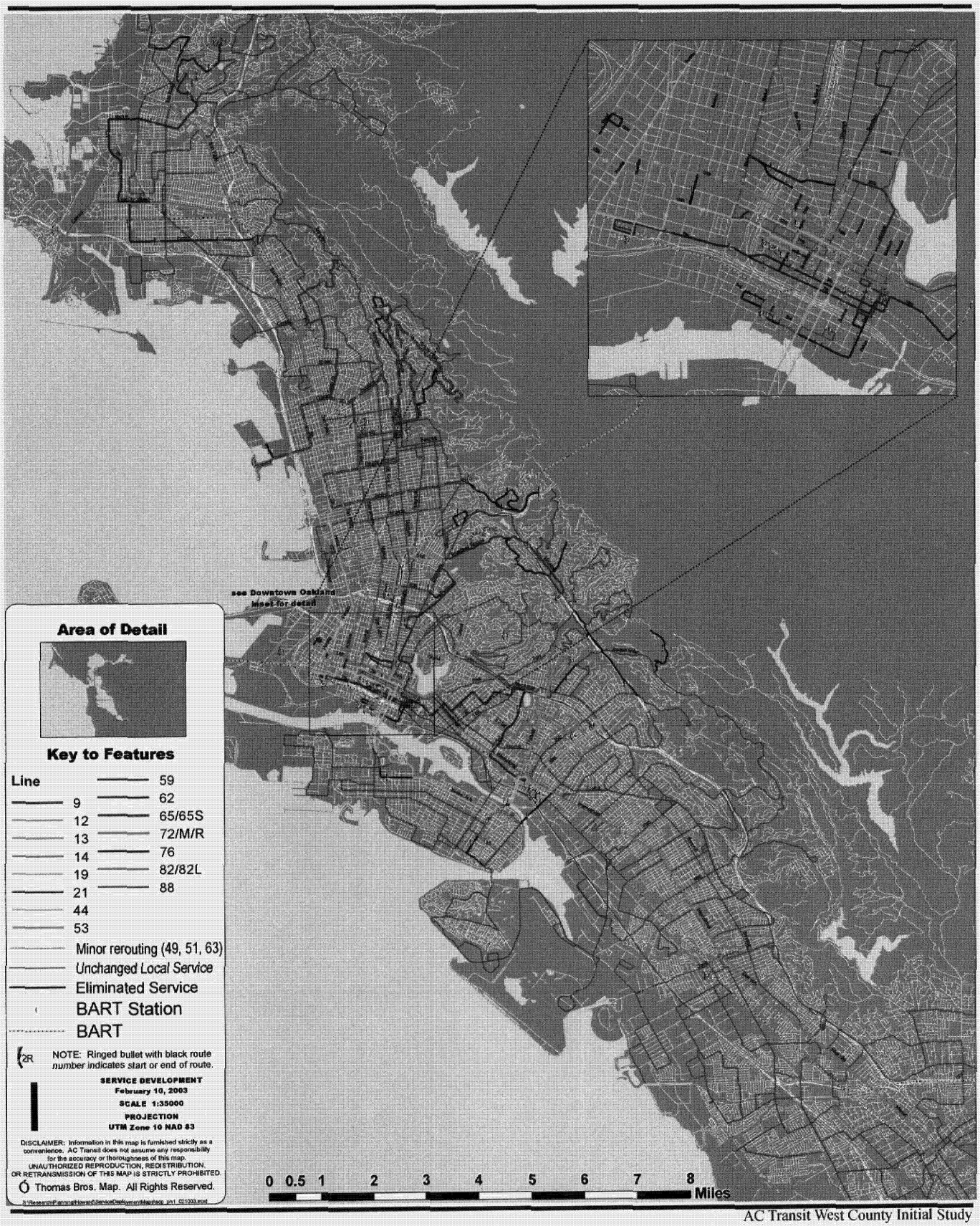
In the late 1990s AC Transit initiated a strategic planning process focused on developing a long-term vision for the transit district. A Strategic Vision Plan was developed that emphasized speed, comfort and reliability with the goal of increasing transit ridership. Recognizing that achieving the vision would require additional funding, AC Transit began the process of collaborating with local jurisdictions to help identify funding sources to help improve the East Bay's transit system. In November 2000, voters in Alameda County approved a 20-year extension of Measure B, which is a half-cent sales tax used to fund transportation projects. The Measure B expenditure plan provided increased funding for AC Transit services, but not at a sufficient level to keep pace with growing operating costs. In addition, in November 2004, Contra Costa County voters adopted Measure J, a continuation of the existing county half-cent sales transportation sales tax. This tax increases funding available for local transit service in Western Contra Costa County, and led to further refinements in AC Transit service proposals for the communities in Richmond, El Sobrante and El Cerrito.

In order to maintain the focus on achieving the Strategic Vision Plan, AC Transit developed a comprehensive set of service deployment policies to guide the AC Transit Board of Directors' future deliberations and decisions on service allocations – where to add service when the District received additional revenues, and where to protect service when resources diminished. These policies led to the creation of a Service Deployment Plan (SDP) for the District, which restructured the bus service network into a more streamlined and efficient system in accordance with the policies identified during the development of the plan. The purpose of the SDP was to realign the District's bus service to allow the District to respond to changing financial conditions. The plan allows for expansion and contraction of bus service, and the adopted policy favors deployment of District resources on the most productive and well used routes. As part of this plan, a series of route realignments were identified. The route changes identified in the SDP were for two phases - Phase One (Central Alameda County) and Phase Two (North Alameda/West Contra Costa counties). Phase One was approved by the District's Board of Directors in mid-2002 and implemented in December of that year. Phase Two was approved in early 2003 and implemented in June 2003.

The SDP represented a long-range service plan for the District. Concurrently, with the development of a long-term operations plan, the District also addressed the composition of its fleet. Starting in the latter half of the 1990s the District began replacing its aging fleet with newer, and in some cases different, buses. The emphasis was upon acquiring "low-floor" buses for most local routes and putting "cruiser" coaches on most long distance routes, particularly those that traveled into the Transbay Transit Terminal in San Francisco. Furthermore, due to increased demand, buses needed to be equipped with bicycle racks. In 2002 the District undertook the review of its fleet management plan. This plan is used by a transit agency to properly plan for and carry out the overall management of its vehicle fleet. AC Transit recognized that the service expansion outlined in the SDP would require additional transit vehicles. The FCP was prepared in order to identify a plan for the expansion, deployment and replacement of the District's transit vehicles. In April 2002, the Board approved the FCP. The FCP provided a recommendation for the composition of the District's bus fleet to the year 2015. At the time of the adoption of the FCP the District's fleet included 60 60-foot articulated buses, 40 45-foot "cruiser" coaches, 360 40-foot buses, 29 35-foot buses, 61 30-foot buses and the remaining 31 26-foot gasoline-powered vans. The District considered the composition of its fleet as older equipment reached the end of its useful life, the needs and demands of its passengers changed over that life span and the District

Line 65 – Dwight Way	University Avenue – Euclid Avenue	30/60 minutes
Line 67 – Spruce Street	Grizzly Peak Boulevard – Arlington Avenue	30/60 minutes
Line 72 – San Pablo Avenue	Richmond – Downtown Oakland	30 minutes
Line 72L – San Pablo Avenue Limited	Richmond – Downtown Oakland Limited	Discontinued
NEW Line 72M – San Pablo Avenue/Macdonald Avenue	Richmond – Downtown Oakland via Macdonald Avenue	30 minutes
NEW Line 72R – San Pablo Avenue Rapid	San Pablo Avenue Rapid	12 minutes
Line 73 – San Pablo Avenue/Macdonald Avenue	Richmond – Downtown Oakland	Discontinued
Line 76 – North Richmond	Contra Costa College – El Cerrito BART	30/60 minutes
Line 82/82L – International Boulevard/International Boulevard Limited	West Oakland – Hayward BART	12/20 minutes
Line 88 – Sacramento Street	North Berkeley BART – Downtown Oakland	20 minutes
Line 91 – Whitman	Castro Valley – Chabot College	30 minutes
Line 315 – Adeline Night	West Oakland – Macarthur BART	60 minutes
Line 325 – Alameda Ferry Terminal	Ferry Terminal – East Alameda	Discontinued
Line 354 – 35th Avenue Limited	35th Avenue – Kmart Owl	60 minutes
Line A – 7th Street Transbay	San Francisco – Oakland Owl	60 minutes
Line F – Adeline Transbay	San Francisco – Berkeley	30 minutes

Source: *Alameda-Contra Costa Transit District*, 2005.



AC Transit West County Initial Study

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Figure 2-1
Service Deployment Plan:
Western Contra Costa County & North Alameda County

2.4.2 Description of Elimination of Gasoline-Powered Vans

The Federal Transit Administration (FTA) has established several policies that are meant to ensure that buses purchased or leased with federal funds are maintained and remain in transit use for a minimum normal service life and to ensure that the buses acquired are necessary for regularly scheduled transit service. (FTA Circular Number C 9030.1C) According to FTA, a standard 60, 40, and 30-foot transit bus has a service life expectancy of 12 years. A gasoline-powered van has a service life expectancy of 4 years.

Beginning in December 2002 to December 2003, the District was phasing out of its existing van fleet with the last vans being removed from service in December 2003. The vans were phased out for a variety of reasons, including age, lack of capacity, maintenance problems, and the inability to carry bicycles. At the time of their elimination, gasoline-powered vans had been primarily in use on lines 1, 2, 3, 4, 5, 9, 49, 52, 60, 65, and 67.[2] A map of the van routes as of December 2002 is shown in Figure 2-2.

2.4.3 Description of the WCSP

The WCSP focuses on eliminating unproductive route segments and reallocating extra running time on existing routes to create a more streamlined route network. Additionally, some bus lines would be rerouted to provide more productive service and routes that had previously been discontinued are being proposed for restoration. The new route network relies on timed transfer connections at the Downtown Berkeley BART Station, the Richmond BART Station, and the Richmond Parkway Transit Center. The service areas and proposed frequencies are listed in Table 2-2 and are described in detail below. A map of the proposed service changes is depicted in Figure 2-3.

The WCSP would also address future service demand and concentrate on improvements in the San Pablo Avenue and Macdonald Avenue corridors. Additional service to the Richmond Parkway Transit Center would be provided via the San Pablo Avenue corridor. Coordination between AC Transit and other regional carriers including Golden Gate Transit and Western County Transit Authority (WestCAT) would also be improved.

Line 15 – Martin Luther King Jr. Way (Downtown Berkeley to Oakland): This route currently operates between the Montclair community in Oakland to the Downtown Berkeley BART Station. A variation of the route extends from the Downtown Berkeley BART Station to the El Cerrito Plaza BART Station. Under the new proposal, this segment of Line 15 would be discontinued and would no longer provide service to the El Cerrito Plaza BART Station.

Line 19—Hollis (Downtown Berkeley BART to Fruitvale BART): This route is located within the cities of Berkeley, Emeryville, Oakland and Alameda in North Alameda County. Line 19 would no longer provide service to the North Berkeley BART Station, and would be rerouted from 6th Street and University Avenue to Downtown Berkeley BART via north on 6th Street, eastbound on Cedar Street, southbound on Shattuck Avenue and terminating at Shattuck Avenue and Allston Way. From Fruitvale to 6th Street, the route remains unchanged.

Line 43—Shattuck (Eastmont Transit Center to University Village): Line 43 provides service between the cities of Oakland and El Cerrito in West Contra Costa County and North Alameda County.

[2] Although the emphasis in the previously mentioned litigation was on the elimination of vans on Lines 9 and 67, as well as a change in the route and frequency of buses on Line 67, the analysis herein considers the impacts associated with the elimination of gasoline-powered vans from the fleet altogether.

A portion of Line 43 would be rerouted from San Pablo Avenue and Buchanan Street in Albany to Jackson and Buchanan streets in University Village via San Pablo Avenue, east on Monroe Street, north on Jackson Street, to the terminal at San Pablo and Buchanan. Service to Oakland would continue from the University Village. No service would be provided beyond the terminal to the Point Isabel Regional Shoreline Area along Buchanan and Pierce Streets, Cleveland Avenue, Central Avenue, Fairmount Avenue, Rydin Road, Isabel Street and the El Cerrito Plaza BART Station

Line 52—Cedar (University Village to Bancroft Way/Telegraph Avenue): Line 52, which currently serves the University Village area in the city of Albany, would be discontinued in its entirety. Service would be provided by Line 52L as described below. The running time currently allocated to this route would be reallocated to Lines 71 and 76.

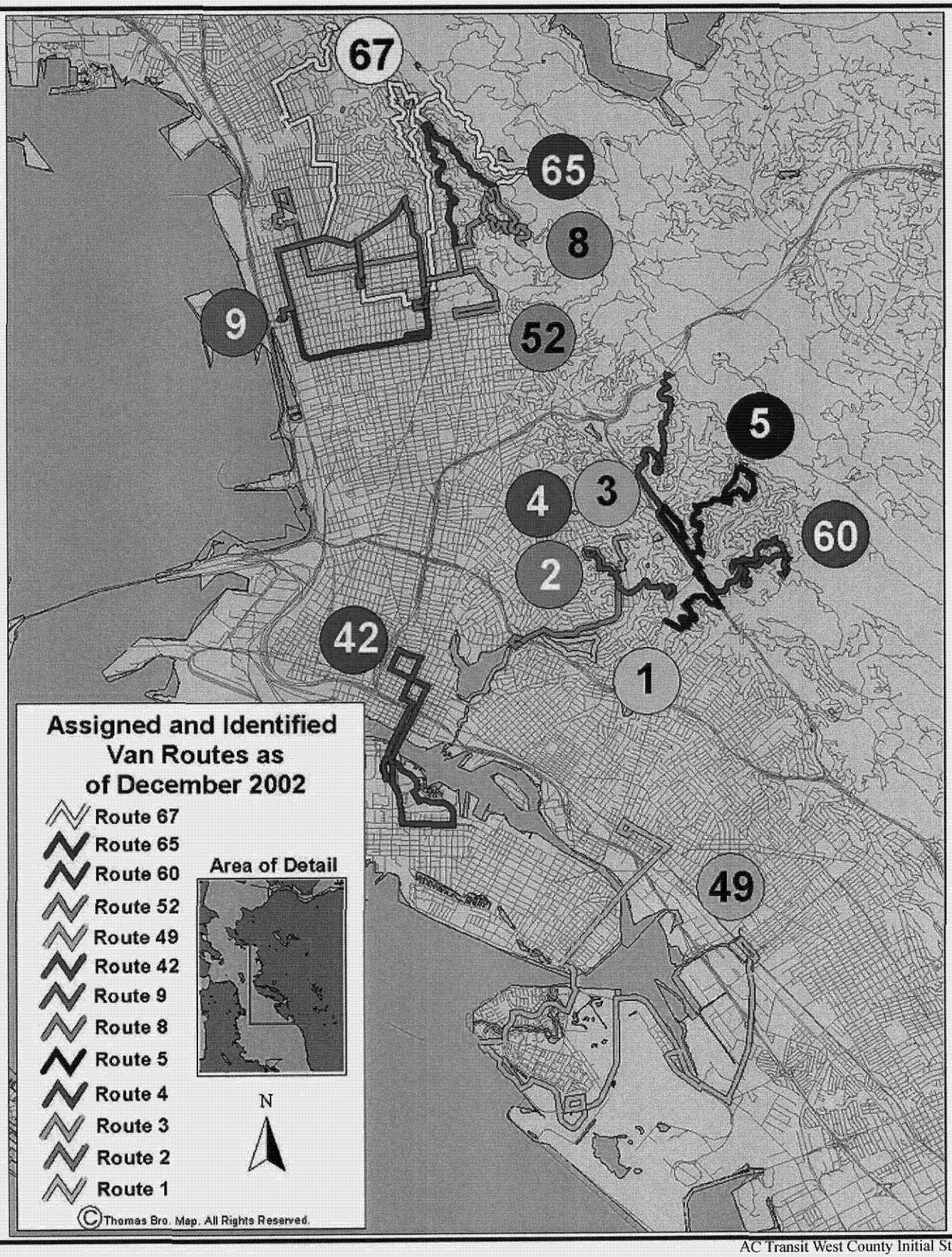
Line 52L—University Village Limited (El Cerrito Plaza BART Station to Bancroft Way/Telegraph Avenue): Line 52L would provide limited stop service from Albany to Berkeley, and would be extended from University Village to the El Cerrito Plaza BART Station via northbound on Jackson Street, westbound on Buchanan Street, north on Pierce Street, eastbound on Central Avenue, south on San Pablo Avenue, eastbound on Fairmount Avenue, to the El Cerrito Plaza BART Station. From Campus to the University Village, service would remain the same.

New Line 68—(Richmond BART to El Cerrito del Norte BART): This route would reinstate service between the Richmond BART station and the El Cerrito del Norte BART Station, traveling east on Macdonald Avenue, north on 23rd Street, east on Garvin Avenue, north on San Pablo Avenue, east on McBryde Avenue, south on Arlington Boulevard, south on Cutting Boulevard, and west on Hill Street to the El Cerrito del Norte BART Station.

Line 70—Broadway (Richmond BART Station to Contra Costa College Transit Center): Line 70 would be extended from the Richmond Parkway Transit Center to the Contra Costa College campus. From the transit center, the route would travel north on Blume Drive, westbound on Richmond Parkway, west on Atlas Road, south on Giant Highway, west on Phanor Drive, north on McGlothen Way, west on Banks Drive, south on Jenkins Way, east on Williams Drive, north on McGlothen Way, east on Griffin Drive, south on Giant Highway, east on John Avenue, south on 11th Street, east on Broadway, north on Rumrill Boulevard, east on College Lane, north on Campus Drive to the Contra Costa College Transit Center. The existing segment of the route between the Richmond Parkway Transit Center and the Hilltop Green area would be discontinued. Service currently provided along the route via southbound on Blume Drive, east on Hilltop Drive, north and west on Park Central, south on Fairway Drive, east on Parkway Drive, would be replaced by supplemental school service.

Line 71—Rumrill Boulevard (Richmond Parkway Transit Center to El Cerrito del Norte BART): A segment of Line 71 between Contra Costa College and the Richmond Parkway Transit Center would be rerouted. The segment currently serving Broadway, Giant Highway, and Atlas Road would be discontinued, and added as a segment of Line 70. The new route would operate from the campus via west on College Lane, north on San Pablo Avenue, east on Lancaster Drive, east on Aberdeen Way, east on Lancaster Drive, east on Birmingham Drive, north on Shane Drive, west on Hilltop Mall Road to Hilltop Mall. From Hilltop Mall, the route would continue via east on Hilltop Mall Road, east on Klose Way, north on Blume Drive, and east to the Richmond Parkway Transit Center. The route would continue to operate to the El Cerrito del Norte BART Station along its current alignment from Contra Costa College.

Line 72M –Macdonald Avenue (Point Richmond to Oakland): This variation of Line 72 provides service to Downtown Oakland from the Point Richmond community, via Macdonald Avenue. Under the proposal, Line 72M would be discontinued, with its frequency transferred to the 72 Local line.



AC Transit West County Initial Study

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Figure 2-2
Services Provided by Gasoline Powered Vans

Line 73-Macdonald Avenue (El Cerrito del Norte BART to Point Richmond): The service that is proposed to be discontinued with Line 72M would be provided by a new route, Line 73, which would operate between the El Cerrito del Norte BART Station, the Richmond BART Station, and Point Richmond, along San Pablo and Macdonald Avenues. Service to Point Richmond from the downtown Richmond BART Station would be provided by Line 73, along the current route of Line 72M.

Line 74- 23rd Street (Richmond BART to Orinda BART): Line 74 provides service between the Richmond BART Station and the Orinda BART Station, with some variations providing service to Hilltop Mall and areas south of the BART Station. The proposed change would terminate the route at the Richmond BART Station. No service would be provided along South 23rd Street, Marina Bay Parkway, Regatta Boulevard, Marina Way South, Hall Avenue, Harbor Way South, and Wright Avenue.

Line 76—Cutting Boulevard (Richmond Parkway Transit Center to El Cerrito del Norte BART): Line 76 would be extended from Hilltop Mall to the Richmond Parkway Transit Center. The extension would operate via east on Hilltop Mall Road, east on Klose Way, north on Blume Drive, to the Richmond Parkway Transit Center. A segment of the route currently operating along Shane Drive and Birmingham Drive would be discontinued. The route would continue to operate to the Contra Costa College Transit Center from Hilltop Mall via east on Hilltop Mall Road, south on Shane Drive, east on Groom Drive, south on Moyers Road, east on Fordham Street, south on Rollingwood Drive, west on El Portal Drive, north on Mission Bell Drive, north on Campus Driver. The route would continue to operate to the El Cerrito del Norte BART Station along its current alignment from the Contra Costa College Transit Center.

Line 79-Colusa Avenue (El Cerrito Plaza BART to Downtown Berkeley): Line 79 would be a new service that would replace the discontinued service provided by Line 15 between the Downtown Berkeley BART Station and the El Cerrito Plaza BART Station. This route would also incorporate those areas south of the Richmond BART Station that were previously served by Line 74. The new route would travel from the El Cerrito Plaza BART Station via westbound on Central Avenue, north on Interstate 580 ((I-580), west on Bayview Avenue, north on Meade Street, west on Regatta Boulevard, south on Marina Way South, west on Hall Avenue, northbound on Harbor Way South, east on Wright Avenue, southbound on South 19th Street, east on Meeker Avenue, north on Marina Bay Parkway, west on Macdonald Avenue to the Richmond BART Station. The line would continue to the Downtown Berkeley BART Station from El Cerrito Plaza BART via eastbound on Fairmount Avenue, south on Colusa Avenue, east on Solano Avenue, south on The Alameda, south on Martin Luther King Jr. Drive, east on University Avenue, through the University Crescent loop to the Downtown Berkeley BART Station.

Line 376—North Richmond Night Service: Line 376 currently provides night service to the North Richmond area operating from the El Cerrito del Norte BART Station. A segment of the route would be discontinued that currently operates northbound on 23rd Street, east on Rheem Avenue, north on Vale Road, north on San Pablo Avenue, east on San Pablo Dam Road, north on Interstate 80 (I-80), west on El Portal Drive.

Golden Gate Transit Line 40/42 – via Macdonald Avenue (Richmond/San Rafael Bridge to El Cerrito del Norte BART): This service is provided by the Golden Gate Bridge Highway and Transportation District. The route operates weekdays, except holidays, and serves Point Richmond, the Richmond BART Station and the El Cerrito del Norte BART Station. The route currently serves Cutting Boulevard between the two stations. The new proposal would reroute the line to Macdonald Avenue.

Table 2-2. West County Service Plan Recommendations

Route	Service Area	Service Frequencies
Line 15 – Martin Luther King Jr. Way	Downtown Berkeley BART to Oakland	15 minutes
Line 19 – Hollis Street	Downtown Berkeley BART to Fruitvale BART	30 minutes
Line 43 – Shattuck Avenue	Eastmont Mall Transit Center to University Village	15 minutes
Line 52 – Cedar Street	University Village to Bancroft Way/Telegraph Avenue	Discontinued
Line 52L – University Limited	El Cerrito Plaza BART to Bancroft Way/Telegraph Avenue	15 minutes
Line 68 - NEW	Richmond BART to El Cerrito del Norte BART	30 minutes
Line 70 – Broadway	Richmond BART Station to Contra Costa College Transit Center	30 minutes
Line 71 – Rumrill Boulevard	Richmond Parkway Transit Center to El Cerrito del Norte BART	30 minutes
Line 72 – San Pablo Avenue Local	Richmond Parkway Transit Center to Oakland	15 minutes
Line 72M – Macdonald Avenue	Point Richmond to Oakland (via Macdonald Avenue)	Discontinued
NEW Line 73 – Macdonald Avenue	El Cerrito del Norte BART to Point Richmond	30 minutes
Line 72R – San Pablo Avenue Rapid	Richmond Parkway Transit Center to Jack London Square (Oakland)	12 minutes
Line 74 – 23rd Street	Richmond BART to Orinda BART	30 minutes
Line 76 – Cutting Boulevard	Richmond Parkway Transit Center to El Cerrito del Norte BART	30 minutes
NEW Line 79 – Colusa	Richmond BART to Downtown Berkeley	30 minutes
Line 376 – North Richmond	North Richmond Night Service	30 minutes
Golden Gate Transit Line 40/42 – via Macdonald Avenue	Richmond/San Rafael Bridge to El Cerrito del Norte BART	30 minutes

Source: *Alameda-Contra Costa Transit District* 2005.

West County Service Plan Phase Two

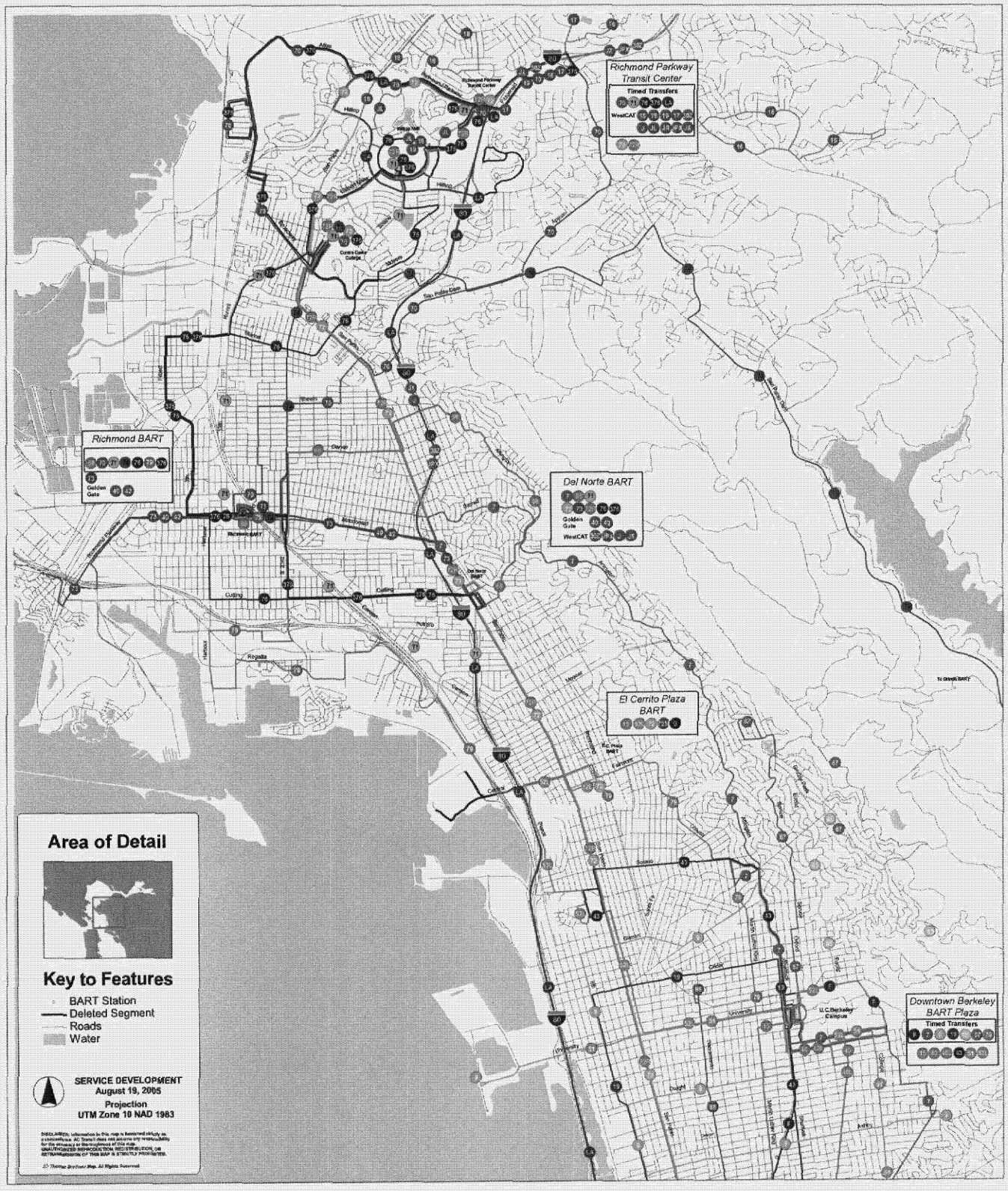

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Figure 2-3
West County Service Plan

2.5 Required Approvals

This Initial Study (IS) will be used by AC Transit to document the Proposed Project's potential environmental impacts in order to determine whether there is substantial evidence that the Proposed Project would result in significant environmental impacts. As the state lead agency under the California Environmental Quality Act (CEQA), AC Transit is required to adopt an environmental document in compliance with state law before it may approve the Proposed Project. The content of the IS, once reviewed and approved by AC Transit, constitutes the environmental document for the project and will be the subject of a public hearing. Because the IS indicates that the project has no significant environmental impacts, AC Transit may determine that a Negative Declaration is the appropriate environmental document. This document will be circulated for public and agency review, as required by CEQA. During the review period, written comments may be submitted to:

Anthony Bruzzone
Manager, Service and Operations Planning
Alameda-Contra Costa Transit District
1600 Franklin Street
Oakland, CA 94612

3.0 ENVIRONMENTAL CHECKLIST

1. **Project Title:** Service Changes in North Alameda/West Contra Costa Counties

2. **Lead Agency Name and Address:** Alameda Contra-Costa Transit District
1600 Franklin Street
Oakland, CA 94612

3. **Contact Person and Phone Number:** Anthony Bruzzone
(510) 891-7175

4. **Project Location:** Various locations within Alameda and Contra Costa counties, California. Figures 2-1 through 2-2 identify the locations of the proposed bus service changes.

5. **Project Sponsor's Name and Address:** Alameda Contra-Costa Transit District
1600 Franklin Street
Oakland, CA 94612

6. **General Plan Designation:** Not applicable

7. **Zoning:** Various

8. **Description of Project:** See Chapter 2, "Project Description."

9. **Surrounding Land Uses and Setting:** Land uses in the project area are various and includes residential, commercial, institutional, public, and others.

10. **Other Public Agencies whose Approval Is Required:**
N/A

Environmental Factors Potentially Affected:

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

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

Determination: (*to be completed by the lead agency*)

On the basis of this initial evaluation:

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

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

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

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

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

Signature	Date
Printed Name	For

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
I.	**AESTHETICS.** Would the project:				
a.	Have a substantial adverse effect on a scenic vista?	❑	❑	❑	√
b.	Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings along a scenic highway?	❑	❑	❑	√
c.	Substantially degrade the existing visual character or quality of the site and its surroundings?	❑	❑	❑	√
d.	Create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area?	❑	❑	❑	√

Environmental Setting

Existing Conditions

The proposed project is primarily located in northern Alameda and western Contra Costa counties. Although the project area contains a mixed visual environment, the landscape can be characterized as predominantly urban or developed. Overall, views associated with the urban landscape unit are of low visual quality because of the lack of intactness and unity of views. Distant views from within the project area are generally limited due to intervening structures and development. However, views of the San Francisco Bay are available from multiple vantage points along the project routes.

Regulatory Setting

State Regulations

California Department of Transportation State Scenic Highway System

The State Scenic Highway System includes a list of highways that are either eligible for designation as scenic highways or have been so designated, and can be found in Section 263 of the Streets and Highways Code. The following summarizes the officially designated and eligible state scenic highways in Alameda and Contra Costa Counties.

Alameda County

- I-80 – Eligible from I-280 near 1st Street in San Francisco to SR 61 in Oakland
- I-580 – Officially Designated from the San Leandro city limits to SR 24 in Oakland and from the San Joaquin County line to SR 205
- I-680 – Officially Designated from Mission Boulevard in Fremont to the Contra Costa County line SR 84 – Eligible from SR 238 to I-680 near Sunol

Contra Costa County

- SR 24 – Officially Designated from the east portal of the Caldecott Tunnel to I-680 near Walnut Creek
- SR 4 – Eligible from SR 160 near Antioch to SR 84 near Brentwood

Local Regulations

Alameda County General Plan

The Scenic Route Element of the Alameda County General Plan (Alameda County, 1994, as amended) designates I-80 and I-880 within Alameda County as scenic routes. Objectives and policies in the Scenic Route Element focus on preserving and enhancing views available from scenic routes; providing a continuous system of scenic routes; coordinating scenic routes with recreation areas; and protecting against unsightly features along scenic route corridors.

Contra Costa County General Plan

The Open Space Element of the Contra Costa County General Plan (Contra Costa County, 1996) does not designate scenic roadways in the County; however, it does include designated scenic ridges and waterways throughout the County. Views of many of these ridges are available from roadways within the County, including I-80, I-680, and SR 24. Designated scenic waterways include the San Francisco Bay, San Pablo Bay, and Suisun Bay, all of which are also visible from roadways within the County. Scenic resource goals and policies in the General Plan focus on preserving areas with high scenic value; protecting major ridgelines; and protecting physical and visual access to scenic resources.

Impact Analysis

a., c. The proposed project includes an increase of bus trips on multiple local routes within northern Alameda and western Contra Costa counties. An increase in the number of buses and frequency of trips within the project area would not substantially degrade the existing visual character, quality of, or views from these local roadways. Most of these local roadways are well traveled thoroughfares in a highly urbanized region, and experience a moderate to heavy volume of vehicle traffic that includes trucks, buses, and cars. A small increase in bus trips would also not substantially degrade views of the East Bay hills because of the highly developed nature of the region and the presence of existing vehicles on project roadways. The proposed project would not have an impact on the existing visual character or quality of the proposed project and its surroundings. There would be **no impact.**

b The project does not propose the construction of any new structures, utility poles, lines, roadways, or other facilities along a scenic highway, and would therefore not damage scenic resources along such a highway. There would be no intrusion on a scenic vista or scenic resources, as defined by the respective General Plans of the jurisdictions in which the proposed project is located. There would be **no impact**.

d. The proposed project does not include the construction of new structures, roadways, or other facilities that would require nighttime lighting. Daytime glare from buses associated with increased bus trips on certain routes would not contribute to a new source of glare. Bus trips would occur on heavily traveled roadways through urban, built-up areas. There would be **no impact**.

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
II.	**AGRICULTURAL RESOURCES.** In determining whether impacts on agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation. Would the project:				
a.	Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	❑	❑	❑	√
b.	Conflict with existing zoning for agricultural use or conflict with a Williamson Act contract?	❑	❑	❑	√
c.	Involve other changes in the existing environment that, due to their location or nature, could result in conversion of Farmland to non-agricultural use?	❑	❑	❑	√

The proposed project has no ability to impact agriculture resources since there will be no construction or development in non-urbanized areas. No portion of the project area is located directly on or adjacent to agricultural lands.

a. The proposed project is located on existing roadways in primarily in an urbanized area not designated as important farmland. There would be **no impact.**

b. The proposed project is located on existing roadways in primarily in an urbanized area that is not zoned for agricultural use. There are no Williamson Act contracts on any portion of the project area. There would be **no impact.**

c. The proposed project is located on existing roadways in primarily in an urbanized area, and no conversion of farmlands would occur. There would be **no impact.**

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
III.	**AIR QUALITY.** When available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a.	Conflict with or obstruct implementation of the applicable air quality plan?	❑	❑	√	❑
b.	Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	❑	❑	√	❑
c.	Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is a nonattainment area for an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?	❑	❑	√	❑
d.	Expose sensitive receptors to substantial pollutant concentrations?	❑	❑	√	❑
e.	Create objectionable odors affecting a substantial number of people?	❑	❑	❑	√

Environmental Setting

Existing Conditions

The proposed project is primarily located in northern Alameda and western Contra Costa counties within the Bay Area Air Quality Management District (BAAQMD). The BAAQMD has jurisdiction over air quality planning and permitting of stationary sources within the nine-county district.

Topography and Climate

The western boundary of the project area is defined by San Francisco Bay. The eastern boundary of the project area is defined by the Oakland-Berkeley hills in the northern portion of the project area and the East Bay hills in the southern portion of the project area. In the northern portion of the project area, the dominant weather factor is the marine air traveling through the Golden Gate. The prevailing winds for most of this area are from the west to southwest. The southern portion of the project area is indirectly affected by marine airflow. Marine air entering through the Golden Gate is blocked by the East Bay hills, forcing the air to diverge into northerly and southerly paths. The southern flow is directed down the bay, parallel to the hills, where it eventually passes

over southwestern Alameda County. The sea breezes in both the northern and southern portions of the project area are strongest in the afternoon. The farther from the ocean the marine air travels, however, the more diminished is the ocean's effect.

The average annual high temperatures in the project area range from the 50's to 70's in the winter and 60's to 80's in the summer. The annual precipitation averages about 25 inches. The predominant wind direction is westerly in the spring, summer and early fall, as discussed above, but varies more in the winter with the passage of storm systems.

Federal and State Ambient Air Quality Standards

Criteria Pollutants

Both the U. S. Environmental Protection Agency and the California Air Resources Board have established ambient air quality standards for common pollutants. These ambient air quality standards are levels of contaminants which represent safe levels that avoid specific adverse health effects associated with each pollutant. The ambient air quality standards cover what are called "criteria" pollutants because the health and other effects of each pollutant are described in criteria documents. Table III-1 identifies the major criteria pollutants, characteristics, health effects and typical sources. The federal and California state ambient air quality standards are summarized in Table III-2.

The federal and state ambient standards were developed independently with differing purposes and methods, although both processes attempted to avoid health-related effects. As a result, the federal and state standards differ in some cases. In general, the California state standards are more stringent. This is particularly true for ozone and particulate matter (PM_{10} and $PM_{2.5}$)

Toxic Air Contaminants

In addition to the criteria pollutants discussed above, Toxic Air Contaminants (TACs) are another group of pollutants of concern. There are many different types of TACs, with varying degrees of toxicity. Sources of TACs include industrial processes such as petroleum refining and chrome plating operations, commercial operations such as gasoline stations and dry cleaners, and motor vehicle exhaust. Cars and trucks release at least forty different toxic air contaminants. The most important, in terms of health risk, are diesel particulate, benzene, formaldehyde, 1,3-butadiene and acetaldehyde.

Public exposure to TACs can result from emissions from normal operations, as well as accidental releases. Health effects of TACs include cancer, birth defects, neurological damage and death.

Sensitive Land Uses

For the purposes of air quality analysis, sensitive land uses are defined as locations where there is the presence of children, the elderly, and people with all members of the population would be present.

Table III-1: Major Criteria Pollutants

Pollutant	Characteristics	Health Effects	Major Sources
Ozone	A highly reactive photochemical pollutant created by the action of sunshine on ozone precursors (primarily reactive hydrocarbons and oxides of nitrogen. Often called photochemical smog.	•Eye Irritation •Respiratory function impairment.	The major sources ozone precursors are *combustion sources such as* factories and automobiles, and evaporation of solvents and fuels.
Carbon Monoxide	Carbon monoxide is an odorless, colorless gas that is highly toxic. It is formed by the incomplete combustion of fuels.	•Impairment of oxygen transport in the bloodstream. •Aggravation of cardiovascular disease. •Fatigue, headache, confusion, dizziness. •Can be fatal in the case of very high concentrations.	Automobile exhaust, combustion of fuels, combustion of wood in woodstoves and fireplaces.
Nitrogen Dioxide	Reddish-brown gas that discolors the air, formed during combustion.	•Increased risk of acute and chronic respiratory disease.	Automobile and diesel truck exhaust, industrial processes, fossil-fueled power plants.
Sulfur Dioxide	Sulfur dioxide is a colorless gas with a pungent, irritating odor.	•Aggravation of chronic obstructive lung disease. •Increased risk of acute and chronic respiratory disease.	Diesel vehicle exhaust, oil- and coal-powered power plants, industrial processes.
Particulate Matter (PM_{10} and $PM_{2.5}$)	Solid and liquid particles of dust, soot, aerosols and other matter which are small enough to remain suspended in the air for a long period of time.	•Aggravation of chronic disease and heart/lung disease symptoms.	Combustion, automobiles, field burning, factories and unpaved roads. Also a result of photochemical processes.
Source: *Don Ballanti, Certified Consulting Meteorologist*, 2005.			

Table III-2: Federal and State Ambient Air Quality Standards

Pollutant	Averaging Time	Federal Primary Standard	State Standard
Ozone	1-Hour 8-Hour	0.12 PPM 0.08 PPM	0.09 PPM 0.07 PPM
Carbon Monoxide	8-Hour 1-Hour	9.0 PPM 35.0 PPM	9.0 PPM 20.0 PPM
Nitrogen Dioxide	Annual Average 1-Hour	0.05 PPM --	-- 0.25 PPM
Sulfur Dioxide	Annual Average 24-Hour 1-Hour	0.03 PPM 0.14 PPM --	-- 0.05 PPM 0.25 PPM
PM_{10}	Annual Average 24-Hour	50 $\mu g/m^3$ 150 $\mu g/m^3$	20 $\mu g/m^3$ 50 $\mu g/m^3$
$PM_{2.5}$	Annual 24-Hour	15 $\mu g/m^3$ 65 $\mu g/m^3$	12 $\mu g/m^3$ --
Lead	Calendar Quarter 30 Day Average	1.5 $\mu g/m^3$ --	-- 1.5 $\mu g/m^3$
Sulfates	24 Hour	25 $\mu g/m^3$	--
Hydrogen Sulfide	1-Hour	0.03 PPM	--
Vinyl Chloride	24-Hour	0.01 PPM	--
Notes: PPM = Parts per Million $\mu g/m^3$ = Micrograms per Cubic Meter			
Source: *California Air Resources Board,* 2005.			

illnesses. Sensitive land uses along the alignment of the proposed bus service changes would include any residences, schools, day care centers, convalescent homes, and hospitals. However, the BAAQMD California Environmental Quality Act (CEQA) Guidelines recommend analyzing pollutant impacts at locations where all members of the population would be present.

Regulatory Setting

Federal, state, and local air quality regulations applicable to the proposed project are described below.

Federal Regulations

The federal Clean Air Act requires that the State Air Resources Board, based on air quality monitoring data, designate portions of the state where the federal or state ambient air quality standards are not met as "non-attainment areas".

The Bay Area is currently a non-attainment area for 1-hour ozone standard. However, in April 2004, the United States Environmental Protection Agency (U.S. EPA) made a final finding that the Bay Area has attained the national 1-hour ozone standard. The finding of attainment does not mean the Bay Area has been reclassified as an attainment area for the 1-hour standard. The region must submit a re-designation request to EPA in order to be reclassified as an attainment area.

The U. S. EPA has classified the San Francisco Bay Area as a non-attainment area for the federal 8-hour ozone standard. The Bay Area was designated as unclassifiable/attainment for the federal $PM_{2.5}$ standards.

The *Bay Area 2001 Ozone Attainment Plan* (BAAQMD, 2001) is the current federal air quality plan. It was prepared by the BAAQMD, the Metropolitan Transportation Commission, and the Association of Bay Area Governments. This plan was a revision to the Bay Area part of California's plan (State Implementation Plan, or SIP) to achieve the national ozone standard. The plan was approved by the California Air Resources Board (CARB) and on November 30, 2001, CARB submitted the 2001 Plan to the U.S. EPA. The U.S. EPA is currently reviewing the plan.

State Regulations

Under the California Clean Air Act (CAA), Alameda and Contra Costa County are non-attainment areas for ozone and particulate matter (PM_{10} and $PM_{2.5}$). The counties are either attainment or unclassified for other pollutants. The CAA requires local air pollution control districts to prepare air quality attainment plans. These plans must provide for district-wide emission reductions of five percent per year averaged over consecutive three-year periods or if not, provide for adoption of "all feasible measures on an expeditious schedule".

The CAA requires that the state air quality standards be met as expeditiously as practicable but, unlike the federal CAA, does not set precise attainment deadlines. Instead, the act establishes increasingly stringent requirements for areas that will require more time to achieve the standards.

Impact Analysis

a. The proposed project includes the phased implementation of the Service Deployment Plan which includes improvement of existing service within northern Alameda County (within the cities of Berkeley and Albany) and a restructuring of the route network in West Contra Costa County (within the cities of San Pablo, Richmond and El Cerrito). AC Transit has been developing improvements to its route network for several years. Currently, the District has a strategic vision for enhancing service and improvement mobility for its passengers. With economic fluctuations of the past 10 years, bus service in North Alameda and West Contra Costa

counties has expanded and contracted to meet increasing demands or District budgetary constraints.

In addition, AC Transit has proposed additional service changes which are included in a proposed West County Service Plan, which would restructure the West Contra Costa County route network to meet that area's needs.

The service changes described above are the types of actions that are, in general, consistent with the goals of regional air quality planning, as the majority of the Bay Area's pollutants come from traffic. The *Revised San Francisco Bay Area 2001 Ozone Attainment Plan* (BAAQMD, 2001) is the current federal air quality plan. The Plan contains transportation control measures (TCMs) that are part of the effort to reduce ozone emissions. The proposed project would not be inconsistent with the TCMs. The proposed project is not in conflict with nor would obstruct the implementation of the regional air plan, and the impact would be **less than significant.**

b. The proposed project would affect air pollutant emissions by changing bus miles traveled. The project would increase bus service on some bus lines and decrease bus service on other bus lines. These service changes would result in a net increase in bus vehicle miles traveled.

The project would also affect emissions through the replacement of 31 gasoline-powered vans with 30-foot diesel buses. Diesel vehicles have relatively greater emission rates for some pollutants (NOx, Particulate, SO_2) and relatively lesser emission rates for other pollutants (ROG, CO) compared to gasoline-powered vehicles.

To evaluate the net change in emissions, the increase in bus emissions from increased bus miles traveled and the emission changes resulting from the elimination of gasoline powered vans were calculated. The resulting emissions changes were compared to the significance thresholds for NOx and ROG (ozone precursors) and PM_{10} contained in the BAAQMD CEQA Guidelines. These thresholds are 80 pounds per day. The BAAQMD CEQA Guidelines assume that if a project's operational emissions fall below the significant emissions thresholds, the emissions would not violate an air quality standard.

Table III-3 shows the changes in bus trips and daily bus miles traveled under the proposed project. The net bus miles traveled increase under the proposed project is 583. Daily emissions from the increased bus service were calculated using the EMFAC2002 on-road mobile source emissions model. This model was developed by the CARB and is approved by the CARB and local air districts for use in calculating vehicle emissions. The generalized emission factors for diesel urban

buses were adjusted downward to reflect the AC Transit fleet.[1] The additional daily emissions resulting from the increased bus miles traveled is shown in Table III-4.

Changes in emissions resulting from the elimination of gas van service were estimated by calculating the estimated gas van miles traveled. The 31 gas vans were estimated to travel about 2758 daily miles, based on an estimated 89 miles of travel per vehicle.[2] The difference between daily emissions of 31 gas vans and 31 diesel buses was calculated, and is shown in Table III-4. Not included in Table III-4 is the effect of the planned replacement of existing diesel buses with cleaner Van Hool buses. The effect would be to substantially reduce emissions for NOx and PM_{10}.

The net change in daily emissions from the project is also shown in Table III-4, and is compared to the BAAQMD thresholds of significance. While the thresholds of significance were developed for indirect sources (facilities that attract vehicles) these quantitative thresholds are also commonly applied to other types of projects including stationary sources, sources of fugitive emissions, transportation projects and projects that have multiple types of emissions. The project would result in a net decrease in emissions of ROG, as emission rates for this pollutant are greater for gas vehicles than for diesel vehicles. The project would result in a net increase in emissions of NOx and PM_{10}, although the increase would be below the BAAQMD thresholds of significance. Thus the project would not contribute substantially to an existing air quality violation of the ozone or PM_{10} standards. This impact would be **less than significant.**

The emission change estimates in Table III-4 are conservative (i.e., over-predict impacts) for two reasons:

1. The emission changes from the replacement of gasoline vans with diesel buses reflect the emission rates of the current bus fleet. The project would place in service on affected lines Van Hool buses meeting current emission standards that would emit about 60% less NOx and 50% less PM than the buses being replaced. The emission increases shown in Table III-4 are therefore worst-case, and would be greatly reduced when the new buses are brought into service.

2. No credit for avoided travel has been taken. Expanded bus service can be expected to result in a reduction in automobile travel that would partially offset increased bus emissions. Due to the difficulty of calculating these offsetting decreases in emissions, **they were not**

[1] AC Transit has documented that 2005 fleet-wide emissions rates are 49% and 77% below CARB requirements for NOx and PM, respectively. (www.actransit.org/environment/reducing_emissions.wu)
[2] Based on 2004 estimated total annual VMT of 22,600,000 and 696 vehicles in fleet.

reflected in the analysis, but their effect would be to reduce project impacts.

Table III-3: Projected Bus Miles Traveled

		Vehicles Assigned per Hour					
Corridor/Route	**Service Area**	**Existing Bus Service**	**Proposed Bus Service**	**Net Change**	**Distance**	**Service Hours**	**Bus VMT**
Line 52	Berkeley - UC via Cedar Street	2	0	-2	5	3	-30
Line 19	Berkeley - Downtown via Cedar Street	0	2	2	3	9	54
Line 19	Berkeley - N. Berk BART via University	2	0	-2	1.25	6	-15
Line 43	Albany - E.C. BART via Pierce	2	0	-2	2.75	15	-82.5
Line 52L	Albany - E.C. BART via Pierce	0	4	4	2	17	136
Line 76	Richmond - Richmond Parkway Transit Center via Moyers	0	2	2	1	15	30
Line 76	Richmond - Hilltop Mall via Birmingham	2	0	-2	2.25	15	-67.5
Line 71	Richmond - Hilltop Mall via Birmingham	0	2	2	3.25	15	97.5
Line 71	Richmond - Richmond Parkway Transit Center via Giant Hwy	2	0	-2	5.25	15	-157.5
Line 70	Richmond - CC College via Giant Hwy	0	2	2	5.25	15	157.5
Line 70	Richmond - Hilltop Green	2	0	-2	2.5	15	-75
Line 68	Richmond - Arlington Blvd	0	1	1	5.5	15	82.5
Line 376	City of San Pablo	2	0	-2	4.5	6	-54
Line 15	Berkeley - E.C. BART via MLK	2	0	-2	3.5	17	-119
Line 79	Berkeley to Richmond Marina	0	2	2	11	15	330
Line 74	Richmond - Richmond Marina	2	0	-2	4	17	-136
Line 72M	San Pablo/Macdonald Corridor	2	0	-2	15.25	19	-579.5
Line 73	Macdonald Corridor	0	2	2	4.75	19	180.5
Line 72	San Pablo Corridor	2	4	2	17.25	19	655.5
Line 72R	Richmond - Hilltop Mall/Richmond Parkway Transit Center	0	5	5	2.5	14	175
	Net Change in Bus Miles Traveled						**582.5**

Source: *Alameda-Contra Costa Transit District and CHS Consulting Group*, 2005.

Table III-4: Project Emissions Changes, in Pounds Per Day

	ROG	NOx	PM_{10}
Increased Bus Vehicle Miles	1.7	28.6	0.6
Elimination of Van Service	-16.2	44.2	2.8
Net Change	-14.5	72.8	3.4
BAAQMD Threshold of Significance	80.0	80.0	80.0
Source: *Don Ballanti, Certified Consulting Meteorologist*, 2005.			

c. The BAAQMD thresholds of significance are both project and cumulative thresholds. According to BAAQMD guidance, a project that has a significant impact by itself will also have a cumulatively significant impact. As discussed in checklist item "b" above, the project would not have a significant impact on regional air quality and would not have emissions exceeding the quantitative "cumulatively considerable" threshold of significance.

Projects that do not exceed the quantitative "cumulatively considerable" thresholds may still have a cumulative impact if the project is inconsistent with the regional air plan. As stated above under checklist item (a), the project would be consistent with the regional air plan. Therefore, the project's cumulative impact would be **less than significant.**

d. In 1998 the California Air Resources Board identified particulate matter from diesel-fueled engines as a toxic air contaminant (TAC). CARB has completed a risk management process that identified potential cancer risks for a range of activities using diesel-fueled engines (California Air Resources Board. 2000.). The greatest diesel particulate risks from new development are generally associated with stationary diesel engines and locations where diesel engines are allowed to idle for extended periods. Table III-5 shows that daily emission of diesel particulate is expected to increase by 3.4 pounds per day. This increase, however, would be distributed over a large geographical area, rather than concentrated at any one location.

Nearby sensitive receptors along certain road segments would have increased exposure to diesel particulate. Service changes along some routes could increase daily bus travel by up to 5 per day (some locations would have a reduction in daily buses). Routes where gasoline van service is eliminated will also have an increase in daily diesel bus travel. However, the number of additional diesel vehicles passing a given location would be small. Additionally, diesel particulate emissions have been the subject of AC Transit's Clean Air Initiatives, which has been estimated to have reduced diesel particulate from the transit fleet by 79.3% between January 1, 2002 and January 1, 2005. Therefore, the impact would be **less than significant.** The proposed project would not include sources associated with potential odor impacts. Therefore, there would be **no impact.**

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

Environmental Setting

The following setting information is based on a field survey conducted by a qualified biologist in December 2004, a California Natural Diversity Database (CNDDB) records search (2005) (Appendix A), the California Native Plant Society's (CNPS') *Inventory of Rare and Endangered Plants of California*

Online Edition, v6-05c (2005) (Appendix B), and U.S. Fish and Wildlife Service (USFWS) lists of special-status species for the project region (2005) (Appendix C).

The proposed project is primarily located in northern Alameda and western Contra Costa counties. The proposed project consists primarily of the addition or enhancement of local bus service. Increased bus traffic will occur on existing paved arterials and collector roads, mostly in urban areas, that currently support significant vehicle traffic.

Existing Conditions

The proposed project is primarily located in northern Alameda and western Contra Costa counties. The proposed project consists primarily of the addition or enhancement of local bus service. Increased bus traffic will occur on existing paved arterials and collector roads, mostly in urban areas, that currently support significant vehicle traffic.

Special-Status Species

Special-status species are defined as:

- species listed or proposed for listing as threatened or endangered under the federal Endangered Species Act (ESA) (Title 50, Code of Federal Regulations [CFR], Section 17.12 for listed plants, 50 CFR 17.11 for listed animals, and various notices in the Federal Register [FR] for proposed species);
- species that are candidates for possible future listing as threatened or endangered under ESA (67 FR 40657, June 13, 2002);
- species that are federal species of concern;
- species that are listed or proposed for listing by the State of California as threatened or endangered under the California Endangered Species Act (CESA) (Title 14, California Code of Regulations [CCR], Section 670.5);
- plants listed as rare under the California Native Plant Protection Act of 1977 (California Fish and Game Code, Section 1900 et seq.);
- plants considered by CNPS to be "rare, threatened, or endangered in California and elsewhere (CNPS List 1B species);"
- species that meet the definitions of "rare" or "endangered" under the State CEQA Guidelines, Section 15380;
- animal species of special concern to DFG (Remsen 1978 [birds], Williams 1986 [mammals], and Jennings and Hayes 1994 [amphibians and reptiles]); and
- animals fully protected in California (California Fish and Game Code, Section 3511 [birds], 4700 [mammals], 5050 [reptiles and amphibians], and 5515 [fish]).

A discussion of special-status plants and wildlife is provided separately below.

Special-Status Plants. During the field survey, it was determined that none of the 84 special-status plant species that could occur in the region (Appendices A and B) have significant potential to occur in the project area based on existing information and the absence of suitable habitat conditions in the area. Because the project area consists of existing roadways and occurs within mostly developed areas, habitat for special-status plants is not expected to occur in the immediate project area.

Special-Status Wildlife. Based on a review of existing information, including the CNDDB (2005) and USFWS lists, a total of 71 special-status wildlife species have the potential to occur within Alameda and Contra Costa Counties, including 27 invertebrates, four amphibians, six reptiles, and 34 birds (Appendices A and C). Because the project area consists of existing roadways and occurs within mostly developed areas, habitat for special-status wildlife is not expected to occur in the immediate project area. Although special-status wildlife species habitat may occur adjacent to existing roadways, no ground disturbance or new activities would be initiated in these areas. Therefore, no special-status wildlife species would be affected by the proposed project.

Special-Status Fish. Based on a review of existing information, including the CNDDB (2004) and USFWS lists, a total of 11 special-status fish species have the potential to occur within Alameda and Contra Costa counties. Although the project area may include existing roadways that cross over waterways containing special-status fish, the proposed project does not involve new construction in or near a waterway and therefore no habitat for special-status fish will be affected by the proposed project

Impact Analysis

a. The proposed project would increase bus service on existing roadways with significant existing traffic. While special status plant species may occur adjacent to roads within the project area, these occurrences will not be significantly impacted by additional bus traffic. In addition, habitat for special-status wildlife is not expected to occur in the immediate project area. Therefore, the proposed project will not have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service. The proposed project would have **no impact.**

b. No riparian habitat or sensitive natural communities are present near or on the existing roadways that would carry additional bus trips if the proposed project is implemented. The proposed project would have **no impact.**

c. No federally protected wetlands are present near or on existing roadways that would carry additional bus trips if the proposed project is implemented. The proposed project would have **no impact.**

d. The proposed project will occur on existing, heavily used roadways and therefore would not create any new barriers to native resident or migratory fish or wildlife species moving through the project region. No known native resident or migratory wildlife corridors or native wildlife nursery sites occur in or adjacent to the project area. Therefore, the proposed project would have **no impact.**

e. Areas of sensitive biological resources or locally protected trees that may be located along the bus routes are already located adjacent to significant traffic, such that trimming of vegetation or other management for public safety may be necessary. Additional buses on existing adjacent roadways would not result in any additional direct impacts to these resources. would be directly impacted by the proposed project. Therefore, the proposed project does not conflict with any

local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance. The proposed project would have **no impact.**

f. No habitat conservation plan or natural community conservation plan cover existing roads and developed areas in the project area. Therefore, the proposed project does not conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan. The proposed project would have **no impact.**

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
V.	**CULTURAL RESOURCES.** Would the project:				
a.	Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?	❑	❑	❑	√
b.	Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	❑	❑	❑	√
c.	Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	❑	❑	❑	√
d.	Disturb any human remains, including those interred outside of formal cemeteries?	❑	❑	❑	√

The proposed project will not impact cultural or paleontological resources because there will be no construction, development, or change in any existing known archaeological or historic resources.

a. The proposed project does not have the potential to affect historical properties. There will be no construction, no additions to or subtraction from the existing built environment. As discussed in *Section III, "Air Quality"*, pollutants resulting from vehicle emissions associated with new bus routes would be minimal and would not affect historic structures along the route. As discussed in *Section XI - Noise*, changes in vibration from new bus routes and buses will be minimal and well below the standards for building damage -- 2.0 millimeters per second of peak particle velocity (PPV), as described in Caltrans Technical Advisory, Vibration, TAV-02-01-R9601, "Transportation Related Earthborne Vibrations (Caltrans Experiences),"February 20, 2002 -- and would not affect historic structures along the route. Therefore, the proposed project would have **no impact** to historical resources.

b. Because the proposed project involves no ground disturbing activities, it does not have the potential to cause adverse changes to significant archaeological resources. There will be no ground disturbing activities or physical changes to the environment. Therefore, the proposed project will have **no impact** to archaeological resources.

c. Because the proposed project involves no ground disturbing activities, it does not have the potential to destroy a unique paleontological resource or site or unique geological feature. There will be no ground disturbing activities or physical

changes to the environment. Therefore, the proposed project will have **no impact** to paleontological resources or unique geological features.

d. Because the proposed project involves no ground disturbing activities, it does not have the potential to disturb any human remains, either within or outside formal cemeteries. Therefore, the proposed project will have **no impact** to human remains.

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
VI.	**GEOLOGY AND SOILS.** Would the project:				
a.	Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
	1. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	❑	❑	❑	√
	2. Strong seismic groundshaking?	❑	❑	❑	√
	3. Seismic-related ground failure, including liquefaction?	❑	❑	❑	√
	4. Landslides?	❑	❑	❑	√
b.	Result in substantial soil erosion or the loss of topsoil?	❑	❑	❑	√
c.	Be located on a geologic unit or soil that is unstable or that would become unstable as a result of the project and potentially result in an onsite or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse?	❑	❑	❑	√
d.	Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	❑	❑	√	❑
e.	Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems in areas where sewers are not available for the disposal of wastewater?	❑	❑	❑	√

Environmental Setting

Existing Conditions

The proposed project is primarily located in northern Alameda and western Contra Costa counties. The project area is located in a region of California characterized by high seismic activity. Many pre-Quaternary, potentially active, and active faults and fault zones are located in an approximate 20-mile radius of the proposed project. The active and potentially active faults and fault zones nearest to the project area are the San Andreas and the Hayward Fault Zones, and the Crosley, Calaveras, Concord, Marsh Creek, and Greenville Faults (Jennings 1994). All of these faults are within Alquist-Priolo Special Studies Zones (Hart and Bryant 1997). Many pre-Quaternary faults and fault zones are located in an approximate 20-mile radius of the project area; however, none of these faults are within Alquist-Priolo Special Studies Zones (Hart and Bryant 1997). The critical earthquake for the project area would originate at either the Hayward Fault Zone or the San Andreas Fault Zone (Association of Bay Area Governments 1998).

Based on a probabilistic seismic hazard map that depicts the peak horizontal ground acceleration values exceeded at a 10% probability in 50 years (Petersen et. al 1996), the probabilistic peak horizontal ground acceleration values for the proposed project area ranges from 0.5 to 0.8g. This indicates that the groundshaking hazard in the project area is medium to high.

Poorly consolidated, water-saturated fine sands and silts located within 50 feet of the surface are typically considered to be the most susceptible to liquefaction. Soils and sediments that are not water saturated and which consist of coarser or finer materials are generally less susceptible to liquefaction (California Division of Mines and Geology 1997). Depth to groundwater in the vicinity of the project area is generally low and the project area is partially underlain by poorly consolidated fine sands and silts (see below). As such, the susceptibility of soils and sediments to liquefaction is medium to high (Association of Bay Area Goverments 2001 and 2004; Knudsen et. al 2000).

The general soil maps, as described by the soil surveys of Contra Costa County (Welch 1977) and Alameda County, Western Part (Welch 1980), show the soil associations or map units that cover the project area. In general, most soils are nearly level to strongly sloping, somewhat excessively drained to very poorly drained soils on valley fill, basins, low terraces, floodplains, and alluvial fans.

In the northern portion of the project area, soil associations or map units include the Los Osos-Millsholm-Los Gatos association, the Capay-Sycamore-Brentwood association, the Clear Lake-Cropley association, and the Capay-Rincon association. These soils associations are mostly nearly level clays and clay loams on valley fill. In the southern portion of the I-80 corridor, the dominant soil association or map unit is the Reyes-Urban land map unit. These are nearly level clays on tidal flats and urban land.

Geologic material in the project area is generally artificial fill with areas of alluvium, and older alluvium (Wagner et. al 1990). The ground surface where the project will occur is fully developed with little to moderate gradient. Landslide susceptibility is generally low.

Regulatory Setting

Federal Regulations

There are no federal regulations related to geology and soils that are applicable to the proposed project.

State Regulations

Alquist-Priolo Earthquake Fault Zoning Act

California's Alquist-Priolo Earthquake Fault Zoning Act (PRC Sec. 2621 et seq.), originally enacted in 1972 as the Alquist-Priolo Special Studies Zones Act and renamed in 1994, is intended to reduce the risk to life and property from surface fault rupture during earthquakes. The Alquist-Priolo Act prohibits the location of most types of structures intended for human occupancy across the traces of active faults and strictly regulates construction in the corridors along active faults (Earthquake Fault Zones). It also defines criteria for identifying active faults, giving legal weight to terms such as active, and establishes a process for reviewing building proposals in and adjacent to Earthquake Fault Zones.

Under the Alquist-Priolo Act, faults are zoned and construction along or across them is strictly regulated if they are "sufficiently active" and "well-defined." A fault is considered sufficiently active if one or more of its segments or strands shows evidence of surface displacement during Holocene time (defined for purposes of the Act as referring to approximately the last 11,000 years). A fault is considered well-defined if its trace can be clearly identified by a trained geologist at the ground surface or in the shallow subsurface, using standard professional techniques, criteria, and judgment (Hart and Bryant 1997).

Seismic Hazards Mapping Act

Like the Alquist-Priolo Act, the Seismic Hazards Mapping Act of 1990 (PRC Sec. 2690–2699.6) is intended to reduce damage resulting from earthquakes. While the Alquist-Priolo Act addresses surface fault rupture, the Seismic Hazards Mapping Act addresses other earthquake-related hazards, including strong groundshaking, liquefaction, and seismically-induced landslides. Its provisions are similar in concept to those of the Alquist-Priolo Act: the state is charged with identifying and mapping areas at risk of strong groundshaking, liquefaction, landslides, and other corollary hazards, and cities and counties are required to regulate development within mapped Seismic Hazard Zones.

Local Regulations

Alameda and Contra Costa Counties, as well as each city in the project area, have general plans that contains policies regarding seismic safety and preparedness. These policies generally state that development should be executed in a way that minimizes risk to people and property due to seismic activity. These policies would also pertain to transportation projects.

Alameda County General Plan

Objectives, principles, and implementation contained in the *Seismic Safety and Safety Elements of the Alameda County General Plan* (Alameda County 1982) that are applicable to the proposed project are as follows:

- **Objective:** To minimize unacceptable risks, personal injury and loss of life associated with environmental hazards.
- **Principle 2.2:** All new development should be designed and constructed to minimize risk due to geologic hazards and seismic hazards.
- **Principle 2.3:** The level of risk from geologic hazards to existing development should be minimized.

Contra Costa County General Plan

Goals, policies, and measures contained in the *Contra Costa County General Plan, 1995–2010* (Contra Costa County 1996) that are applicable to the proposed project are as follows:

- **Seismic Hazard Goal 10-A:** To protect human life and reduce the potential for serious injuries from earthquakes; and to reduce the risks of property losses from seismic disturbances which could have severe economic and social consequences for the County as a whole.
- **Seismic Hazard Goal 10-B:** To reduce to a practical minimum injuries and health risks resulting from the effects of earthquake ground shaking on structures, facilities and utilities.
- **Seismic Hazard Goal 10-C:** To protect persons and properly from the life-threatening, structurally and financially disastrous effects of ground rupture and fault creep on active faults, and to reduce structural distress caused by soil and rock weakness due to geologic faults.
- **Seismic Hazard Goal 10-D:** To reduce to a practical minimum the potential for life, loss, injury, and economic loss due to liquefaction-induced ground failure, levee failure, large lateral land movements toward bodies of water, and consequent flooding; and to mitigate the lesser consequences of liquefaction.
- **Faults and Fault Displacement Policy 10-13:** In areas where active or inactive earthquake cults have been identified, the location and/or design of any proposed buildings, facilities, or other development shall be modified to mitigate possible danger from fault rupture or creep.
- **Faults and Fault Displacement Policy 10-14:** Preparation of a geologic report shall be required as a prerequisite before authorization of public capital expenditures or private development projects in areas of known or suspected faulting.

- **Liquefaction Policy 10-19:** To the extent practicable, the construction of critical facilities, structures involving high occupancies, and public facilities shall not be sited in areas identified as having a high liquefaction potential, or in areas underlain by deposits classified as having a high liquefaction potential.
- **Seismic Hazard Implementation Measures 10-d:** Throughout the environmental review process, require geologic, seismic, and/or soils studies as necessary to evaluate proposed development in areas subject to ground shaking, fault displacement, or liquefaction.

Impact Analysis

a. The project area is located in a region of California characterized by high seismic activity. The project area is subject to significant seismic hazards associated with potentially active or active faults in the general vicinity. A large earthquake on a nearby fault could cause moderate to high ground shaking in the project area, potentially resulting in liquefaction and associated ground failure, such as lateral spreading or differential settlement, in some areas, which could in turn, increase the risk of structural loss, injury, or death. However, the proposed project would cause no change in current conditions with respect to surface rupture or faulting hazards, so it would not create new exposures of people or structures to seismic-related hazards. Furthermore, most of the project area is presently urban land. As such, liquefaction susceptibility is not a significant concern. The proposed project would have **no impact.**

b. The proposed project would not result in substantial soil erosion or the loss of topsoil because the proposed project does not involve any ground disturbance activities. The proposed project would have **no impact.**

c. The proposed project includes some routes that may be located on steep slopes in some portions of the project area. These slopes may be prone to seismically-induced and gravitational failures. However, the proposed project would cause no change in current conditions with respect to seismically-induced and gravitational failures. The proposed project would have **no impact.**

d. Most of the project area is presently urban land. Soil material is mainly heterogeneous, artificial fill, most likely resting on top of the aforementioned soils. Therefore, no firm conclusions can be drawn about severity of erosion hazard or shrink-swell potential. Based on the amount of urban land present in the proposed project area and the fact that the proposed project would cause no change in current conditions with respect to shrink-swell potential of the soils, the proposed project is expected to have a **less than significant impact.**

e. The proposed project does not include the use of septic tanks or alternative wastewater disposal systems. The proposed project would have **no impact.**

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

Environmental Setting

Existing Conditions

The project would be located on roadways within an urban setting. Surrounding land uses include residential, commercial, and industrial. Lands adjacent to the roadways in the project area, such as gas stations and dry cleaners, may be used for hazardous activities. These roadways are occasionally used to transport hazardous materials in trucks, and all vehicles traveling on roadways contain some amount of hazardous materials.

Regulatory Setting

Hazardous material regulations and policies considered relevant to the proposed project are summarized below.

Federal Regulations

The principal federal regulatory agency responsible for the safe use and handling of hazardous materials is the U.S. Environmental Protection Agency (EPA).

Two key federal regulations pertaining to hazardous wastes are the Resource Conservation and Recovery Act and the Comprehensive Environmental Response, Compensation, and Liability Act. Other applicable federal regulations are contained primarily in Titles 29, 40, and 49 of the Code of Federal Regulations (CFR).

State Regulations

California regulations are equal to or more stringent than federal regulations. EPA has granted the State of California primary oversight responsibility to administer and enforce hazardous waste management programs. State regulations require planning and management to ensure that hazardous wastes are handled, stored, and disposed of properly to reduce risks to human and environmental health. Relevant laws pertaining to hazardous wastes are discussed below.

- **Hazardous Materials Release Response Plans and Inventory Act of 1985.** The Hazardous Materials Release Response Plans and Inventory Act, also known as the Business Plan Act, requires businesses using hazardous materials to prepare a plan that describes their facilities, inventories, emergency response plans, and training programs.

- **Emergency Services Act.** Under the Emergency Services Act, the state developed an emergency response plan to coordinate emergency services provided by federal, state, and local agencies. Rapid response to incidents involving hazardous materials or hazardous waste is an important part of the plan, which is administered by the California Office of Emergency Services. The office coordinates the responses of other agencies, including EPA, the California Highway Patrol (CHP), Regional Water Quality Control Boards (RWQCBs), air quality management districts, and county disaster response offices.

- **27 CCR 21190: CIWMB—Postclosure Land Use.** The purpose of 27 CCR 21190 is to protect public health and safety; prevent damage to structures, roads, utilities, and gas monitoring and control systems; prevent public contact with waste, landfill gas, and leachate; and prevent landfill gas explosions. Specific requirements to meet these objectives are outlined in this section of the CCR.

Local Regulations

The counties of Alameda and Contra Costa, as well as the cities in the project area, all have their own regulations for hazardous materials. Most of the cities' and counties' general plans contain some discussion of hazardous materials, and some of the governments have local hazardous materials management plans.

Impact Analysis

a. The proposed project does not involve the routine transport, use, or disposal of hazardous materials. The buses that would operate on the proposed routes contain normal vehicle materials, such as gasoline, motor oil, and other engine fluids. However, these materials and fluids are confined to sealed areas within the vehicle. This impact is considered **less than significant**.

b. The proposed project does not involve any construction, and is therefore not expected to result in upset or accident conditions involving the release of hazardous materials during construction or excavation activities. The project would instead involve the normal risks of accidental hazardous material release (motor oil, gasoline, etc.) associated with motor vehicles. This impact is considered **less than significant**.

c. Buses associated with the proposed project would travel past a variety of land uses, including existing and proposed schools; however, the proposed project would not involve hazardous emissions. As discussed under Section III, Air Quality, operation of the proposed project would generate a negligible difference in normal bus emissions. Therefore, there would be **no impact**.

d.–f. The proposed project does not involve construction of any structures or facilities at any one site, and would therefore not create a hazard to the public or the environment by being located on a hazardous materials site, nor would it create a hazard for people residing or working within an airport land use plan or in the vicinity of a private airstrip. There would be **no impact**.

g. The proposed project would not impair or interfere with adopted emergency response plans or emergency evacuation plans in the project area since the project involves the normal use of established roadways, and would not physically interfere with evacuation routes or other emergency response activities. There would be **no impact**.

h. The proposed project would occur in a highly developed, urbanized region and would therefore have **no impacts** with respect to wildland areas.

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
VIII.	**HYDROLOGY AND WATER QUALITY.** Would the project:				
a.	Violate any water quality standards or waste discharge requirements?	❑	❑	√	❑
b.	Substantially deplete groundwater supplies or interfere substantially with groundwater recharge, resulting in a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?	❑	❑	❑	√
c.	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation onsite or offsite?	❑	❑	❑	√
d.	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding onsite or offsite?	❑	❑	❑	√
e.	Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	❑	❑	❑	√
f.	Otherwise substantially degrade water quality?	❑	❑	√	❑
g.	Place housing within a 100-year flood hazard area, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	❑	❑	❑	√
h.	Place within a 100-year flood hazard area structures that would impede or redirect floodflows?	❑	❑	❑	√

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
i.	Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?	❑	❑	❑	√
j.	Contribute to inundation by seiche, tsunami, or mudflow?	❑	❑	√	❑

Environmental Setting

Existing Conditions

Surface Water Features

Numerous creeks, including San Pablo and Wildcat Creeks, are located in the AC Transit service area. These creeks have been substantially altered over the years, primarily to provide flood control for the urbanizing areas. Most of these urban creeks currently flow underground or in culverts, although many reaches are engineered open channels, eventually draining to San Francisco Bay.

Flooding and Drainage

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRMs), the project area is mostly located outside of the 100-year flood inundation area. Small portions of the project area are subject to flooding during the 100-year and 500-year storm events; however, only a minimal portion of the bus routes that are part of this project would be located in these areas (Federal Emergency Management Agency 2004).

Surface Water Quality

Clean Water Act (CWA) Section 303(d) establishes the total maximum daily load (TMDL) policy to assist in guiding the application of state water quality standards. This policy requires states to identify streams and water bodies with "impaired" water quality (i.e., affected by the presence of pollutants or contaminants) and to establish a TMDL, or the maximum quantity of a particular contaminant that a water body can assimilate without experiencing adverse effects, for each impairing contaminant. Contaminants from urban runoff/storm sewers, atmospheric deposition, and industrial point sources that currently impair the water quality of San Francisco Bay include chlordane, dichlorodiphenyltrichloroethane (DDT), diazinon, dieldren, dieldrin, dioxin compounds, exotic species, furan compounds, mercury, mercury in sediment, polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), and selenium. The San Francisco Bay RWQCB adopted a TMDL and implementation plan to reduce mercury

concentrations in fish from various sources, including automobile deposits carried in urban stormwater runoff (San Francisco Bay Regional Water Quality Control Board 2004). This TMDL outlines a strategy for reduction of mercury through proactive regulation, education and outreach, and research and monitoring.

Hydrogeology

The proposed project is located in the East Bay Plain Subbasin, according to the California Department of Water Resources' (DWR's) *California Groundwater—Bulletin 118, Update 2003*. The East Bay Plain Subbasin is a northwest-trending alluvial plain bounded on the north by San Pablo Bay, on the east by contact with Franciscan Basement rock, and on the south by the Niles Cone Groundwater Basin. Water levels have varied between 10 and 140 feet since the early 1950s (California Department of Water Resources 2004).

Groundwater Quality

A calcium bicarbonate–type groundwater occurs in the upper 200 feet of the subsurface, while sodium bicarbonate is common from about 200- to 1,000-foot depths. The San Francisco Regional Water Quality Control Board identified 13 distinct locations with major groundwater pollution (California Department of Water Resources 2004). Most of this contamination is from the release of fuels and solvents, and appears to be restricted to the upper 50 feet of the subsurface (California Department of Water Resources 2004).

Regulatory Setting

Federal Regulations

Clean Water Act

The CWA (33 U.S. Government Code 1251–1376), as amended by the Water Quality Act of 1987, is the major federal legislation governing water quality. The objective of the CWA is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." Important applicable sections of the act are as follows:

- Sections 303 and 304 provide for water quality standards, criteria, and guidelines.
- Section 401 states that for any activity that may result in a discharge to waters of the United States, applicants for federal permits must obtain certification from the state that the discharge will comply with other provisions of the act. Certification in California is provided by the RWQCBs.
- Section 402 establishes the National Pollutant Discharge Elimination System (NPDES), a permitting system for the discharge of any pollutant (except for dredge or fill material) into waters of the United States. This permit program is administered by the RWQCBs, and it is discussed in detail below.
- Section 404 establishes a permit program for the discharge of dredged or fill material into waters of the United States. This permit program is administered by the U.S. Army Corps of Engineers (Corps).

Section 303—Total Maximum Daily Load Program

The State of California adopts water quality standards to protect beneficial uses of state waters as required by Section 303 and the state's Porter-Cologne Water Quality Control Act of 1969. Section 303(d) established the TMDL process to guide the application of state water quality standards (see the discussion of state water quality standards below). To identify candidate water bodies for TMDL analysis, a list of water quality–limited streams is generated. These streams are impaired by the presence of pollutants, including sediment, and have no additional assimilative capacity for these pollutants. A discussion of 303(d)-listed water bodies in the project area is provided under "Surface Water Quality," above.

Section 402—National Pollutant Discharge Elimination System Program

The 1972 amendments to the Federal Water Pollution Control Act established the NPDES permit program to control discharges of pollutants from point and non-point sources to waters of the United States (Section 402). The EPA has granted the State of California primacy in administering and enforcing the provisions of CWA and the NPDES permit program. The State Water Resources Control Board (SWRCB) issues both general and individual permits for certain activities. Relevant NPDES permits that apply to the proposed project cover industrial activities, as discussed below.

Various types of industrial activities are covered under the NPDES General Permit for Discharges of Storm Water Runoff Associated with Industrial Activity (General Industrial Permit). These activities include manufacturing operations, transportation facilities where vehicles are maintained (maintenance includes fueling and washing), landfills, hazardous waste sites, and other similar operations. The permit requires that each facility to file a notice of intent with the RWQCB, prepare and implement a storm water pollution prevention plan (SWPPP), and monitor to determine the amount of pollutants leaving the site. The SWPPP does not need to be submitted to the RWQCB, but must be available at each facility.

AC Transit currently maintains coverage under the General Industrial Permit for five facilities in Oakland, Hayward, Emeryville, and Richmond. It currently adheres to the requirements of the permits, including implementation of SWPPPs.

National Flood Insurance Program

Alarmed by increasing costs of disaster relief, Congress passed the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. The intent of these acts was to reduce the need for large, publicly funded flood control structures and disaster relief by restricting development on floodplains. FEMA administers the National Flood Insurance Program to provide subsidized flood insurance to communities that comply with FEMA regulations limiting development in floodplains.

State Regulations

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act established the SWRCB and divided the state into nine regional basins regulated by RWQCBs. The SWRCB is the primary state agency responsible for protecting the quality of the state's surface and groundwater supplies, while the RWQCBs are responsible for developing and enforcing water quality objectives and implementation plans. The project area is within the jurisdiction of the San Francisco Bay RWQCB.

The act authorizes SWRCB to enact state policies regarding water quality in accordance with CWA Section 303 and implement CWA Section 402 (the NPDES program). In addition, the act authorizes SWRCB to issue waste discharge requirements for projects that would discharge to state waters, and requires that the SWRCB or RWQCBs adopt water quality control plans (or basin plans) for the protection of water quality.

San Francisco Bay Region Basin Plan

Water quality in streams and aquifers of the region is guided and regulated by the *Water Quality Control Plan for the San Francisco Bay Basin, Region 2* (Basin Plan) (San Francisco Bay Regional Water Quality Control Board 1995). State policy for water quality control is directed at achieving the highest water quality consistent with the maximum benefit to the people of the state. To develop water quality standards consistent with the uses of a water body, the San Francisco Bay RWQCB classifies historical, present, and potential future beneficial uses as part of the Basin Plan.

The Basin Plan identifies the beneficial uses of San Francisco Bay. Beneficial uses of the San Francisco Bay, and basins within the San Francisco Bay RWQCB's jurisdiction that are protected against water quality degradation include domestic, municipal, agricultural, and industrial supply; recreation; aesthetic enjoyment; navigation; and preservation and enhancement of fish, wildlife, and other aquatic resources or preserves. The most sensitive beneficial uses from the standpoint of water quality management are municipal, domestic, and industrial supply; recreation; and uses associated with maintenance of resident and anadromous fisheries. A detailed discussion of beneficial uses and water quality objectives can be found in the Basin Plan (San Francisco Bay Regional Water Quality Control Board 1995).

Local Regulations

Alameda and Contra Costa County Clean Water Programs

To comply with CWA regulations for discharge of pollutants to waters of the United States, a variety of entities in Alameda and Contra Costa Counties have formed the Alameda and Contra Costa County Clean Water Programs, respectively. Both programs have obtained joint municipal NPDES Permits. The permits, issued for a 5-year period, contain a comprehensive plan to reduce the discharge of pollutants to the maximum extent practicable. AC Transit is not included in these municipal NPDES stormwater

permits. AC Transit maintenance activities are covered under the General Industrial Permit, as discussed above.

Impact Analysis

a. In implementing the proposed project, AC Transit would be required to comply with the CWA including all NPDES permit requirements such as those of the Alameda and Contra Costa County Clean Water Programs. In compliance with the existing General Industrial Permits for AC Transit's maintenance facilities, all vehicles would be maintained to ensure that the potential for leaks of fluid and other discharges is minimized during operational activities. This impact is considered **less than significant**.

b. The proposed project would not use groundwater as a source or result in new impervious surfaces that could alter groundwater recharge capability. As such, the project will not substantially deplete or interfere with groundwater recharge. There would be **no impact** on groundwater.

c. The proposed project would not result in any changes to drainage patterns, and would therefore have no potential to result in associated erosion or siltation. There would be **no impact**.

d. The proposed project would not involve any activities that would cause an increase in the rate or amount of surface runoff, and so would have no potential to result in flooding. There would be **no impact**.

e. Surface runoff would not be generated by the proposed project. There would be **no impact** on stormwater drainage systems.

f. The proposed project would phase out its existing fleet of gasoline-powered vans and replace them with 30-foot diesel buses, pursuant to a fleet plan adopted in 2002. In addition, the proposed program would include improvements to existing service within northern Alameda County (within the cities of Berkeley and Albany), a restructuring of the route network in West Contra Costa County (within the cities of San Pablo, Richmond and El Cerrito), and additional service changes as outlined in the proposed West County Service Plan (WCSP). Operation of buses instead of vans, and improvements to existing services could result in a small degree of additional non-point source pollution. However, it is anticipated that the proposed project would result in some corresponding decrease in personal vehicle use, with an offsetting reduction in non-point source pollution from personal vehicles. In addition, AC Transit would maintain its vehicles, according to its NPDES permits, to ensure that the potential for leaks of fluid and other discharges is minimized. This impact is considered **less than significant**.

g. The proposed project would not involve placement of housing within a flood hazard area. There would be **no impact.**

h. The proposed project would not place structures within a flood hazard area. There would be **no impact.**

i. While small portions of the bus routes pass through areas subject to 100-year flooding, bus operations would be suspended in these areas during the 100-year flood event. The proposed project therefore would not affect the risk of damage caused by flooding. There would be **no impact.**

j. The proposed bus routes would pass through areas that would be subject to impacts from tsunami, seiche, or mudflow events. However, seiche, tsunami, and mudflows are rare events, and the risk of these events is considered low. In addition, the risk posed to AC Transit riders would be similar regardless of the bus route, and would also extend to those not using the AC Transit system. This impact is considered **less than significant**.

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

Environmental Setting

Existing Conditions

The proposed project is comprised of roadways that travel through two San Francisco Bay Area counties (Alameda and Contra Costa) and eight cities (Hercules, Richmond, San Pablo, El Cerrito, Albany, Berkeley, Emeryville, and Oakland). These cities are generally very urban, and are built out to their city limits.

The roadways travel primarily through built-out urban areas and are typically adjacent to developed land. The roadways pass a variety of land uses, including, but not limited to, commercial, industrial, public, and residential uses. Each city through which the project roadways travel has its own general plan and zoning regulations; as such, land uses adjacent to the roadways possess a wide variety of general plan land use designations and zoning designations.

Regulatory Setting

Federal Regulations

There are no applicable federal regulations relevant to the proposed project.

State Regulations

There are no applicable state regulations relevant to the proposed project.

Local Regulations

Each city within the project area has a general plan that includes goals and policies regarding land use. For the proposed project, the most relevant goals and policies are related to transportation. These goals and policies are listed in Section XV, *"Transportation and Traffic"*.

Impact Analysis

a. The proposed project does not involve the construction of new roadways or other facilities that could result in the physical division of established communities. The proposed transit service changes would occur on existing roadways, on routes with existing traffic and transit uses. There would be **no impact**.

b. The proposed project would not affect existing land use or zoning designations, nor would it conflict with applicable general plan goals and policies. There would be **no impact**.

c. The project roadways do not travel within or adjacent to any habitat conservation plans (HCPs) or natural community conservation plans (NCCPs). There would be **no impact**.

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

a. The proposed project is located on existing roadways in primarily in an urbanized area, and the proposed project does not have the potential to result in loss of any known mineral resources. There would be **no impact**.

b. Because the proposed project is located on existing roadways in primarily in an urbanized area, the proposed project does not have the potential to result in the loss of availability of a locally important mineral resource recovery site. There would be **no impact**.

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
XI.	**NOISE.** Would the project:				
a.	Expose persons to or generate noise levels in excess of standards established in a local general plan or noise ordinance or applicable standards of other agencies?	❑	❑	√	❑
b.	Expose persons to or generate excessive groundborne vibration or groundborne noise levels?	❑	❑	√	❑
c.	Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	❑	❑	√	❑
d.	Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	❑	❑	√	❑
e.	Be located within an airport land use plan area, or, where such a plan has not been adopted, within two miles of a public airport or public use airport and expose people residing or working in the project area to excessive noise levels?	❑	❑	❑	√
f.	Be located in the vicinity of a private airstrip and expose people residing or working in the project area to excessive noise levels?	❑	❑	❑	√

Environmental Setting

Existing Conditions

Noise Terminology

Sound is mechanical energy transmitted by pressure waves in a compressible medium such as air. Noise is generally defined as unwanted or excessive sound. Sound can vary in intensity by over one million times within the range of human hearing. Therefore, a logarithmic scale, known as the decibel (dB) scale, is used to quantify sound intensity and to compress the scale to a more manageable range.

Sound is characterized by both its amplitude and frequency (or pitch). The human ear does not hear all frequencies equally. In particular, the ear deemphasizes low and very high frequencies. To better approximate the sensitivity of human hearing, the A-weighted decibel scale (dBA) has

been developed. On this scale, the human range of hearing extends from approximately 3 dBA to around 140 dBA.

Using the decibel scale, sound levels from two or more sources cannot be directly added together to determine the overall sound level. Rather, the combination of two sounds at the same level yields an increase of 3 dB. The smallest recognizable change in sound level is approximately 1 dB. A 3-dB increase in the A-weighted sound level is generally considered noticeable, whereas a 5-dB increase is readily noticeable. A 10-dB increase is judged by most people as an approximate doubling of the perceived loudness.

The two primary factors that reduce levels of environmental sounds are increasing the distance between the sound source and the receiver and having intervening obstacles such as walls, buildings, or terrain features that block the direct path between the sound source and the receiver. Factors that act to make environmental sounds louder include moving the sound source closer to the receiver, sound enhancements caused by reflections, and focusing caused by various meteorological conditions.

Below are brief definitions of the acoustic terminology used in this analysis:

- **Equivalent Sound Level (L_{eq})**: Environmental sound fluctuates constantly. The equivalent sound level (L_{eq}), sometimes referred to as the energy average sound level, is the most common means of characterizing community noise. L_{eq} represents a constant sound that, over the specified period, has the same sound energy as the time-varying sound.
- **Maximum Sound Level (Lmax)**: The maximum sound level is the highest sound level measured during the measurement period on the FAST sound level meter setting.
- **Minimum Sound Level (Lmin)**: The minimum sound level is the lowest sound level measured during the measurement period on the FAST sound level meter setting.
- **L_{xx}**: This is the percent of time a sound level is exceeded during the measurement period. For example, L_{90} is the sound level exceeded 90 percent of the measurement period.
- **Day-Night Sound Level (L_{dn})**: L_{dn} is basically a 24-hour L_{eq} with an adjustment to reflect the greater sensitivity of most people to nighttime noise. The adjustment is a 10-dB penalty for all sound that occurs between the hours of 10 p.m. and 7 a.m. The effect of the penalty is that, when calculating L_{dn}, any event that occurs during the nighttime is equivalent to 10 of the same event during the daytime. L_{dn} is the most common measure of total community noise over a 24-hour period and is used by the Federal Transit Administration (FTA) to evaluate residential noise impacts from proposed transit projects.
- **Community Noise Equivalent Level (CNEL)**: CNEL is effectively a 24-hour L_{eq} with adjustments to reflect the greater sensitivity of most people to evening and nighttime noise. The adjustments are a 5-dB penalty for all sounds that occur between 7 p.m. and 10 p.m. and a 10-dB penalty for all sounds from 10 p.m. to 7 a.m. The effect of these penalties is that, in calculating the CNEL, any event that occurs during the evening hours is equivalent to 3 of the same event during the daytime hours and any event during the nighttime is equivalent to 10 daytime events. L_{dn} and CNEL

values rarely differ by more than 1 dB. For the purposes of this analysis, L_{dn} and CNEL are considered equivalent.

Vibration

Vibration is an oscillatory motion that can be described in terms of the displacement, velocity, or acceleration of the motion. The response of humans to vibration is very complex. However, the general consensus is that for the vibration frequencies generated by transit vehicles, human response is best approximated by the vibration velocity level. Therefore, vibration velocity has been used in this study to describe transit-generated vibration levels.

When evaluating human response, ground-borne vibration is usually expressed in terms of decibels using the root mean square (RMS) vibration velocity. RMS is defined as the average of the squared amplitude of the vibration signal. To avoid confusion with sound decibels, the abbreviation VdB is used for vibration decibels. A decibel reference of 1 micro inch/second is used for vibration decibels.

Although there has been relatively little research into human and building response to ground-borne vibration, there is substantial experience with vibration from transit systems. In general, the collective experience indicates that:

- It is rare that ground-borne vibration from transit systems results in building damage, even minor cosmetic damage. The primary consideration therefore is whether vibration will be intrusive to building occupants or will interfere with interior activities or machinery.
- The threshold for human perception is approximately 65 VdB. Vibration levels in the range of 70 to 75 VdB are often noticeable but acceptable. Beyond 80 VdB, vibration levels are often considered unacceptable.

For human annoyance, there is a relationship between the number of daily events and the degree of annoyance caused by ground-borne vibration.

Existing Noise Environment

The proposed project is primarily located in the north Alameda and west Contra Costa counties, which include the cities of Albany, Berkeley, El Cerrito, Richmond, and San Pablo. The project area is primarily urban in nature, with bus route alignments running through various types of land uses, including residential, commercial, and industrial areas.

Noise conditions were characterized from long-term noise measurements performed at representative receptors in the project area. Specifically, noise measurements were taken at five residences for approximately 24 hours between October 18, 2005 and October 20, 2005. Larson Davis Model 824 community noise monitors were used to collect data at all sites. Table XI-1 summarizes the noise measurements. In addition to L_{dn}, the table lists the maximum and minimum hourly noise levels over the measurement period.

Table XI-1. Summary of Short-Term Noise Monitoring

Site	Location	Start Date	Duration (hours)	L_{dn} (dBA)	Max Hourly L_{eq} (dBA)	Min Hourly L_{eq} (dBA)
1443 Hopkins	Near the northeast corner of the intersection of Hopkins Street and Gilman Street.	10/18/05	26	62	65	45
1440 Cedar	South side of Cedar Street, immediately west of Sacramento Street	10/18/05	21	64	65	47
487 Spruce	Uphill direction on Spruce Street between Michigan Avenue and Vassar Avenue	10/18/05	27	58	65	39
248 Trinity	Uphill direction on Trinity Avenue between Kenyon Avenue and Beloit Avenue	10/18/05	25	52	55	37
454 Beloit	Uphill direction on Beloit Avenue between Trinity Avenue and Colgate Avenue	10/18/05	27	52	55	34
Source: *ATS Consulting*, 2005.						

Existing noise levels at all five measurements sites was dominated by traffic on local roadways. Other noise sources include typical residential activities and limited overhead aircraft. The measured L_{dn} ranged from a low of 52 dBA at 248 Trinity to a high of 64 dBA at 1440 Cedar. Noise levels were highest at the measurement locations with the greatest traffic volumes. The maximum hourly noise level occurred during the midday or peak traffic periods (i.e. 8 a.m. to 10 p.m. or 4 p.m. to 6 p.m.). The minimum hourly noise levels were during the late night and early morning hours. AC Transit currently operates bus routes on the street segments directly in front of the long-term noise measurements sites. The existing 30-foot Gillig diesel buses will be replaced by new, 30-foot Van Hool buses as part of this project. More information regarding the noise measurement sites and results can be found in the Noise and Vibration Technical Memorandum included in Appendix D.

Environmental noise can generally be characterized by the area's population density, as population density and environmental noise levels tend to be closely correlated. Table XI-2 summarizes typical ambient noise levels based on population density. In comparing Table XI-1 and Table XI-2, noise levels in the project area are generally consistent with normal suburban and normal urban residential areas.

Table XI-2. Population Density and Associated Ambient Noise Levels

	dBA, L_{dn}
Rural	40–50
Suburban	
Quiet suburban residential or small town	45–50
Normal suburban residential	50–55
Urban	
Normal urban residential	60
Noisy urban residential	65
Very noise urban residential	70
Downtown, major metropolis	75–80
Under flight path at major airport, ½ to 1 mile from runway	78–85
Adjoining freeway or near a major airport	80–90
Source: *Cowan* 1984; *Hoover and Keith* 1996.	

Noise-Sensitive Land Uses

Noise sensitive land uses generally include residences, schools, libraries, hospitals, and other uses where noise can adversely affect daytime activities or disrupt sleeping. Noise sensitive land uses and non-sensitive uses, such as commercial and industrial, are located along the proposed project routes. The five long-term noise measurement sites are considered typical of the type and degree of noise exposure of sensitive receptors along existing and proposed AC Transit service routes potentially affected by the proposed project.

Regulatory Setting

Federal Regulations

The Federal Transit Administration (FTA) has adopted noise and vibration criteria for federally-funded transportation projects. These criteria were promulgated in the FTA guidance manual, *Transit Noise and Vibration Impact Assessment* (1995). Although the proposed project is not federally funded, potential noise and vibration impacts from operations of the proposed project are assessed using the FTA criteria as they are applicable to this type of transit project.

The FTA noise impact criteria group noise-sensitive land uses into the following three land uses:

- **Category 1** – Buildings or parks where quiet is an essential element of their purpose.
- **Category 2** – Residences and buildings where people normally sleep. This category includes residences, hospitals, and hotels, where nighttime sensitivity is assumed to be of utmost importance.
- **Category 3** – Institutional land uses with primarily daytime and evening use. This category includes schools, libraries, churches, and active parks.

The FTA noise criteria are a sliding scale as shown in Figure XI-1. The existing noise is shown on the horizontal axis and the increase in the total noise exposure as a result of the project is on the vertical axis. The basic concept of the FTA noise impact criteria is that more project noise is allowed in areas where existing noise is higher, but that the decibel increase in total noise exposure (existing noise plus project noise) decreases. For example, if the existing noise exposure is 50 dBA L_{dn}, then an increase of more than 5 dB would result in an impact and an increase of more than 10 dB would result in a severe impact. Note that a "severe impact" is generally considered a significant impact under the California Environmental Quality Act (CEQA). In order to be conservative, the lower "impact" threshold is used in this analysis.

For Category 2 land uses, the outdoor L_{dn} is the noise metric used to assess impact. For other noise-sensitive land uses, such as outdoor amphitheaters and school buildings (Categories 1 and 3), the maximum 1-hour L_{eq} during the facility's operating period is used. Table XI-3 lists the FTA noise impact criteria based on a sample of existing noise exposure levels.

Table XI-3. Noise Impact Criteria for Category 1 & 2 Land Uses: Effect on Cumulative Noise Levels (Ldn, dBA)

Existing Noise Exposure	Allowable Project Noise Exposure	Allowable Combined Total Noise Exposure [1]	Allowable Noise Exposure Increase [2]
45	52	53	7.8
50	53	55	5.0
55	55	58	3.2
60	58	62	2.0
65	60	66	1.4
70	64	71	1.0
75	65	75	0.4
Notes: [1] Combined = Existing + Project Noise Exposure [2] Increase = Combined – Existing Noise Exposure			
Source: *Federal Transit Administration*, 1995.			

The FTA vibration impact criteria include thresholds for ground-borne vibration and ground-borne noise (i.e., "rumbling" or other noise associated with vibration) and depend on the land use category and the frequency of the vibration events. These criteria are presented in Table XI-4. Special criteria (not shown in Table XI-4) apply to particularly sensitive building types, such as concert halls, TV studios, recording studios, auditoriums, and theaters.

Unlike the FTA noise criteria, the vibration criteria are not based on a sliding scale. However, they do factor in the number of daily events. For relatively infrequent service, which is typical for commuter bus service, the FTA impact thresholds are 8 VdB higher than for frequent service. FTA defines "infrequent" service to be less than 70 events per day.

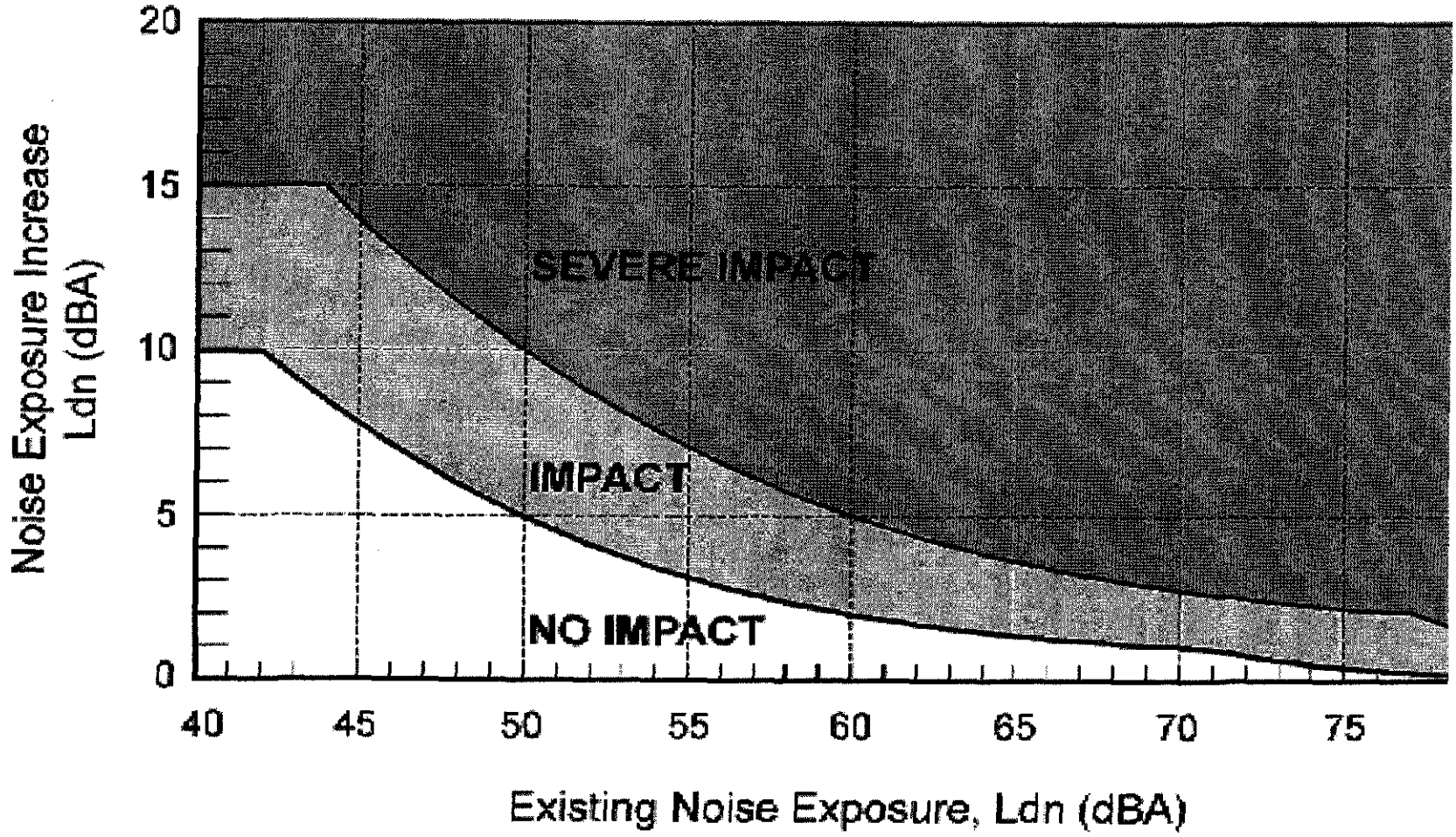

Figure XI-1
FTA Noise Impact Criteria for Category 1 & 2 Land Uses

Noise generated by motor vehicles including buses is regulated under California Code Section 27204. Depending on the vehicle weight and date of manufacture, the noise limit at 50 feet from the centerline of travel cannot exceed 80 to 88 dBA.

Local General Plans and Codes

Noise generated by motor vehicles including buses is not regulated at the local level but rather is regulated at the state level as described above. Noise limits in local municipal codes or noise ordinances do not apply to buses.

General plan noise compatibility standards for city and county areas in the project area have been reviewed. These standards are consistent with those identified in TableXI-5 and typically apply a compatibility standard of 60 L_{dn} for noise sensitive uses.

Impact Analysis

a. Potential noise impacts were predicted using the FTA noise impact criteria, the future number of buses per hour, the estimated background noise levels[3] at each five sites, and the measured noise from the new Van Hool bus at each site. Table XI-6 summarizes the predicted noise levels at impacts at the representative receiver locations based on L_{dn}. Due to the relatively low number of daily events, the noise contribution from AC Transit service to the predicted L_{dn} is small. At those locations with the highest background noise levels (i.e. Cedar and Hopkins), the addition of bus service has a negligible effect on the predicted noise levels. At the other three locations, the addition of transit service using the new Van Hool bus is predicted to increase the L_{dn} by less than 1 dB, which is well below the FTA impact thresholds. More detailed information regarding the predicted noise levels can be found in the Noise and Vibration Technical Memorandum in Appendix D.

Table XI-6. Summary of Predicted Noise Levels (Ldn) and Impacts

Site	L_{dn}, dBA					
	Back-ground [1]	AC Transit	Predicted [2]	Increase [3]	FTA Threshold [4]	Impact?
Hopkins	62	35	62	0.0	1.7	No
Cedar	64	36	64	0.0	1.5	No
Spruce	57	42	57	0.1	2.7	No
Trinity	50	37	50	0.2	5.0	No
Beloit	51	35	51	0.1	4.5	No

Notes:
[1] Background = Measured noise level with existing transit service removed from the L_{dn}
[2] Predicted = Background L_{dn} + AC Transit L_{dn}
[3] Increase = Predicted L_{dn} – Background L_{dn}

[3] The estimated background noise level is the measured noise level minus the predicted noise from existing AC Transit service using the 30-foot Gillig diesel bus. The impact analysis is a worst-case scenario, treating each representative receiver as if transit service is being introduced for the first time using new Van Hool buses.

Table XI-4. Ground-Borne Vibration and Noise Impact Criteria

Land Use Category	Ground-Borne Vibration (VdB re 1 micro inch/sec)		Ground-Borne Noise (dB re 20 micro Pascals)	
	Frequent Events [1]	Infrequent Events [2]	Frequent Events [1]	Infrequent Events [2]
Category 1. Buildings where low ambient vibration is essential to the operations within the building.	65 VdB	65 VdB	-- [3]	-- [3]
Category 2. Residences and buildings where people normally sleep.	72 VdB	80 VdB	35 dBA	43 dBA
Category 3. Institutional land uses with primarily daytime uses	75 VdB	83 VdB	40 dBA	48 dBA

[1] "Frequent Events" are more than 70 events per day.
[2] "Infrequent Events" are less than 70 vibration events per day.
[3] Vibration-sensitive equipment is not sensitive to ground-borne noise.

Source: *Federal Transit Administration*, 1995.

State Regulations

In California, cities and counties are required to adopt noise elements as part of their general plans. The purpose of a noise element is to establish a land use pattern that minimizes the exposure of residents of the community to excessive noise. The Governor's Office of Planning and Research has issued land use compatibility guidelines for noise. These guidelines, which are listed in Table XI-5, form the basis for most noise-related land use compatibility standards adopted by cities and counties in California.

Table XI-5. Noise Compatibility Guidelines

Land Use	Community Noise Exposure, CNEL (dBA)			
	Normally Acceptable	Conditionally Acceptable	Normally Unacceptable	Clearly Unacceptable
Single Family, Duplex, Mobile Homes	50 – 60	55 – 70	70 – 75	> 70
Multi-Family Homes	50 – 65	60 – 70	70 – 75	> 70
Schools, Libraries, Churches, Hospitals, Nursing Homes	50 – 70	60 – 70	70 – 80	> 80
Transient Lodging – Motels and Hotels	50 – 65	60 – 70	70 – 80	> 80
Auditoriums, Concert Halls, Amphitheaters	--	50 – 70	--	> 65
Sports Arena, Outdoor Spectator Sports	--	50 – 70	--	> 70
Playgrounds, Neighborhood Parks	50 – 70	--	67 – 75	> 72
Golf Courses, Riding Stables, Water Recreation, Cemeteries	50 – 75	--	70 – 80	> 80
Office Buildings, Business and Professional Commercial	50 – 70	67 – 77	> 75	--
Industrial, Manufacturing, Utilities, Agriculture	50 – 75	70 – 80	> 75	--

Source: *State of California, Governor's Office of Planning and Research, 1990; ATS Consulting*, 2005.

Noise generated by motor vehicles including buses is regulated under California Code Section 27204. Depending on the vehicle weight and date of manufacture, the noise limit at 50 feet from the centerline of travel cannot exceed 80 to 88 dBA.

Local General Plans and Codes

Noise generated by motor vehicles including buses is not regulated at the local level but rather is regulated at the state level as described above. Noise limits in local municipal codes or noise ordinances do not apply to buses.

General plan noise compatibility standards for city and county areas in the project area have been reviewed. These standards are consistent with those identified in TableXI-5 and typically apply a compatibility standard of 60 L_{dn} for noise sensitive uses.

Impact Analysis

a. Potential noise impacts were predicted using the FTA noise impact criteria, the future number of buses per hour, the estimated background noise levels[3] at each five sites, and the measured noise from the new Van Hool bus at each site. Table XI-6 summarizes the predicted noise levels at impacts at the representative receiver locations based on L_{dn}. Due to the relatively low number of daily events, the noise contribution from AC Transit service to the predicted L_{dn} is small. At those locations with the highest background noise levels (i.e. Cedar and Hopkins), the addition of bus service has a negligible effect on the predicted noise levels. At the other three locations, the addition of transit service using the new Van Hool bus is predicted to increase the L_{dn} by less than 1 dB, which is well below the FTA impact thresholds. More detailed information regarding the predicted noise levels can be found in the Noise and Vibration Technical Memorandum in Appendix D.

Table XI-6. Summary of Predicted Noise Levels (Ldn) and Impacts

Site	L_{dn}, dBA					
	Back-ground [1]	AC Transit	Predicted [2]	Increase [3]	FTA Threshold [4]	Impact?
Hopkins	62	35	62	0.0	1.7	No
Cedar	64	36	64	0.0	1.5	No
Spruce	57	42	57	0.1	2.7	No
Trinity	50	37	50	0.2	5.0	No
Beloit	51	35	51	0.1	4.5	No

Notes:
[1] Background = Measured noise level with existing transit service removed from the L_{dn}
[2] Predicted = Background L_{dn} + AC Transit L_{dn}
[3] Increase = Predicted L_{dn} – Background L_{dn}

[3] The estimated background noise level is the measured noise level minus the predicted noise from existing AC Transit service using the 30-foot Gillig diesel bus. The impact analysis is a worst-case scenario, treating each representative receiver as if transit service is being introduced for the first time using new Van Hool buses.

[4] FTA Threshold = maximum allowable increase in L_{dn} caused by project.
Source: *ATS Consulting*, 2005.

Table XI-7 summarizes the predicted noise levels and impacts based on the maximum 1-hour L_{eq} for Category 2 land uses throughout the project area. The increase in noise levels from the introduction or modification of transit service is predicted to be less than 1 dB, which is well below the FTA impact threshold at all locations.

Table XI-7. Summary of Predicted Noise Levels (Leq) and Impacts

Site	L_{eq}, dBA					
	Back-ground [1]	**AC Transit**	**Predicted [2]**	**Increase [3]**	**FTA Threshold [4]**	**Impact?**
Hopkins	54	38	55	0.1	6.6	No
Cedar	65	39	65	0.0	3.4	No
Spruce	65	45	65	0.0	3.4	No
Trinity	65	52	65	0.2	3.5	No
Beloit	53	40	54	0.2	7.2	No

Notes:
[1] Background = Measured noise level with existing transit service removed from the peak one-hour L_{eq}
[2] Predicted = Background L_{eq} + AC Transit L_{eq}
[3] Increase = Predicted L_{eq} – Background L_{eq}
[4] FTA Threshold = maximum allowable increase in L_{eq} caused by project.

Source: *ATS Consulting*, 2005

In summary, operation of the proposed project would not expose persons to or generate noise levels in excess of established standards. The impact is considered **less than significant**.

b. The potential for improvements to transit service to result in vibration is as an issue of concern to the community. Guidance issued by the FTA indicates that ground-borne noise and vibration impacts resulting from buses are atypical due to the vibration isolation properties of the rubber tires and suspension systems on buses. As indicated in Table XI-4, the residential impact threshold for infrequent events (fewer than 70 events per day) is 80 VdB. FTA guidance is that ground-borne vibration from buses does not exceed 75 VdB as close as 10 feet from a bus (FTA, 1995.)

Potential vibration impacts were analyzed by comparing the measured vibration levels from AC Transit vehicles to the appropriate FTA impact threshold. Vibration measurements were taken outside the same five residences as the noise measurements. Because the FTA vibration criteria are based on interior vibration levels, a conservative amplification factor of 5 VdB has been added to the vibration measurements in order to estimate interior vibration levels. This amplification is based on experience with how levels change when the ground vibration interacts with a building structure. For example, if the exterior vibration level was measured at 60 VdB, the interior levels are estimated to be 65 VdB or less.

The proposed project will generally include less than 70 daily bus passbys at the vibration measurement locations. As a result, the "infrequent" vibration criterion of 80 VdB is applicable for the impact analysis. Table XI-8 is a summary of the predicted interior vibration levels based on the newest AC Transit vehicle. As can be seen, even with the conservative assumption regarding exterior-interior amplification, vibration levels are well below the impact threshold of 80 VdB. In fact, the predicted levels are below the "frequent" event criterion of 72 VdB. More information is included in Appendix D.

Table XI-8. Predicted Vibration Levels and Impacts

Location	Vibration Level, VdB re 1µin/sec				Impact? (Y/N)
	Exterior	Estimated Amplification	Interior	Threshold	
Hopkins [1]	--	--	--	80	N
Cedar	51	+5	56	80	N
Spruce	54	+5	59	80	N
Trinity	64	+5	69	80	N
Beloit	55	+5	60	80	N
Notes: [1] Vibration levels were not predicted for Hopkins because the measured levels for the AC Transit buses were less than 50 VdB and were not distinguishable from the background vibration.					
Source: *ATS Consulting*, 2005.					

Table XI-9 lists the predicted ground-borne noise levels from AC Transit service. These levels were estimated by applying the A-weighted scale to the average vibration frequency spectrum (1/3 octave band, center frequency, Hz) for the Van Hool bus at each of the representative receivers. Even with the +5 dB amplification of the vibration, the predicted ground-borne noise levels are well below the applicable FTA threshold of 43 dBA.

Table XI-9. Predicted Ground-Borne Noise Levels

Location	Ground-Borne Noise Level, dBA	Threshold	Impact?(Y/N)
Hopkins [1]	--	--	N
Cedar	23	43	N
Spruce	22	43	N
Trinity	32	43	N
Beloit	28	43	N
Notes: [1] Vibration levels were not predicted for Hopkins because the measured levels for the AC Transit buses were less than 50 VdB and were not distinguishable from the background vibration.			
Source: *ATS Consulting*, 2005.			

Although vibration levels may be perceptible inside some residences immediately adjacent to the bus service or when potholes form in the streets, no adverse ground-borne vibration or noise impacts from bus passbys are anticipated as a result of the proposed project. This impact is considered **less than significant**.

c. As discussed above, the increase in noise levels resulting from the introduction or modification of transit service as part of the project is predicted to be less than 1 dB, both in terms of the L_{dn} and the peak hour L_{eq}. As a result, no substantial permanent increase in noise would result from the proposed project. This impact is considered **less than significant**.

d. As indicated above, operational activities are not anticipated to result in a temporary or periodic increase in noise levels; all operational noise impacts are considered less than significant. Because there is no construction associated with the proposed project there are no project related activities that would result in a temporary noise increase. There would be **no impact**.

e. The proposed project does not include new noise-sensitive receptors that would be located within an airport land use plan area, or within two miles of a public airport or public use airport. There would be **no impact**.

f. The proposed project does not include new noise-sensitive receptors that would be located within the vicinity of a private airstrip. There would be **no impact**.

Rail Transit

The San Francisco Bay Area Rapid Transit District (BART) provides commuter rail transit service throughout the Bay Area. The project area is served by two of the five BART lines.

- Red line: Richmond – San Francisco International Airport (SFO)/Millbrae
- Orange line: Fremont – Richmond

Roadway System

The East Bay is served by a network of freeway, arterial, and local access roadways. Table XV-2 summarizes the major freeways that serve the area and their average daily traffic (ADT) volumes.

Table XV-2. Freeways in the Project Study Area

Freeway	Location	Existing ADT (vehicles/day)
I-80	Albany, I-580 Junction and Buchanan Street	190,000
	Oakland-San Francisco Bay Bridge Toll Plaza	286,000
I-580	Albany, north of I-580/I-80 junction	96,000
	Oakland, Oakland Avenue/Harrison Street	201,000
I-880	Oakland, 7th Street	108,000
Source: *California Department of Transportation*, 2005.		

Level of service (LOS) is the primary unit of measure for stating the operating quality of a roadway facility. LOS is calculated by comparing the actual number of vehicles using a roadway to its carrying capacity. In general, LOS is measured by the ratio of traffic volume to capacity (V/C) or by the average delay experienced by vehicles on the facility. The quality of traffic operation is graded into one of six LOS designations: A, B, C, D, E, or F. LOS A represents the best range of operating conditions and LOS F represents the worst. (TRB 2000)

Table XV-3. Signalized Intersection Level of Service Definitions, Based on Delay

Level of Service	Control Delay (sec/veh)	Typical Traffic Condition
A	10	**Insignificant Delays:** Progression is extremely favorable, and most vehicles arrive during the green phase. Most vehicles do not stop at all.
B	> 10 - 20	**Minimal Delays:** Generally good progression, short cycle lengths, or both. More vehicles stop than with LOS A, causing higher levels of average delay. Drivers begin to feel restricted.
C	> 20 - 35	**Acceptable Delays:** Fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear, though many still pass through the intersection without stopping. Most drivers feel somewhat restricted.
D	> 35 - 55	**Tolerable Delays:** The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high v/c ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable. Queues may develop but dissipate rapidly, without excessive delays.
E	> 55 - 80	**Significant Delays:** Considered by many agencies to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are frequent occurrences. Vehicles may wait through several signal cycles and long queues of vehicles form upstream.
F	> 80	**Excessive Delays:** Considered to be unacceptable to most drivers. Often occurs with over-saturation, that is, when arrival flow rates exceed the capacity of the intersection. Poor progression and long cycle lengths may also be major contributing causes to such delay levels. Queues may block upstream intersections.

Source: *Highway Capacity Manual 2000*, Transportation Research Board, National Research Council, Washington, D.C. 2000.

Each jurisdiction establishes standards for acceptable LOS for the roadway facilities under its authority. Any segment of roadway that operates at LOS that is below the standard is considered to be deficienct in the roadway system. Both Contra Costa County and Alameda Counties have adopted a standard of LOS E for area roadways, and highways that are part of the regional system have a standard of LOS D (Contra Costa County Congestion Management Program 2003 and Alameda County Congestion Management Program 2004)

Table XV-4 summarizes locations in the study area that have been designated by Alameda and/or Contra Costa counties as the area's most congested roadways, all shown to operate at LOS F during the AM and/or PM peak periods.

Table XV-4. Locations Operating at LOS F in the Project Study Area

Location	Operates at LOS F	
	AM peak period	PM peak period
NORTH ALAMEDA COUNTY		
I-80, at east end of Bay Bridge	X	X
I-80, north of I-580 junction		X
I-580, east of I-880 junction		X
WEST CONTRA COSTA COUNTY		
I-80, SR 4 to San Pablo Dam	X	
I-80, San Pablo Dam to Cutting Blvd.		
I-80, Cutting Blvd. to Alameda County line		
I-580, south of Richmond-San Rafael Bdg.		

Source: *Contra Costa County CMA Congestion Management Program*, 2003; *Alameda County CMA Congestion Management Program*, 2004.

Air Travel

Air travel in the Bay Area is facilitated through the San Francisco International Airport, located across the Bay in southeast San Francisco and the Oakland International Airport, located in Oakland, just south of the city of Alameda.

Regulatory Setting

Federal Regulations

The proposed project does not include federal funding to provide the service improvements outlined in the SDP and WCSP. However, AC Transit is the recipient of federal funds from the FTA for operating assistance. As such, AC Transit is required to report compliance with Title VI of the Civil Rights Act of 1964, which states that no person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance from the FTA. More specifically, AC Transit must demonstrate that transit services provided by the district are provided in an equitable manner.

The proposed project would include service improvements and route restructuring, as well as changes in the fleet located within the cities of Berkeley and Albany in Northern Alameda County, and in the cities of El Cerrito, Richmond, and San Pablo in West Contra Costa County. These proposed transit improvements in northern Alameda and western Contra Costa County traverse census tracts in Hercules, Pinole, San Pablo, Richmond, El Cerrito, Albany, Berkeley, and Emeryville, using I-80 and local streets in Hercules, El Cerrito, Albany, Berkeley, and Emeryville.

An analysis of AC Transit's compliance with the requirements of Title VI is included in Appendix E to this IS/ND.

State and Regional Regulations

Traffic analysis in California is guided by standards set at the state level by Caltrans, and by local jurisdictions. State highways fall under the jurisdiction of Caltrans. Other roadways fall under the local jurisdiction, either city or county, in which they are located. In urbanized counties, a designated congestion management agency is responsible for implementing the Traffic Congestion Relief and Spending Limit Act (Proposition 111) to assist in the land use decision-making process and to address transportation and air quality impacts in the county. As the congestion management agency for Alameda County, the Alameda County Congestion Management Agency is responsible for preparing and implementing the Alameda County Congestion Management Program. In Contra Costa County, the Contra Costa Transportation Authority serves the same function.

The Metropolitan Transportation Commission (MTC) is the transportation planning, coordinating and financing agency for the nine-county San Francisco Bay Area, which includes the project study area. MTC functions as both the state designated regional transportation planning agency, and federally designated metropolitan planning organization (MPO) for the region. As such, it is responsible for the Regional Transportation Plan, a comprehensive plan for the development of mass transit, highway, airport, seaport, railroad, bicycle and pedestrian facilities. The Commission also screens requests from local agencies for state and federal grants for transportation projects to determine their compatibility with the plan. (MTC 2005)

The MTC adopted *Transportation 2030* (Metropolitan Transportation Commission 2005) in February 2005. The plan specifies a detailed set of investments and strategies throughout the region from 2005 through 2030 to maintain, manage and improve the surface transportation. Updated every three years to reflect new planning priorities and changing projections of growth and travel demand, the long-range plan must be based on a realistic forecast of future revenues. Taken as a whole, the projects included must help improve regional air quality.

Local Regulations

Alameda Countywide Transportation Plan

The *Alameda County Transportation Plan 2004* defines a vision by which the transportation system:

- Provides safe and convenient access to jobs and services
- Ensures efficient movement of freight, and
- Contributes to the conservation of natural resources and the preservation of environmental heritage for the use of future generations

The transportation plan presents goals and priorities to achieve this vision, according to the following categories:

- Improve mobility
- Increase transit access and transit use
- Improve air quality
- Enhance economic vitality
- Enhance operational efficiency
- Coordinate transportation and land use policy

These goals are consistent with the vision of *Transportation 2030.*

Contra Costa County General Plan

The *Contra Costa County General Plan, 2005–2020* (Contra Costa County 2005) includes the following goals and policies that are relevant to the proposed project:

- **Goal 5-A:** To provide a safe, efficient and balanced transportation system.
- **Goal 5-B:** To coordinate the provision of streets, roads, transit and trails with other jurisdictions.
- **Goal 5-C:** To balance transportation and circulation needs with the desired character of the community.
- **Goal 5-D:** To maintain and improve air quality standards.
- **Goal 5-E:** To permit development only in locations of the County where appropriate traffic level of service standards are ensured.
- **Goal 5-F:** To reduce cumulative regional traffic impacts of development through participation in cooperative, multi-jurisdictional planning processes and forums.
- **Goal 5-G:** To provide access to new development while minimizing conflict between circulation facilities and land uses.
- **Goal 5-H:** To ensure the mutual compatibility of major transportation facilities with adjacent land uses.
- **Goal 5-I:** To encourage use of transit.
- **Goal 5-J:** To reduce single-occupant auto commuting.
- **Goal 5-K:** To provide basic mobility to all sectors of the public including the elderly, disabled, and transit dependent.
- **Policy 5-21:** All efforts to use alternative transportation systems to reduce peak period traffic congestion shall be encouraged.
- **Policy 5-22:** Use of alternative forms of transportation, especially transit, shall be encouraged in order to provide necessary services to transit-dependent persons and to help minimize automobile congestion and air pollution.
- **Policy 5-23:** Improvement of public transit shall be encouraged to provide for increase use of local, commuter and intercity public transportation.

City of Albany General Plan

The city of Albany General Plan includes the following policies that are relevant to the proposed project:

- **Circulation 4.1:** Monitor existing and proposed transit service for responsiveness to residential and employers' needs.

- **Circulation 4.3:** Continue to work with the City's Trip Reduction Ordinance and continue to develop programs and incentives for the use of carpools, staggered work hours, bicycling, walking and the increased use of public transit for residents and employees in the community.

City of Berkeley General Plan

The city of Berkeley General Plan includes the following policies that are relevant to the proposed project:

- **Public Transportation Policy T-1:** Regional Transit Policy. Advocate for regional coordinated transit services and regional transportation policy to reduce automobile use and increase funding for public and alternative transportation improvements.

- **Public Transportation Policy T-2:** Public Transportation Improvements. Encourage regional and local efforts to maintain and enhance public transportation services and seek additional regional funding for public and alternative transportation improvements.

- **Public Transportation Policy T-4:** Transit First Policy. Give priority to alternative transportation and transit over single occupancy vehicles on Transit Routes identified on the Transit Network map.

- **Public Transportation Policy T-10:** Trip Reduction. To reduce automobile traffic and congestion and increase transit use and alternative modes in Berkeley, support and when appropriate, require programs to encourage Berkeley citizens and commuters to reduce automobile trips, such as programs to encourage neighborhood-level initiatives to reduce traffic by encouraging residents to combine trips, carpool, telecommute, reduce the number of cars owned, shop locally, and use alternative modes.

City of El Cerrito General Plan

The city of El Cerrito General Plan includes the following policies that are relevant to the proposed project:

- **Circulation Policy (a):** Public transportation such as that provided by AC Transit should be increased, both in level and diversity of service.

City of Emeryville General Plan

The city of Emeryville General Plan includes the following policies that are relevant to the proposed project:

- **Transit Policy 1:** The City will cooperate with AC Transit to promote expanded service and new passenger amenities in Emeryville. It will explore the extent of financial subsidy necessary, if any, to warrant such improvements.

- **Transit Policy 2:** The City, in the formulation of a Transportation Systems Management (TSM) program shall place emphasis on public transit alternatives to private passenger vehicles.

City of Oakland General Plan

The city of Oakland General Plan includes the following policies that are relevant to the proposed project:

- **Policy T3.1:** Defining Transportation Hierarchies. The City should define a hierarchical network of public transit corridors.

- **Policy T3.6:** Encouraging Transit. The City should encourage and promote use of public transit in Oakland by expediting the movement of and access to transit vehicles on designated "transit streets" as shown on the Transportation Plan.

- **Policy T4.2:** Creating Transportation Incentives. Through cooperation with other agencies, the City should create incentives to encourage travelers to use alternative transportation options.

- **Policy T4.3:** Reducing Transit Waiting Lines. The City should encourage transit operators to reduce waiting times for users by coordinating schedules and maintaining intervals of fifteen (15) minutes or less between buses during peak daytime periods.

- **Policy T5.5:** Encouraging Element Implementation by Outside Agencies. The City should encourage all outside transportation agencies and operators, including Caltrans, the Railroads, AC Transit, BART, and the Port of Oakland, to proactively implement Oakland's General Plan.

- **Policy W.2.7:** Encouraging Public Transportation. Public Transportation to the waterfront should be encouraged, coordinated, and strategically located. Waterfront transportation should be marketed to enhance ease of access both locally and regionally.

City of Richmond General Plan

The city of Richmond General Plan includes the following policies that are relevant to the proposed project:

- **Policy CIR-C.2:** Promote the use of alternatives to the single-occupant automobile to satisfy community transportation needs.

- **Policy CIR-C.9:** Encourage transit providers to coordinate schedules in order to reduce time in multi-modal transfers.

- **Policy CIR-D.7:** Actively work with non-rail transit providers, such as AC Transit, WestCAT and County Connection to strongly encourage the annexation of, or service to, areas within Richmond's sphere of influence.

City of San Pablo General Plan

The city of San Pablo General Plan includes the following policies that are relevant to the proposed project:

- **Land Use Policy LU 2.1:** Alternative Transportation Design. For all existing and new development, the City shall encourage alternative modes of transportation to the automobile through site design features and land use relationships.

- **Land Use Policy LU 2.4:** AC Transit. As part of the public transportation efforts in the region, the City shall continue to work with AC Transit in terms of the identification of operating times, frequency, appropriate routes and types of vehicles use to service each.

- **Circulation Policy CF 1.14:** Public Transit Providers. Coordinate with public transit providers (specifically AC Transit) to maintain a level of service that is safe and efficient with convenient connections to high use and activity intersections within the City of San Pablo. Ensure the maintenance of quality bus stops and shelters; the availability and publicity of local transit information; and the land use and design standards which establish provisions that enhance public transit use.

Impact Analysis

a. Table XV-5 summarizes the approximate headways of the AC Transit and Golden Gate bus routes that would be affected by the proposed plan. The table shows that the service frequency of all buses ranges from 12 minutes to 30 minutes. This translates to an increase of approximately 2 to 5 additional buses on each segment due to rerouting or new service. An increase of 2 to 5 buses on any particular segment is not expected to negatively impact traffic. As illustrated in Table XV-6, there would be an expected increase of only 528.5 daily vehicle-miles-traveled for the proposed project.

Routes or route segments with reduced service under the proposed project would result in a net decrease in traffic volumes and reduced automobile trips by attracting additional passengers to use transit who would otherwise drive. The impact of the Proposed Project on traffic volumes would be **less than significant,** and would also be considered to be a beneficial impact.

b. The proposed project, as noted previously, would cause an increase of approximately 2 to 5 additional buses on the streets with bus routes. This increase is not expected to cause any LOS standards to be exceeded. The impact would be **less than significant.**

c. The proposed modification of transit service will not result in any increases in air traffic; nor will it have any effect on air traffic patterns or flight paths. There would be **no impact.**

d. Changes in design elements may occur due to the rerouting of bus routes or the extension of existing bus services. All segments of routes proposed for rerouting would be rerouted to roadways that already have existing bus service running, except for on proposed Route 79. The proposed service Route 79 would add bus service to a local street segment from Central Avenue to Marina Bay Parkway along I-580, Bayview Avenue, Meade Street, and Regatta Boulevard. Based on the roadway dimensions and characteristics of these streets, it is anticipated that there would not be any traffic hazard caused by limited sight distance, sharp curves, or steep grades in this segment. The discontinuation of routes or segments of routes also would not contribute to traffic safety hazards. The impact for this item is considered to be **less than significant.**

e. The proposed modification of transit service is expected to add a relatively small number of buses to the transportation system, and will very likely result in a net decrease in vehicular traffic (as discussed above). There would be **no impact** on emergency access as a result of the proposed project.

f. Increasing transit service provides an alternative to driving automobiles and therefore is expected to lead to decreased parking demand. Thus, the proposed project is expected to result either in no increase or a very slight decrease in parking demand. Implementation of the proposed project is not expected to require the removal of any parking spaces, though it is possible that additional bus stops may need to be installed and that if there are parking spaces in these locations, there may be some displacements. However, these would be relatively minor in scale compared to the amount of parking capacity within the study area, and is not expected to result in a significant impact. The impact on parking would be **less than significant**.

g. Locally adopted transportation plans were reviewed to identify programs and policies that relate to alternative transportation. If any project elements result in a conflict with identified programs and policies, the impact is considered significant. The proposed project would have no negative long-term impact on alternative transportation, and in fact supports transit policies specified in the County plans and the Metropolitan Transportation Commission *Transportation 2030 Plan*, all of which place significant focus on support and enhancement of area transit services. There would be **no impact.**

Table XV-5. Proposed Service for Local Bus Routes

Route	Segment/Location with Service Plan	Existing		Proposed	
		Trips Per Weekday (1)	Approx Headway (minutes)	Service Plan	Approx Headway (minutes) (2)
15	Between Berkley BART Station and El Cerrito BART Plaza Station	Eastbound: 60 Westbound: 61	30	Discontinue the segment. Replaced with new service line 79.	30
19	Between Berkley BART Station and Unversity Ave/San Pable Ave Intersection	Eastbound: 32 Westbound: 32	30	Reroute University Ave to Cedar Ave and Shattuck Ave. Terminate the service to North Berkley BART Station.	30
43	#1. Intersection at San Pablo Ave/ Buchanan St #2. Segment north of Jackson Street	Northbound: 69 Southbound: 65	30	#1. Rerouted to pass the intersection and turn back via Monro St, Gooding Way, Jackson St and Buchanan St. #2. Discontinue the segment. Replaced with extended service line 52L.	30
52	The entire route	Northbound: 6 Southbound: 6	30	Discontinue the service. Replaced with the existing line 52L from Monro Street to San Pablo Avenue at Cedar Street and the rerouted line 19 on Cedar Street to Berkley BART station.	30
52L	From University Village to El Cerrito BART Station	Northbound: 46 Southbound: 45	15	Add service to El Cerrito BART Station.	15
68	Between Richmond BART Station and El Cerrito del Norte BART	-	-	New Service.	30
70	#1. Between Richmond Parkway Transit Center and Contra Costa College Transit Center #2. Between from Richmond Parkway Transit Center and Hilltop Green Area	Northbound: 32 Southbound: 33	30	#1. Add service to the segment along Richmond Parkway, Atlas Road, Giant Highway and Broadway Avenue. #2. Discontinue the segment Replaced with supplemental school service.	30
71	Between Richmond Parkway Transit Center and Contra Costa College	Northbound: 31 Southbound: 28	30	Replace the segment along Richmond Parkway and Giant Highway with the extended route of line 70. Reroute the	30

Table XV-5. Proposed Service for Local Bus Routes

Route	Segment/Location with Service Plan	Existing		Proposed	
		Trips Per Weekday (1)	Approx Headway (minutes)	Service Plan	Approx Headway (minutes) (2)
				existing segment to the segment along Robert H. Miller Dr. passing Hilltop Mall.	
71	Between Richmond Parkway Transit Center and Contra Costa College	Northbound: 31 Southbound: 28	30	Replace the segment along Richmond Parkway and Giant Highway with the extended route of line 70. Reroute the existing segment to the segment along Robert H. Miller Dr. passing Hilltop Mall.	30
72	Between Contra Costa College and Richmond Parkway Transit Center	Northbound: 36 Southbound: 53	30	Add service to this segment along San Pablo Ave and Richmond Parkway.	15
72R	Between Contra Costa College and Richmond Parkway Transit Center	Northbound: 66 Southbound: 66	12	Add service to this segment along San Pablo Ave and Robert H. Miller Dr.	12
72M	Between Point Richmond and Oakland	Northbound: 54 Southbound: 36	30	Discontinue the service. Serviced by new line 73 from Richmond BART station to El Cerrito De Norte BART station and by line 72 along San Pabo Avenue from MacDonald Avenue to Oakland AMTRAK station.	-
73	From El Cerrito del Norte to Point Richmond via MacDonald	-	-	New Service.	30
74	From S.23rd St to Habour Way	Northbound: 31 Southbound: 31	30	Discontinue the segment. Replaced with new service line 79.	-
76	#1. Between Hilltop Mall and Richmond Parkway Transit Center #2. Between Contra Costa College and Hilltop Mall via Birmingham	Eastbound: 30 Westbound: 30	30	#1. Add service to this segment along Kose Way and Blume Dr. #2. Discontinue the segment Replaced with rerouted service line 71.	

Table XV-5. Proposed Service for Local Bus Routes

Route	Segment/Location with Service Plan	Existing		Proposed	
		Trips Per Weekday (1)	Approx Headway (minutes)	Service Plan	Approx Headway (minutes) (2)
	and Shane Drives				
79	Between Richmond BART Station and Downtown Berkley along 23rd Ave, Regatta Blvd, Colusa Ave and Martin Luther King Jr. Dr.	-	-	New Service.	30
376	Between Richmond BART Station and Contra Costa College	Clockwise: 11 Counterclockwise: 11	30	Discontinue the segment. Replaced with existing line 74 from Richmond BART Station to Rheem Avenue/23th Avenue, and existing line 70 from Rheem Avenue/23th Avenue to San Pablo Dam Road/I-80. **No replacing service from San Pablo Dam Road/I-80 to El Portal Drive/Church Lane.**	30
Golden Gate 40	Between El Cerrito del Norte BART Station and Richmond BART Station	Eastbound: 9 Westbound: 8	30/60 (2) 50/45	Reroute from Cutting Blvd to MacDonald Ave. Replaced with existing service of line 76.	30/60 50/45
Golden Gate 42	Between El Cerrito del Norte BART Station and Richmond BART Station	Eastbound: 24 Westbound: 26	30 30/60	Reroute from Cutting Blvd to MacDonald Ave. Replaced with existing service of line 76.	30 30/60
Source: *Alameda-Contra Costa Transit District,* 2005.					

Table XV-6. Proposed Daily Vehicle Mile Traveled

Route	Service Area	Operating Headway (minutes)		Distance (miles)	Service Hours	Daily Vehicle-Mile Traveled
		Existing Service	Proposed Service			
15	Berkeley - E.C. BART via MLK	30	None	3.5	17	-119
19	Berkeley - Downtown via Cedar Street	None	30	3	9	54
19	Berkeley - N. Berk BART via University	30	None	1.25	6	-15
43	Albany - E.C. BART via Pierce	30	None	2.75	15	-82.5
52	Berkeley - UC via Cedar Street	30	None	5	3	-30
52L	Albany - E.C. BART via Pierce	None	15	2	17	136
68	Richmond - Arlington Blvd	None	60	5.5	15	82.5
70	Richmond - CC College via Giant Hwy	None	30	5.25	15	157.5
70	Richmond - Hilltop Green	30	None	2.5	15	-75
71	Richmond - Hilltop Mall via Birmingham	None	30	3.25	15	97.5
71	Richmond - Richmond Parkway Transit Center via Giant Hwy	30	None	5.25	15	-157.5
72	San Pablo Corridor	30	15	17.25	19	655.5
72R	Richmond - Hilltop Mall/Richmond Parkway Transit Center	None	12	2.5	14	175
72M	San Pablo/Macdonald Corridor	30	None	15.25	19	-579.5
73	Macdonald Corridor	None	30	4.75	19	180.5
74	Richmond - Richmond Marina	30	None	4	17	-136
76	Richmond - Richmond Parkway Transit Center via Moyers	None	30	1	15	30
76	Richmond - Hilltop Mall via Birmingham	30	None	2.25	15	-67.5
79	Berkeley to Richmond Marina	None	30	11	15	330
376	City of San Pablo	30	None	4.5	6	-54
40	Richmond – Cutting Boulevard	30	None	2.25	19	-27
42	Richmond – Cutting Boulevard	30	None	2.25	19	-27
Total Daily Vehicle Miles Traveled						**528.5**
Source: *CHS Consulting Group*, 2005.						

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
XVI.	**UTILITIES AND SERVICE SYSTEMS.** Would the project:				
a.	Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	❑	❑	❑	√
b.	Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	❑	❑	❑	√
c.	Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	❑	❑	❑	√
d.	Have sufficient water supplies available to serve the project from existing entitlements and resources, or would new or expanded entitlements be needed?	❑	❑	❑	√
e.	Result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	❑	❑	❑	√
f.	Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	❑	❑	❑	√
g.	Comply with federal, state, and local statutes and regulations related to solid waste?	❑	❑	❑	√

a. The proposed project does not involve any construction. No wastewater would be generated as a result of the proposed project, and no wastewater treatment requirements would be exceed. There would be **no impact.**

b. Because there is no construction involved with the proposed project, and no wastewater would be generated, no expansion or construction of new wastewater treatment facilities would be required as a result of the proposed project. There would be **no impact.**

c. The project would therefore not result in the need for additional water supply or sewer services or modifications to existing water or sewer systems. The project would also not generate any solid waste or require modifications to existing stormwater drainage systems. There would be **no impact**.

d. The proposed project does not require existing, new or expanded entitlements for water supply. There would be **no impact.**

e. Because the proposed project would not generate wastewater, there would be **no impact** to the capacity of wastewater treatment providers.

f. The proposed project will not generate solid waste, and therefore will not affect the capacity of local landfills. There would be **no impact.**

g. Because the proposed project would generate solid waste, compliance with federal, state and local statutes and regulations related to solid waste is not required. There would be **no impact.**

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

a. The proposed project does not have the potential to degrade the quality of the environment. Habitat for special-status wildlife is not expected to occur in the immediate project area. Special status plant species may occur adjacent to roadways within the project area, but they will not be significantly affected by additional bus traffic, and no plant or animal communities will be eliminated or reduced. No impacts to historical resources would occur. There would be **no impact.**

b. The proposed project does not result in any potentially significant impacts. Therefore, there are **no cumulatively considerable impacts.**

c. Because the proposed project does not have any potentially significant impacts, there are no environmental effects that will cause substantial adverse direct on indirect effects on human beings. There would be **no impact.**

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Appendix A

California Natural Diversity Database Records Search Results

	Scienti ic Name/Common Name	Element Code	Federal Status	State Status	Rank	SRank	CDF or CNPS/R E D
1	***Accipiter cooperii*** Cooper s ha k	ABNKC12040			G5	S3	SC
2	***Accipiter striatus*** sharp shinned ha k	ABNKC12020			G5	S3	SC
3	***Agelaius tricolor*** tricolored blackbird	ABPB B0020			G2G3	S2	SC
4	***Alkali Meadow***	CTT45310CA			G3	S2.1	
5	***Alkali Seep***	CTT45320CA			G3	S2.1	
6	***Allium sharsmithiae*** Sharsmith s onion	PML L02310			G2	S2.3	1B 2 1 3
7	***Ambystoma californiense*** California tiger salamander	AAAAA01180	Threatened		G2G3	S2S3	SC
8	***Amsinckia grandiflora*** large flo ered fiddleneck	PDB R01050	Endangered	Endangered	G1	S1.1	1B 3 3 3
9	***Amsinckia lunaris*** bent flo ered fiddleneck	PDB R01070			G2	S2.2	1B 2 2 3
10	***Andrena blennospermatis***	H M35030			G2	S2	
11	***Anniella pulchra pulchra*** sil ery legless li ard	ARACC01012			G3G4T3T4	S3	SC
12	***Apodemia mormo langei*** Lange s metalmark butterfly	LEPH7012	Endangered		G5T1	S1	
13	***Aquila chrysaetos*** golden eagle	ABNKC22010			G5	S3	SC
14	***Archoplites interruptus*** Sacramento perch	A C B07010			G3	S1	SC
15	***Arctostaphylos auriculata*** Mt. Diablo man anita	PDER 04040			G2	S2.2	1B 3 1 3
16	***Arctostaphylos manzanita ssp. laevigata*** Contra Costa man anita	PDER 04273			G5T2	S2	1B 3 2 3
17	***Arctostaphylos pallida*** pallid man anita	PDER 04110	Threatened	Endangered	G1	S1.2	1B 3 3 3
18	***Ardea herodias*** great blue heron	ABNGA04010			G5	S4	
19	***Asio flammeus*** short eared o l	ABNSB13040			G5	S3	SC
20	***Aster lentus*** Suisun Marsh aster	PDAST0T540			G2	S2.2	1B 2 2 3
21	***Astragalus tener var. tener*** alkali milk etch	PD AB0 8R1			G1T1	S1.1	1B 3 2 3
22	***Athene cunicularia*** burro ing o l	ABNSB10010			G4	S2	SC
23	***Atriplex cordulata*** heartscale	PDCHE040B0			G2	S2.2	1B 2 2 3
24	***Atriplex depressa*** brittlescale	PDCHE042L0			G2	S2.2	1B 2 2 3

	Scienti ic Name/Common Name	Element Code	Federal Status	State Status	Rank	SRank	CDF or CNPS/R E D
25	***Atriplex joaquiniana*** San Joaquin spearscale	PDCHE041 3			G2	S2.1	1B 2 2 3
26	***Balsamorhiza macrolepis var. macrolepis*** big scale balsamroot	PDAST11061			G3G4T2	S2.2	1B 2 2 3
27	***Blepharizonia plumosa*** big tarplant	PDAST1C011			G1	S1.1	1B 3 3 3
28	***Branchinecta longiantenna*** longhorn fairy shrimp	CBRA03020	Endangered		G1	S1	
29	***Branchinecta lynchi*** ernal pool fairy shrimp	CBRA03030	Threatened		G3	S2S3	
30	***Branchinecta mesovallensis*** mid alley fairy shrimp	CBRA03150			G2	S2	
31	***Buteo swainsoni*** S ainson s ha k	ABNKC19070		Threatened	G5	S2	
32	***Calochortus pulchellus*** Mt. Diablo fairy lantern	PML L0D160			G2	S2.1	1B 2 2 3
33	***Calystegia atriplicifolia ssp. buttensis*** Butte County morning glory	PDC N04012			G5T3	S3.2	1B 2 2 3
34	***Calystegia purpurata ssp. saxicola*** coastal bluff morning glory	PDC N040D2			G4T2	S2.2	1B 2 2 3
35	***Campanula exigua*** chaparral harebell	PDCAM020A0			G2	S2.2	1B 2 2 3
36	***Carex comosa*** bristly sedge	PMC P032 0			G5	S2	2 3 3 1
37	***Caulanthus coulteri var. lemmonii*** Lemmon s e elflo er	PDBRA0M0E0			G4T2	S2.2	1B 2 2 3
38	***Centromadia parryi ssp. congdonii*** Congdon s tarplant	PDAST4R0P1			G4 T3	S3.2	1B 2 2 3
39	***Charadrius alexandrinus nivosus*** estern sno y plo er	ABNNB03031	Threatened		G4T3	S2	SC
40	***Chorizanthe cuspidata var. cuspidata*** San rancisco Bay spineflo er	PDPGN04081			G2T2	S2.2	1B 2 2 3
41	***Chorizanthe robusta var. robusta*** robust spineflo er	PDPGN040 2	Endangered		G2T1	S1.1	1B 3 3 3
42	***Circus cyaneus*** northern harrier	ABNKC11010			G5	S3	SC
43	***Cirsium andrewsii*** ranciscan thistle	PDAST2E050			G2	S2.2	1B 2 2 3
44	***Cirsium fontinale var. campylon*** Mt. Hamilton thistle	PDAST2E0 0			G2T2	S2.2	1B 2 2 3
45	***Cismontane Alkali Marsh***	CTT52310CA			G1	S1.1	
46	***Clarkia franciscana*** Presidio clarkia	PD NA050H0	Endangered	Endangered	G1	S1.1	1B 3 3 3
47	***Coastal Brackish Marsh***	CTT52200CA			G2	S2.1	
48	***Coastal and Valley Freshwater Marsh***	CTT52410CA			G3	S2.1	

	Scienti ic Name/Common Name	Element Code	Federal Status	State Status	Rank	SRank	CDF or CNPS/R E D
49	***Coelus gracilis*** San Joaquin dune beetle	C L4A020			G1	S1	
50	***Cordylanthus maritimus ssp. palustris*** Point Reyes bird s beak	PDSCR0J0C3			G4 T2	S2.2	1B 2 2 2
51	***Cordylanthus mollis ssp. hispidus*** hispid bird s beak	PDSCR0J0D1			G2T2	S2.1	1B 2 3 3
52	***Cordylanthus mollis ssp. mollis*** soft bird s beak	PDSCR0J0D2	Endangered	Rare	G2T1	S1.1	1B 3 2 3
53	***Cordylanthus nidularius*** Mt. Diablo bird s beak	PDSCR0J0 0		Rare	G1	S1.2	1B 3 3 3
54	***Cordylanthus palmatus*** palmate bracted bird s beak	PDSCR0J0J0	Endangered	Endangered	G1	S1.1	1B 3 3 3
55	***Coreopsis hamiltonii*** Mt. Hamilton coreopsis	PDAST2L0C0			G2	S2.2	1B 3 2 3
56	***Corynorhinus townsendii townsendii*** To nsend s estern big eared bat	AMACC08015			G4T3T4	S2S3	SC
57	***Cryptantha hooveri*** Hoo er s cryptantha	PDB R0A190			G2	S2.2	1B 2 2 3
58	***Danaus plexippus*** monarch butterfly	LEPP2010			G5	S3	
59	***Deinandra bacigalupii*** Li ermore tarplant	PDAST4R0V0			G1	S1.2	1B 3 2 3
60	***Delphinium californicum ssp. interius*** Hospital Canyon larkspur	PDRAN0B0A2			G3T2	S2	1B 3 2 3
61	***Delphinium recurvatum*** recur ed larkspur	PDRAN0B1J0			G2	S2.2	1B 2 2 3
62	***Dendroica petechia brewsteri*** yello arbler	ABPB 03018			G5T3	S2	SC
63	***Dipodomys heermanni berkeleyensis*** Berkeley kangaroo rat	AMA D03061			G3G4TH	S1	
64	***Dirca occidentalis*** estern leather ood	PDTH 03010			G2G3	S2S3	1B 2 2 3
65	***Efferia antiochi*** Antioch efferian robberfly	D P07010			G1G3	S1S3	
66	***Egretta thula*** sno y egret	ABNGA06030			G5	S4	
67	***Elanus leucurus*** hite tailed kite	ABNKC06010			G5	S3	
68	***Emys (=Clemmys) marmorata*** estern pond turtle	ARAAD02030			G3G4	S3	SC
69	***Emys (=Clemmys) marmorata pallida*** south estern pond turtle	ARAAD02032			G3G4T2T3	S2	SC
70	***Eremophila alpestris actia*** California horned lark	ABPAT02011			G5T3	S3	SC
71	***Eriastrum brandegeeae*** Brandegee s eriastrum	PDPLM03020			G3	S3.2	1B 2 2 3

	Scienti ic Name/Common Name	Element Code	Federal Status	State Status	Rank	SRank	CDF or CNPS/R E D
72	***Eriogonum truncatum*** Mt. Diablo buck heat	PDPGN085 0			GH	SH	1A
73	***Erodium macrophyllum*** round lea ed filaree	PDGER01070			G4	S2.1	2 2 3 1
74	***Eryngium aristulatum var. hooveri*** Hoo er s button celery	PDAP 0 043			G5T2	S2.1	1B 3 3 3
75	***Eryngium racemosum*** Delta button celery	PDAP 0 0S0		Endangered	G2	S2.1	1B 2 3 3
76	***Erysimum capitatum ssp. angustatum*** Contra Costa allflo er	PDBRA16052	Endangered	Endangered	G5T1	S1.1	1B 3 3 3
77	***Eschscholzia rhombipetala*** diamond petaled California poppy	PDPAP0A0D0			G1	S1.1	1B 3 3 3
78	***Eucerceris ruficeps*** redheaded sphecid asp	H M18010			G1G2	S1S2	
79	***Eucyclogobius newberryi*** tide ater goby	A C N04010	Endangered		G3	S2S3	SC
80	***Euphydryas editha bayensis*** Bay checkerspot butterfly	LEPK4055	Threatened		G5T1	S1	
81	***Falco mexicanus*** prairie falcon	ABNKD06090			G5	S3	SC
82	***Falco peregrinus anatum*** American peregrine falcon	ABNKD06071	Delisted	Endangered	G4T3	S2	
83	***Fritillaria falcata*** talus fritillary	PML L0V070			G2	S2.2	1B 3 2 3
84	***Fritillaria liliacea*** fragrant fritillary	PML L0V0C0			G2	S2.2	1B 2 2 3
85	***Geothlypis trichas sinuosa*** saltmarsh common yello throat	ABPB 1201A			G5T2	S2	SC
86	***Haliaeetus leucocephalus*** bald eagle	ABNKC10010	Threatened	Endangered	G4	S2	
87	***Helianthella castanea*** Diablo helianthella	PDAST4M020			G3	S3.2	1B 2 2 3
88	***Helminthoglypta nickliniana bridgesi*** Bridges coast range shoulderband (snail)	MGASC2362			G2T1	S1	
89	***Hesperolinon breweri*** Bre er s estern fla	PDL N01030			G2	S2.2	1B 2 2 3
90	***Hesperolinon sp. nov. "serpentinum"*** Napa estern fla	PDL N010D0			G1	S1.2	1B 3 2 3
91	***Hibiscus lasiocarpus*** rose mallo	PDMAL0H0 0			G4	S2.2	2 2 2 1
92	***Holta strobilina*** Loma Prieta holta	PD AB5 030			G2	S2.1	1B 2 3 3
93	***Holocarpha macradenia*** Santa Cru tarplant	PDAST4 020	Threatened	Endangered	G1	S1.1	1B 3 3 3
94	***Horkelia cuneata ssp. sericea*** Kellogg s horkelia	PDR S0W043			G4T1	S1.1	1B 3 3 3

	Scienti ic Name/Common Name	Element Code	Federal Status	State Status	Rank	SRank	CDF or CNPS/R E D
95	***Hygrotus curvipes*** cur ed foot hygrotus di ing beetle	C L38030			G1	S1	
96	***Idiostatus middlekauffi*** Middlekauff s shieldback katydid	RT31010			G1G2	S1	
97	***Juglans hindsii*** Northern California black alnut	PDJ G02040			G1	S1.1	1B 3 3 3
98	***Lanius ludovicianus*** loggerhead shrike	ABPBR01030			G4	S4	SC
99	***Lasthenia conjugens*** Contra Costa goldfields	PDAST5L040	Endangered		G1	S1.1	1B 3 3 3
100	***Laterallus jamaicensis coturniculus*** California black rail	ABNME03041		Threatened	G4T1	S1	
101	***Lathyrus jepsonii var. jepsonii*** Delta tule pea	PD AB250D2			G5T2	S2.2	1B 2 2 3
102	***Legenere limosa*** legenere	PDCAM0C010			G2	S2.2	1B 2 3 3
103	***Lepidurus packardi*** ernal pool tadpole shrimp	CBRA10010	Endangered		G3	S2S3	
104	***Lilaeopsis masonii*** Mason s lilaeopsis	PDAP 19030		Rare	G3	S3.1	1B 2 3 3
105	***Limosella subulata*** Delta mud ort	PDSCR10050			G4	S2.1	2 2 3 1
106	***Linderiella occidentalis*** California linderiella	CBRA06010			G3	S2S3	
107	***Lytta molesta*** molestan blister beetle	C L4C030			G2	S2	
108	***Madia radiata*** sho y madia	PDAST650E0			G2	S2.1	1B 2 3 3
109	***Malacothamnus hallii*** Hall s bush mallo	PDMAL0 0 0			G1	S1.2	1B 3 2 3
110	***Masticophis flagellum ruddocki*** San Joaquin hipsnake	ARADB21021			G5T2T3	S2	SC
111	***Masticophis lateralis euryxanthus*** Alameda hipsnake	ARADB21031	Threatened	Threatened	G4T2	S2	
112	***Meconella oregana*** regon meconella	PDPAP0G030			G2	S1.1	1B 3 3 2
113	***Melospiza melodia maxillaris*** Suisun song sparro	ABPB A301K			G5T2	S2	SC
114	***Melospiza melodia pusillula*** Alameda song sparro	ABPB A301S			G5T2	S2	SC
115	***Metapogon hurdi*** Hurd s metapogon robberfly	D P08010			G1G3	S1S3	
116	***Microcina leei*** Lee s micro blind har estman	LARA47040			G1	S1	
117	***Microcina lumi*** Lum s micro blind har estman	LARA47050			G1	S1	

	Scienti ic Name/Common Name	Element Code	Federal Status	State Status	Rank	SRank	CDF or CNPS/R E D
118	***Microtus californicus sanpabloensis*** San Pablo ole	AMA 11034			G5T1T2	S1S2	SC
119	***Monardella villosa ssp. globosa*** robust monardella	PDLAM180P7			G5T2	S2.2	1B 2 2 3
120	***Myrmosula pacifica*** Antioch multilid asp	H M15010			G1	S1	
121	***Navarretia prostrata*** prostrate na arretia	PDPLM0C0 0			G2	S2.1	1B 2 3 3
122	***Northern Claypan Vernal Pool***	CTT44120CA			G1	S1.1	
123	***Northern Coastal Salt Marsh***	CTT52110CA			G3	S3.2	
124	***Northern Maritime Chaparral***	CTT37C10CA			G1	S1.2	
125	***Nycticorax nycticorax*** black cro ned night heron	ABNGA11010			G5	S3	
126	***Nyctinomops macrotis*** big free tailed bat	AMACD04020			G5	S2	SC
127	***Oenothera deltoides ssp. howellii*** Antioch Dunes e ening primrose	PD NA0C0B4	Endangered	Endangered	G5T1	S1.1	1B 3 3 3
128	***Oncorhynchus mykiss irideus*** steelhead central California coast esu	A CHA0209G	Threatened		G5T2	S2	
129	***Perdita scituta antiochensis*** Antioch andrenid bee	H M01031			G1T1	S1	
130	***Perognathus inornatus inornatus*** San Joaquin pocket mouse	AMA D01061			G4T2T3	S2S3	
131	***Phacelia phacelioides*** Mt. Diablo phacelia	PDH D0C3 0			G1	S1.2	1B 3 2 3
132	***Phalacrocorax auritus*** double crested cormorant	ABN D01020			G5	S3	SC
133	***Phrynosoma coronatum (frontale)*** Coast (California) horned li ard	ARAC 12022			G4T3T4	S3S4	SC
134	***Piperia elegans ssp. decurtata*** Point Reyes rein orchid	PM RC1 011			G4T1	S1.1	1B 3 3 3
135	***Plagiobothrys chorisianus var. chorisianus*** Choris s popcorn flo er	PDB R0V061			G3T2	S2.2	1B 2 2 3
136	***Plagiobothrys diffusus*** San rancisco popcorn flo er	PDB R0V080		Endangered	G1	S1.1	1B 3 3 3
137	***Plagiobothrys glaber*** hairless popcorn flo er	PDB R0V0B0			GH	SH	1A
138	***Potamogeton filiformis*** slender lea ed pond eed	PMP T03090			G5	S1S2	2 3 2 1
139	***Potamogeton zosteriformis*** eel grass pond eed	PMP T03160			G5	S2.2	2 2 2 1
140	***Rallus longirostris obsoletus*** California clapper rail	ABNME05016	Endangered	Endangered	G5T1	S1	
141	***Rana aurora draytonii*** California red legged frog	AAABH01022	Threatened		G4T2T3	S2S3	SC

	Scienti ic Name/Common Name	Element Code	Federal Status	State Status	Rank	SRank	CDF or CNPS/R E D
142	***Rana boylii*** foothill yello legged frog	AAABH01050			G3	S2S3	SC
143	***Reithrodontomys raviventris*** salt marsh har est mouse	AMA 02040	Endangered	Endangered	G1G2	S1S2	
144	***Riparia riparia*** bank s allo	ABPA 08010		Threatened	G5	S2S3	
145	***Rynchops niger*** black skimmer	ABNNM14010			G5	S1S3	SC
146	***Sanicula saxatilis*** rock sanicle	PDAP 1 0H0		Rare	G2	S2.2	1B 3 2 3
147	***Scutellaria galericulata*** marsh skullcap	PDLAM1 0J0			G5	S2.2	2 2 2 1
148	***Scutellaria lateriflora*** blue skullcap	PDLAM1 0 0			G5	S1.2	2 3 2 1
149	***Senecio aphanactis*** rayless rag ort	PDAST8H060			G3	S1.2	2 3 2 1
150	***Serpentine Bunchgrass***	CTT42130CA			G2	S2.2	
151	***Sorex vagrans halicoetes*** salt marsh andering shre	AMABA01071			G5T1	S1	SC
152	***Spea (=Scaphiopus) hammondii*** estern spadefoot	AAAB 01030			G3	S3	SC
153	***Speyeria callippe callippe*** callippe sil erspot butterfly	LEPJ6091	Endangered		G5T1	S1	
154	***Sphecodogastra antiochensis***	H M78010			G1	S1	
155	***Stabilized Interior Dunes***	CTT23100CA			G1	S1.1	
156	***Sterna antillarum browni*** California least tern	ABNNM08103	Endangered	Endangered	G4T2T3	S2S3	
157	***Sterna caspia*** Caspian tern	ABNNM08020			G5	S4	
158	***Streptanthus albidus ssp. peramoenus*** most beautiful e el flo er	PDBRA2G012			G2T2	S2.2	1B 2 2 3
159	***Streptanthus hispidus*** Mt. Diablo e el flo er	PDBRA2G0M0			G1	S1.2	1B 3 1 3
160	***Suaeda californica*** California seablite	PDCHE0P020	Endangered		G1	S1.1	1B 3 3 3
161	***Sycamore Alluvial Woodland***	CTT62100CA			G1	S1.1	
162	***Taxidea taxus*** American badger	AMAJ 04010			G5	S4	SC
163	***Thamnophis gigas*** giant garter snake	ARADB36150	Threatened	Threatened	G2G3	S2S3	
164	***Trifolium depauperatum var. hydrophilum*** saline clo er	PD AB400R5			G5T2	S2.2	1B 3 2 3
165	***Triquetrella californica*** coastal triquetrella	NBM S7S010			G1	S1.2	1B 3 2 2
166	***Tropidocarpum capparideum*** caper fruited tropidocarpum	PDBRA2R010			G1	S1.1	1A

	Scienti ic Name/Common Name	Element Code	Federal Status	State Status	Rank	SRank	CDF or CNPS/R E D
167	***Tryonia imitator*** mimic tryonia (California brackish ater snail)	MGASJ7040			G2G3	S2S3	
168	***Valley Needlegrass Grassland***	CTT42110CA			G1	S3.1	
169	***Valley Sink Scrub***	CTT36210CA			G1	S1.1	
170	***Viburnum ellipticum*** o al lea ed iburnum	PDCPR07080			G5	S2.3	2 2 1 1
171	***Vulpes macrotis mutica*** San Joaquin kit fo	AMAJA03041	Endangered	Threatened	G4T2T3	S2S3	

Appendix B

California Native Plant Society Inventory of Rare and Endangered Plants

Federal Endangered and Threatened Species that may be a ected by projects in Alameda County

Database Last pdated: anuary 1 ,
Today s Date is: anuary ,

Listed Species

n ertebrates

Branchinecta longiantenna longhorn fairy shrimp (E)

Branchinecta lynchi ernal pool fairy shrimp (T)

Euphydryas editha bayensis bay checkerspot butterfly (T)

Lepidurus packardi ernal pool tadpole shrimp (E)

Speyeria callippe callippe callippe sil erspot butterfly (E)

ish

Eucyclogobius newberryi tide ater goby (E)

Hypomesus transpacificus delta smelt (T)

Oncorhynchus kisutch coho salmon central CA coast (T) (NM S)

Oncorhynchus mykiss Central California Coastal steelhead (T) (NM S)

Oncorhynchus tshawytscha Central Valley spring run chinook salmon (T) (NM S)

Oncorhynchus tshawytscha inter run chinook salmon (E) (NM S)

Amphibians

Ambystoma californiense California tiger salamander (T)

Rana aurora draytonii California red legged frog (T)

Reptiles

Masticophis lateralis euryxanthus Alameda hipsnake (T)

Birds

Haliaeetus leucocephalus bald eagle (T)

Pelecanus occidentalis californicus California bro n pelican (E)

Rallus longirostris obsoletus California clapper rail (E)

Sterna antillarum (=albifrons) browni California least tern (E)

Mammals

Neotoma fuscipes riparia riparian (San Joaquin Valley) oodrat (E)

Reithrodontomys raviventris salt marsh har est mouse (E)

Sylvilagus bachmani riparius riparian brush rabbit (E)

Vulpes macrotis mutica San Joaquin kit fo (E)

Plants

Amsinckia grandiflora large flo ered fiddleneck (E)

Arctostaphylos pallida pallid man anita (Alameda or akland Hills man anita) (T)

Chorizanthe robusta var. robusta robust spineflo er (E)

Clarkia franciscana Presidio clarkia (E)

Cordylanthus palmatus palmate bracted bird s beak (E)

Holocarpha macradenia Santa Cru tarplant (T)

Lasthenia conjugens Contra Costa goldfields (E)

Suaeda californica California sea blite (E)

Trifolium amoenum sho y ndian clo er (E)

Candidate Species

ish

Acipenser medirostris green sturgeon (C)

Oncorhynchus tshawytscha Central Valley fall late fall run chinook salmon (C) (NM S)

Species o Concern

n ertebrates

Adela oplerella pler s longhorn moth (SC)

Helminthoglypta nickliniana bridgesi Bridges Coast Range shoulderband snail (SC)

Hydrochara rickseckeri Ricksecker s ater sca enger beetle (SC)

Hygrotus curvipes cur ed foot hygrotus di ing beetle (SC)

Linderiella occidentalis California linderiella fairy shrimp (SC)

Microcina lumi airmont (Lum s) microblind har estman (SC)

Nothochrysa californica San rancisco lace ing (SC)

ish

Lampetra ayresi ri er lamprey (SC)

Lampetra tridentata Pacific lamprey (SC)

Pogonichthys macrolepidotus Sacramento splittail (SC)

Spirinchus thaleichthys longfin smelt (SC)

Amphibians

Rana boylii foothill yello legged frog (SC)

Spea hammondii estern spadefoot toad (SC)

Reptiles

Anniella pulchra pulchra sil ery legless li ard (SC)

Clemmys marmorata marmorata north estern pond turtle (SC)

Clemmys marmorata pallida south estern pond turtle (SC)

Masticophis flagellum ruddocki San Joaquin coach hip (hipsnake) (SC)

Phrynosoma coronatum frontale California horned li ard (SC)

Birds

Agelaius tricolor tricolored blackbird (SC)

Amphispiza belli belli Bell s sage sparro (SC)

Athene cunicularia hypugaea estern burro ing o l (SC)

Baeolophus inornatus oak titmouse (SLC)

Botaurus lentiginosus American bittern (SC)

Branta canadensis leucopareia Aleutian Canada goose (D)

Buteo regalis ferruginous ha k (SC)

Calidris canutus red knot (SC)

Calypte costae Costa s hummingbird (SC)

Carduelis lawrencei La rence s goldfinch (SC)

Chaetura vauxi Vau s s ift (SC)

Charadrius montanus mountain plo er (SC)

Contopus cooperi oli e sided flycatcher (SC)

Elanus leucurus hite tailed (black shouldered) kite (SC)

Empidonax traillii brewsteri little illo flycatcher (CA)

Falco peregrinus anatum American peregrine falcon (D)

Geothlypis trichas sinuosa saltmarsh common yello throat (SC)

Lanius ludovicianus loggerhead shrike (SC)

Laterallus jamaicensis coturniculus black rail (CA)

Limosa fedoa marbled god it (SC)

Melanerpes lewis Le is oodpecker (SC)

Melospiza melodia pusillula Alameda (South Bay) song sparro (SC)

Numenius americanus long billed curle (SC)

Plegadis chihi hite faced ibis (SC)

Riparia riparia bank s allo (CA)

Rynchops niger black skimmer (SC)

Selasphorus rufus rufous hummingbird (SC)

Selasphorus sasin Allen s hummingbird (SC)

Sphyrapicus ruber red breasted sapsucker (SC)

Toxostoma redivivum California thrasher (SC)

Mammals

Corynorhinus (=Plecotus) townsendii townsendii Pacific estern big eared bat (SC)

Dipodomys heermanni berkeleyensis Berkeley kangaroo rat (SC)

Eumops perotis californicus greater estern mastiff bat (SC)

Myotis ciliolabrum small footed myotis bat (SC)

Myotis evotis long eared myotis bat (SC)

Myotis thysanodes fringed myotis bat (SC)

Myotis volans long legged myotis bat (SC)

Myotis yumanensis uma myotis bat (SC)

Neotoma fuscipes annectens San rancisco dusky footed oodrat (SC)

Perognathus inornatus San Joaquin pocket mouse (SC)

Scapanus latimanus parvus Alameda sland mole (SC)

Sorex vagrans halicoetes salt marsh agrant shre (SC)

Plants

Allium sharsmithae Sharsmith s onion (SC)

Amsinckia lunaris bent flo ered fiddleneck (SLC)

Astragalus tener var. tener alkali milk etch (SC)

Atriplex cordulata heartscale (SC)

Atriplex depressa brittlescale (SC)

Atriplex joaquiniana San Joaquin spearscale (saltbush) (SC)

Balsamorhiza macrolepis var macrolepis big scale (California) balsamroot (SLC)

Blepharizonia plumosa ssp. plumosa big tarplant (SC)

Campanula exigua chaparral harebell (bellflo er) (SLC)

Castilleja ambigua ssp. ambigua salt marsh o l s clo er (ohnny nip) (SLC)

Caulanthus coulteri var lemmonii Lemmon s e elflo er (SLC)

Chorizanthe cuspidata var. cuspidata San rancisco Bay spineflo er (SC)

Cirsium fontinale var. campylon Mt. Hamilton thistle (SC)

Clarkia concinna ssp. automixa South Bay clarkia (Santa Clara red ribbons) (SC)

Cordylanthus maritimus ssp. palustris northcoast (Point Reyes) bird s beak (SC)

Cordylanthus mollis ssp. hispidus hispid bird s beak (SC)

Coreopsis hamiltonii Mt. Hamilton coreopsis (SC)

Cryptantha hooveri Hoo er s cryptantha (SLC)

Deinandra bacigalupii Li ermore tarplant (SC)

Delphinium californicum ssp. interius interior California (Hospital Canyon) larkspur (SC)

Delphinium recurvatum recur ed larkspur (SC)

Dirca occidentalis estern leather ood (SLC)

Eriogonum caninum Tiburon buck heat (SLC)

Eriogonum nudum var. decurrens Ben Lomond buck heat (naked buck heat) (SC)

Eryngium aristulatum var. hooveri Hoo er s button celery (SC)

Eschscholzia rhombipetala diamond petaled California poppy (SC)

Fritillaria agrestis stinkbells (SLC)

Fritillaria falcata talus fritillary (SC)

Fritillaria liliacea fragrant fritillary (prairie bells) (SC)

Galium andrewsii ssp. gatense serpentine bedstra (SLC)

Helianthella castanea Diablo helianthella (rock rose) (SC)

Hemizonia parryi ssp. congdonii Congdon s tarplant (SC)

Hesperolinon serpentinum Napa estern fla (SC)

Hoita strobilina Loma Prieta hoita (SC)

Horkelia cuneata ssp. sericea Kellogg s horkelia (SC)

Lathyrus jepsonii var. jepsonii delta tule pea (SC)

Lilaeopsis masonii Mason s lilaeopsis (SC)

Linanthus grandiflorus large flo ered (flo er) linanthus (SC)

Malacothamnus hallii (=M. fasciculatus) Hall s bush mallo (SLC)

Monardella villosa ssp globosa robust monardella (robust coyote mint) (SLC)

Myosurus minimus ssp. apus little mousetail (SC)

Navarretia prostrata prostrate na arretia (prostrate pincushionplant) (SC)

Plagiobothrys chorisianus var chorisianus Choris s (artist s) popcorn flo er (SLC)

Plagiobothrys diffusus San rancisco popcornflo er (CA)

Plagiobothrys glaber hairless allocarya (popcornflo er) (SC)

Sanicula maritima adobe sanicle (SC)

Spartina foliosa Pacific cordgrass (California cordgrass) (SLC)

Streptanthus albidus ssp. peramoenus most beautiful (uncommon) e elflo er (SC)

Trifolim depauperatum var. hydrophilum ater sack (saline) clo er (SC)

Tropidocarpum capparideum caper fruited tropidocarpum (SC)

Species ith Critical Habitat Proposed or Designated in this County

Alameda hipsnake (T)

CA tiger salamander Central Valley population (P)

California red legged frog (Proposed) (P)

Central Valley fall late fall run chinook (C)

ernal pool fairy shrimp ( )

ernal pool in ertebrates ( )

ernal pool plants ( )

ernal pool tadpole shrimp ( )

inter run chinook salmon (E)

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(E) Endangered Listed (in the ederal Register) as being in danger of e tinction.

(T) Threatened Listed as likely to become endangered ithin the foreseeable future.

(P) Proposed fficially proposed (in the ederal Register) for listing as endangered or threatened.

(NM S) Species under the Jurisdiction of the National Marine isheries Ser ice. Consult ith them directly ab these species.

Critical Habitat Area essential to the conser ation of a species.

(P) Proposed Critical Habitat The species is already listed. Critical habitat is being proposed for it.

(C) Candidate Candidate to become a proposed species.

(CA) Listed by the State of California but not by the ish & Wildlife Ser ice.

(D) Delisted Species ill be monitored for 5 years.

(SC) Species of Concern (SLC) Species of Local Concern ther species of concern to the Sacramento ish Wildlife ffice.

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ur database as de eloped primarily to assist ederal agencies that are consulting ith us. Therefore, our li include all of the sensiti e species that ha e been found in a certain area *and also ones that may be affected projects in the area.* or e ample, a fish may be on the list for a quad if it li es some here do nstream from t quad. Birds are included e en if they only migrate through an area. n other ords, e include all of the specie e ant people to consider hen they do something that affects the en ironment.

This is *not* an official list for formal consultation under the Endangered Species Act. *However, it may be used update official lists.*

f you ha e a pro ect that may affect endangered species, please contact the Endangered Species Di ision, Sacramento ish and Wildlife ffice, .S. ish and Wildlife Ser ice.

Federal Endangered and Threatened Species that may be a ected by projects in Contra Costa County

Database Last pdated: anuary 1 ,
Today s Date is: anuary ,

Listed Species

n ertebrates

Apodemia mormo langei Lange s metalmark butterfly (E)

Branchinecta conservatio Conser ancy fairy shrimp (E)

Branchinecta longiantenna longhorn fairy shrimp (E)

Branchinecta lynchi ernal pool fairy shrimp (T)

Desmocerus californicus dimorphus alley elderberry longhorn beetle (T)

Lepidurus packardi ernal pool tadpole shrimp (E)

Speyeria callippe callippe callippe sil erspot butterfly (E)

ish

Eucyclogobius newberryi tide ater goby (E)

Hypomesus transpacificus delta smelt (T)

Oncorhynchus kisutch coho salmon central CA coast (T) (NM S)

Oncorhynchus mykiss Central California Coastal steelhead (T) (NM S)

Oncorhynchus tshawytscha Central Valley spring run chinook salmon (T) (NM S)

Oncorhynchus tshawytscha inter run chinook salmon (E) (NM S)

Amphibians

Ambystoma californiense California tiger salamander (T)

Rana aurora draytonii California red legged frog (T)

Reptiles

Masticophis lateralis euryxanthus Alameda hipsnake (T)

Thamnophis gigas giant garter snake (T)

Birds

Charadrius alexandrinus nivosus estern sno y plo er (T)

Haliaeetus leucocephalus bald eagle (T)

Pelecanus occidentalis californicus California bro n pelican (E)

Rallus longirostris obsoletus California clapper rail (E)

Sterna antillarum (=albifrons) browni California least tern (E)

Mammals

Neotoma fuscipes riparia riparian (San Joaquin Valley) oodrat (E)

Reithrodontomys raviventris salt marsh har est mouse (E)

Sylvilagus bachmani riparius riparian brush rabbit (E)

Vulpes macrotis mutica San Joaquin kit fo (E)

Plants

Amsinckia grandiflora large flo ered fiddleneck (E)

Arctostaphylos pallida pallid man anita (Alameda or akland Hills man anita) (T)

Cordylanthus mollis ssp. mollis soft bird s beak (E)

Erysimum capitatum ssp. angustatum Contra Costa allflo er (E)

Holocarpha macradenia Santa Cru tarplant (T)

Lasthenia conjugens Contra Costa goldfields (E)

Oenothera deltoides ssp. howellii Antioch Dunes e ening primrose (E)

Candidate Species

ish

Acipenser medirostris green sturgeon (C)

Oncorhynchus tshawytscha Central Valley fall late fall run chinook salmon (C) (NM S)

Species o Concern

n ertebrates

Aegialia concinna Cier o aegialian scarab beetle (SC)

Anthicus antiochensis Antioch Dunes anthicid beetle (SC)

Anthicus sacramento Sacramento anthicid beetle (SC)

Branchinecta mesovallensis Mid alley fairy shrimp (SC)

Coelus gracilis San Joaquin dune beetle (SC)

Cophura hurdi Antioch cophuran robberfly (SC)

Efferia antiochi Antioch efferian robberfly (SC)

Helminthoglypta nickliniana bridgesi Bridges Coast Range shoulderband snail (SC)

Hydrochara ricksecker Ricksecker s ater sca enger beetle (SC)

Hygrotus curvipes cur ed foot hygrotus di ing beetle (SC)

Idiostatus middlekaufi Middlekauf s shieldback katydid (SC)

Incisalia mossii marinensis Marin elfin butterfly (SC)

Linderiella occidentalis California linderiella fairy shrimp (SC)

Lytta molesta molestan blister beetle (SC)

Metapogon hurdi Hurd s metapogon robberfly (SC)

Myrmosula pacifica Antioch mutillid asp (SC)

Nothochrysa californica San rancisco lace ing (SC)

Perdita hirticeps luteocincta yello banded andrenid bee (SC)

Perdita scitula antiochensis Antioch andrenid bee (SC)

Philanthus nasilis Antioch sphecid asp (SC)

ish

Lampetra ayresi ri er lamprey (SC)

Lampetra tridentata Pacific lamprey (SC)

Pogonichthys macrolepidotus Sacramento splittail (SC)

Spirinchus thaleichthys longfin smelt (SC)

Amphibians

Rana boylii foothill yello legged frog (SC)

Spea hammondii estern spadefoot toad (SC)

Reptiles

Anniella pulchra pulchra sil ery legless li ard (SC)

Clemmys marmorata marmorata north estern pond turtle (SC)

Clemmys marmorata pallida south estern pond turtle (SC)

Masticophis flagellum ruddocki San Joaquin coach hip (hipsnake) (SC)

Phrynosoma coronatum frontale California horned li ard (SC)

Birds

Agelaius tricolor tricolored blackbird (SC)

Amphispiza belli belli Bell s sage sparro (SC)

Athene cunicularia hypugaea estern burro ing o l (SC)

Baeolophus inornatus oak titmouse (SLC)

Botaurus lentiginosus American bittern (SC)

Branta canadensis leucopareia Aleutian Canada goose (D)

Buteo regalis ferruginous ha k (SC)

Buteo Swainsoni S ainson s ha k (CA)

Calidris canutus red knot (SC)

Calypte costae Costa s hummingbird (SC)

Carduelis lawrencei La rence s goldfinch (SC)

Chaetura vauxi Vau s s ift (SC)

Charadrius montanus mountain plo er (SC)

Contopus cooperi oli e sided flycatcher (SC)

Elanus leucurus hite tailed (black shouldered) kite (SC)

Empidonax traillii brewsteri little illo flycatcher (CA)

Falco peregrinus anatum American peregrine falcon (D)

Geothlypis trichas sinuosa saltmarsh common yello throat (SC)

Lanius ludovicianus loggerhead shrike (SC)

Laterallus jamaicensis coturniculus black rail (CA)

Limosa fedoa marbled god it (SC)

Melanerpes lewis Le is oodpecker (SC)

Melospiza melodia maxillaris Suisun song sparro (SC)

Melospiza melodia pusillula Alameda (South Bay) song sparro (SC)

Melospiza melodia samuelis San Pablo song sparro (SC)

Numenius americanus long billed curle (SC)

Numenius phaeopus himbrel (SC)

Plegadis chihi hite faced ibis (SC)

Riparia riparia bank s allo (CA)

Selasphorus rufus rufous hummingbird (SC)

Selasphorus sasin Allen s hummingbird (SC)

Sphyrapicus ruber red breasted sapsucker (SC)

Toxostoma redivivum California thrasher (SC)

Mammals

Corynorhinus (=Plecotus) townsendii townsendii Pacific estern big eared bat (SC)

Dipodomys heermanni berkeleyensis Berkeley kangaroo rat (SC)

Eumops perotis californicus greater estern mastiff bat (SC)

Myotis ciliolabrum small footed myotis bat (SC)

Myotis evotis long eared myotis bat (SC)

Myotis thysanodes fringed myotis bat (SC)

Myotis volans long legged myotis bat (SC)

Myotis yumanensis uma myotis bat (SC)

Neotoma fuscipes annectens San rancisco dusky footed oodrat (SC)

Perognathus inornatus San Joaquin pocket mouse (SC)

Sorex ornatus sinuosus Suisun ornate shre (SC)

Sorex vagrans halicoetes salt marsh agrant shre (SC)

Plants

Amsinckia lunaris bent flo ered fiddleneck (SLC)

Arabis blepharophylla coast rock cress (SLC)

Aster lentus Suisun Marsh aster (SC)

Astragalus tener var. tener alkali milk etch (SC)

Atriplex cordulata heartscale (SC)

Atriplex depressa brittlescale (SC)

Atriplex joaquiniana San Joaquin spearscale (saltbush) (SC)

Blepharizonia plumosa ssp. plumosa big tarplant (SC)

Calochortus pulchellus Mt. Diablo fairy lantern (SLC)

Campanula exigua chaparral harebell (bellflo er) (SLC)

Castilleja ambigua ssp. ambigua salt marsh o l s clo er (ohnny nip) (SLC)

Cirsium andrewsii ranciscan thistle (SC)

Cordylanthus nidularius Mt. Diablo bird s beak (SC)

Croton californicus California croton (SLC)

Cryptantha hooveri Hoo er s cryptantha (SLC)

Deinandra bacigalupii Li ermore tarplant (SC)

Delphinium californicum ssp. interius interior California (Hospital Canyon) larkspur (SC)

Delphinium recurvatum recur ed larkspur (SC)

Dirca occidentalis estern leather ood (SLC)

Eriogonum caninum Tiburon buck heat (SLC)

Eriogonum nudum var. decurrens Ben Lomond buck heat (naked buck heat) (SC)

Eryngium racemosum delta coyote thistle (button celery) (CA)

Eschscholzia rhombipetala diamond petaled California poppy (SC)

Fritillaria agrestis stinkbells (SLC)

Fritillaria liliacea fragrant fritillary (prairie bells) (SC)

Galium andrewsii ssp. gatense serpentine bedstra (SLC)

Helianthella castanea Diablo helianthella (rock rose) (SC)

Hemizonia parryi ssp. congdonii Congdon s tarplant (SC)

Hesperolinon breweri Bre er s d arf fla (estern fla) (SC)

Hoita strobilina Loma Prieta hoita (SC)

Isocoma arguta Carquine goldenbush (SC)

Juglans californica var. hindsii Northern California black alnut (SC)

Lathyrus jepsonii var. jepsonii delta tule pea (SC)

Lilaeopsis masonii Mason s lilaeopsis (SC)

Madia radiata sho y (golden) madia (SC)

Malacothamnus hallii (=M. fasciculatus) Hall s bush mallo (SLC)

Meconella oregana regon meconella (hite fairypoppy) (SC)

Monardella villosa ssp globosa robust monardella (robust coyote mint) (SLC)

Myosurus minimus ssp. apus little mousetail (SC)

Perideridia gairdneri ssp. gairdneri Gairdner s yampah (SC)

Phacelia phacelioides Mt. Diablo phacelia (SC)

Sanicula saxatilis rock sanicle (SC)

Spartina foliosa Pacific cordgrass (California cordgrass) (SLC)

Streptanthus albidus ssp. peramoenus most beautiful (uncommon) e elflo er (SC)

Streptanthus hispidus Mt. Diablo e elflo er (SC)

Triquetrella californica California triquetrella moss (SLC)

Tropidocarpum capparideum caper fruited tropidocarpum (SC)

Species ith Critical Habitat Proposed or Designated in this County

Alameda hipsnake (T)

Antioch Dunes e ening primrose (E)

CA tiger salamander Central Valley population (P)

California red legged frog (Proposed) (P)

Central Valley fall late fall run chinook (C)

Contra Costa allflo er (E)

delta smelt (T)

Santa Cru tarplant (T)

ernal pool fairy shrimp ( )

ernal pool in ertebrates ( )

ernal pool plants ( )

inter run chinook salmon (E)

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Appendix C

U.S. Fish and Wildlife Service Lists of Special-Status Species

CNPS Inventory of Rare and Endangered Plants

Status: Plant Press Manager window with 8 items - Tue, Sep. 6, 2005, 16:28

Scientific	Family	Counties	Quads	CNPS
Amsinckia grandiflora	Boraginaceae	Alameda (ALA), Contra Costa (CCA), San Joaquin (SJQ)	Tracy (444B) 3712164, Lone Tree Creek (444C) 3712154, Midway (445A) 3712165, Antioch South (464A) 3712187, Tassajara (464D) 3712177	List 1B
Arctostaphylos pallida	Ericaceae	Alameda (ALA), Contra Costa (CCA)	Oakland East (465C) 3712272, Richmond (466A) 3712283	List 1B
Clarkia franciscana	Onagraceae	Alameda (ALA), San Francisco (SFO)	Oakland East (465C) 3712272, San Francisco North (466C) 3712274	List 1B
Cordylanthus mollis ssp. mollis	Scrophulariaceae	Contra Costa (CCA), Marin (MRN)*, Napa (NAP), Sacramento (SAC)*, Solano (SOL), Sonoma (SON)*	Jersey Island (480C)* 3812116, Denverton (481B) 3812128, Honker Bay (481C) 3812118, Antioch North (481D) 3812117, Fairfield South (482A) 3812221, Benicia (482C) 3812212, Vine Hill (482D) 3812211, Cuttings Wharf (483A) 3812223, Sears Point (483B)* 3812224, Mare Island (483D) 3812213, Petaluma River (484A)* 3812225	List 1B
Cordylanthus palmatus	Scrophulariaceae	Alameda (ALA), Colusa (COL), Fresno (FRE), Madera (MAD), San Joaquin (SJQ)*, Yolo (YOL)	Kerman (359A)* 3612061, Tranquillity (360A) 3612063, Firebaugh NE (381A)* 3612083, Poso Farm (381B) 3612084, Altamont (445B) 3712166, Livermore (446A) 3712167, Stockton West (462A)* 3712183, Grays Bend (513B) 3812166, Grimes (545C)* 3912118, Colusa (546A) 3912221, Arbuckle (546D) 3912211, Logandale (562B) 3912242, Maxwell (562C) 3912232, Moulton Weir (562D) 3912231	List 1B
Erysimum capitatum ssp. angustatum	Brassicaceae	Contra Costa (CCA)	Antioch North (481D) 3812117	List 1B
Holocarpha macradenia	Asteraceae	Alameda (ALA)*, Contra Costa (CCA)*, Monterey (MNT), Marin (MRN)*, Santa Cruz (SCR), Sonoma (SON)*	Watsonville East (386B) 3612186, Prunedale (386C) 3612176, Watsonville West (387A) 3612187, Soquel (387B) 3612188, Laurel (407C) 3712118, Felton (408D) 3712211, Hayward (447A)* 3712261, Briones Valley (465B) 3712282, Richmond (466A)* 3712283, Oakland West (466D)* 3712273, San Rafael (467A)* 3712285, Mare Island (483D)* 3812213, Camp Meeker (502B)* 3812248	List 1B
Oenothera deltoides ssp. howellii	Onagraceae	Contra Costa (CCA)	Jersey Island (480C) 3812116, Honker Bay (481C) 3812118, Antioch North (481D) 3812117	List 1B

Appendix D

Noise and Vibration Technical Memorandum

ATSConsulting
acoustics, transportation + strategy

DRAFT TECHNICAL REPORT

To: Kenneth Schedig, AC Transit
Debra Jones, CHS Consulting

From: Darren Nielson, ATS Consulting

Date: December 1, 2005

Subject: Noise & Vibration Study, AC Transit SDP & WCSP

Introduction & Summary

This draft technical memorandum summarizes the results of the noise and vibration study for the proposed Service Deployment Plan (SDP) and West County Service Plan (WCSP) for AC Transit. The study included extensive noise and vibration measurements and an analysis of potential impacts resulting from the implementation of transit service. In addition, the study evaluated the relative differences in noise and vibration levels for three different vehicles: the gasoline vans that have already been phased out of service, a 30-foot bus (Gillig) that is currently in service on many routes, and a new 30-foot bus (Van Hool) that will be replacing all of the Gillig 30-foot buses.

The overall conclusions of this study are:

1. The implementation of modified or new transit service as part of the SDP and WCSP will not result in significant noise impacts. Increases in background noise levels would generally be less than 1 dB at noise-sensitive receptors throughout the project area.
2. At all measurement locations, the new Van Hool buses generate less noise than the existing Gillig buses. And, in most cases, the Van Hool buses are quieter than the gas vans.
3. Vibration levels from transit service, as measured inside adjacent sensitive receptors, will generally be below the threshold of perceptibility. Vibration from the buses may be perceptible inside some residences. However, in all cases, even with conservative assumptions, predicted vibration levels are below the impact threshold.
4. Ground-borne noise levels are predicted to be well below the impact threshold.
5. Mitigation is not recommended.

The remainder of this memo outlines acoustic concepts and terminology, describes the relevant noise and vibration impact criteria, details the results of the noise and vibration measurements, and identifies the predicted noise and vibration levels as a result of the proposed project.

Concepts and Terminology

Noise

Sound is mechanical energy transmitted by pressure waves in a compressible medium such as air. Noise is generally defined as unwanted or excessive sound. Sound can vary in intensity by over one million times within the range of human hearing. Therefore, a logarithmic scale, known as the decibel scale (dB), is used to quantify sound intensity and to compress the scale to a more manageable range.

Sound is characterized by both its amplitude and frequency (or pitch). The human ear does not hear all frequencies equally. In particular, the ear deemphasizes low and very high frequencies. To better approximate the sensitivity of human hearing, the A-weighted decibel scale (dBA) has been developed. On this scale, the human range of hearing extends from approximately 3 dBA to around 140 dBA. Figure 1 shows a range of typical noise levels from common indoor and outdoor activities.

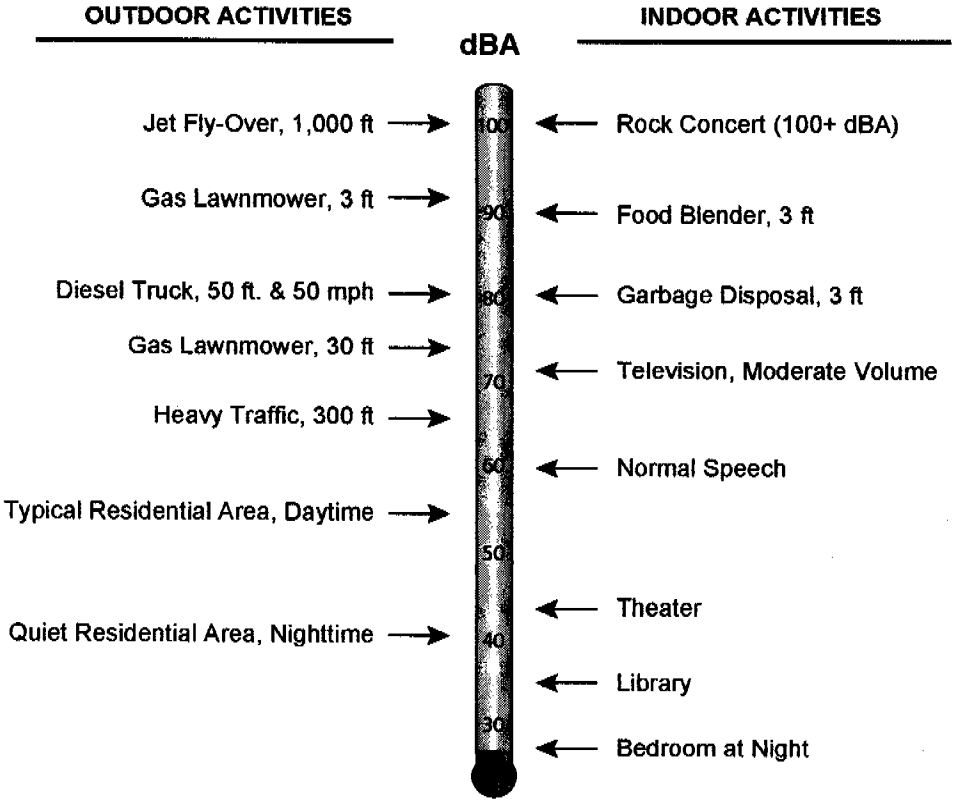
Using the decibel scale, sound levels from two or more sources cannot be directly added together to determine the overall sound level. Rather, the combination of two sounds at the same level yields an increase of 3 dB. The smallest recognizable change in sound level is approximately 1 dB. A 3-dB increase in the A-Weighted sound level is generally considered noticeable, whereas a 5-dB increase is readily noticeable. A 10-dB increase is judged by most people as an approximate doubling of the perceived loudness.

The two primary factors that reduce levels of environmental sounds are increasing the distance between the sound source and the receiver and having intervening obstacles such as walls, buildings, or terrain features that block the direct path between the sound source and the receiver. Factors that act to make environmental sounds louder include moving the sound source closer to the receiver, sound enhancements caused by reflections, and focusing caused by various meteorological conditions.

Below are brief definitions of the measurements and other terminology used in this chapter:

- Equivalent Sound Level (L_{eq}): Environmental sound fluctuates constantly. The equivalent sound level (L_{eq}), sometimes referred to as the energy average sound level, is the most common means of characterizing community noise. L_{eq} represents a constant sound that, over the specified period, has the same sound energy as the time-varying sound.
- Maximum Sound Level (L_{max}): The maximum sound level is the highest sound level measured during the measurement period on the FAST sound level meter setting.
- Minimum Sound Level (L_{min}): The minimum sound level is the lowest sound level measured during the measurement period on the FAST sound level meter setting.
- L_{xx}: This is the percent of time a sound level is exceeded during the measurement period. For example, the L_{90} is the sound level exceeded 90 percent of the measurement period.
- Sound Exposure Level (SEL): SEL is the cumulative noise exposure for a single event compressed into one second. As a result, SEL is influenced by both the sound level and the duration of the event. In other words, louder events have a higher SEL as do longer events. SEL can be used to calculate the 24-hour cumulative noise exposure (L_{dn}).
- Day-Night Sound Level (L_{dn}): L_{dn} is basically a 24-hour L_{eq} with an adjustment to reflect the greater sensitivity of most people to nighttime noise. The adjustment is a 10-dB penalty for all sound that occurs between the hours of 10 p.m. and 7 a.m. The effect of the penalty is that, when calculating L_{dn}, any event that occurs during the nighttime is equivalent to 10 of the same event during the daytime. L_{dn} is the most common measure of total community noise over a 24-hour period and is used by the Federal Transit Administration (FTA) to evaluate residential noise impacts from proposed transit projects.
- Community Noise Equivalent Level (CNEL): CNEL is effectively a 24-hour L_{eq} with adjustments to reflect the greater sensitivity of most people to evening and nighttime noise. The adjustments are a 5-dB penalty for all sounds that occur between 7 p.m. and 10 p.m. and a 10-dB penalty for all sounds

from 10 p.m. to 7 a.m. The effect of these penalties is that, in calculating the CNEL, any event that occurs during the evening hours is equivalent to 3 of the same event during the daytime hours and any event during the nighttime is equivalent to 10 daytime events. Ldn and CNEL values rarely differ by more than 1 dB.



Sources: FTA, 1995; ATS Consulting, 2005

Figure 1: Graph of Typical Indoor & Outdoor Noise Sources and Levels

Vibration

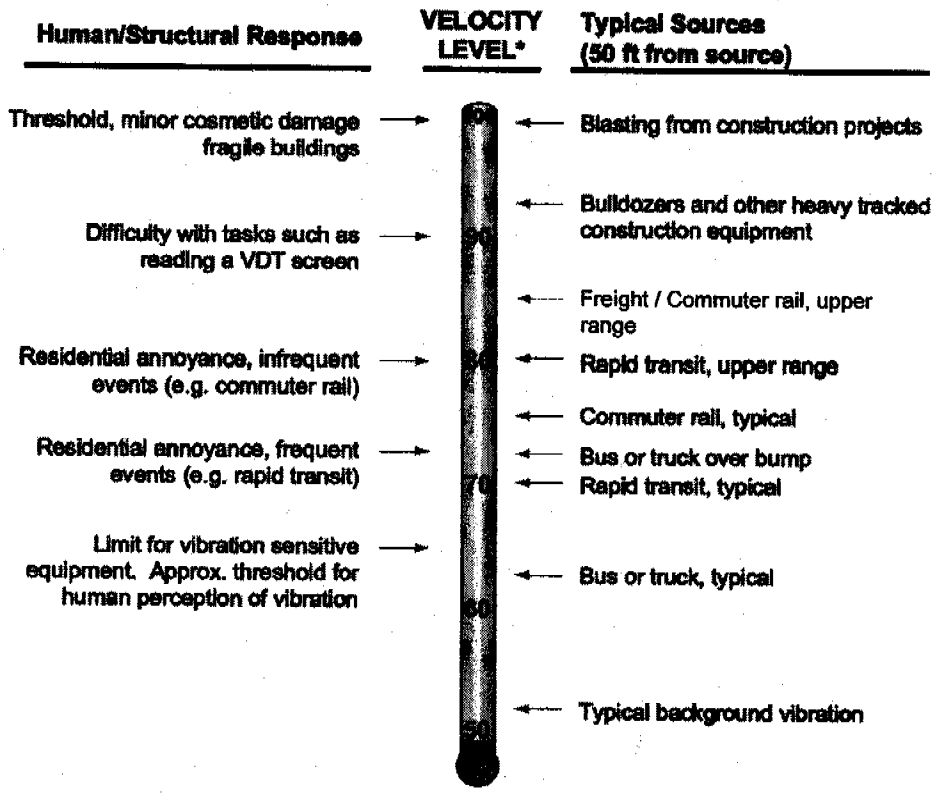
One potential community impact from the project is vibration that is transmitted from the buses through the ground to adjacent houses. This is referred to as ground-borne vibration. Vibration from rubber-tire transit is rarely perceptible inside adjacent residences unless there are potholes or other irregularities in the road surface. In rare cases, it can cause windows, pictures on walls, or items on shelves to rattle.

Vibration is an oscillatory motion that can be described in terms of the displacement, velocity, or acceleration of the motion. The response of humans to vibration is very complex. However, the general

consensus is that for the vibration frequencies generated by transit vehicles, human response is best approximated by the vibration velocity level. Therefore, vibration velocity has been used in this study to describe transit-generated vibration levels.

When evaluating human response, ground-borne vibration is usually expressed in terms of decibels using the root mean square (RMS) vibration velocity. RMS is defined as the average of the squared amplitude of the vibration signal. To avoid confusion with sound decibels, the abbreviation VdB is used for vibration decibels.

Figure 2 shows typical vibration levels from transportation and non-transportation related sources as well as the human and structure response to such levels.



Source: FTA, 1995; ATS Consulting, 2005

Figure 2: Typical Transit & Non-Transit Vibration Sources and Levels

Although there has been relatively little research into human and building response to ground-borne vibration, there is substantial experience with vibration from transit systems. In general, the collective experience indicates that:

- It is rare that ground-borne vibration from transit systems results in building damage, even minor cosmetic damage. The primary consideration therefore is whether vibration will be intrusive to building occupants or will interfere with interior activities or machinery.
- The threshold for human perception is approximately 65 VdB. Vibration levels in the range of 70 to 75 VdB are often noticeable but acceptable. Beyond 80 VdB, vibration levels are often considered unacceptable.
- For human annoyance, there is a relationship between the number of daily events and the degree of annoyance caused by ground-borne vibration. The FTA Guidance Manual includes an 8 VdB higher impact threshold if there are fewer than 70 events per day.

In addition, the vibration of walls, floors, and ceilings of rooms will radiate low-frequency noise that is sometimes perceived as a low-frequency rumble sound. This re-radiated low-frequency rumble is referred to as ground-borne noise. Because of the strong low-frequency character of most ground-borne noise, it can be more intrusive than might be expected from its sound level alone.

Impact Criteria

Noise and vibration impacts for federally-funded transit projects are based on the FTA impact criteria. These criteria are presented in the document, *Transit Noise and Vibration Impact Assessment* (FTA report DOT-T-95-16, April 1995), referred to as the FTA Guidance Manual. The FTA criteria are founded on well-documented research on community reaction to noise and vibration. Although this project is not federally funded, the FTA criteria are widely used in the industry and appropriate for analyzing the proposed service changes in the SDP and WCSP.

Noise

The FTA criteria account for the noise sensitivity of different land uses. Table 1 includes a description of the three categories for noise-sensitive land uses and the applicable noise metric for each land use category. The majority of noise-sensitive receptors in the project area are residential land uses, FTA Category 2. Outdoor L_{dn} is the noise metric used by the FTA criteria for Category 2 land uses. Category 3 (institutional) land uses are evaluated using outdoor L_{eq} during the peak noise period.

Table 1: FTA Land Use Categories and Noise Metrics		
Land Use Category	**Noise Metric (dBA)**	**Description of Land Use Category**
1	Outdoor $L_{eq}(h)$[1]	Tracts of land where quiet is an essential element of their intended purpose. This includes lands set aside for serenity and quiet and such land uses as outdoor amphitheaters and concert pavilions, as well as National Historic Landmarks with significant outdoor use.
2	Outdoor L_{dn}	Residences and buildings where people normally sleep. This includes homes, hospitals and hotels where a nighttime sensitivity to noise is assumed to be of utmost importance.
3	Outdoor $L_{eq}(h)$[1]	Institutional land uses with primarily daytime and evening uses. This includes schools, libraries, and churches where it is important to avoid interference with such activities as speech, meditation, and concentration on reading material.
[1] L_{eq} for the noisiest hour of transit-related activity during hours of noise sensitivity.		

The FTA noise criteria are a sliding scale as shown in Figure 3. The existing noise is shown on the horizontal axis and the increase in the total noise exposure as a result of the project is on the vertical axis. The basic concept of the FTA noise impact criteria is that more project noise is allowed in areas where existing noise is higher, but that the decibel increase in total noise exposure (existing noise plus project noise) decreases. For example, if the existing noise exposure is 50 dBA L_{dn}, then an increase of more than 5 dB would result in an impact and an increase of more than 10 dB would result in a severe impact. Note that a "severe impact" is generally considered a significant impact under CEQA. In order to be conservative, the lower "impact" threshold is used in this analysis.

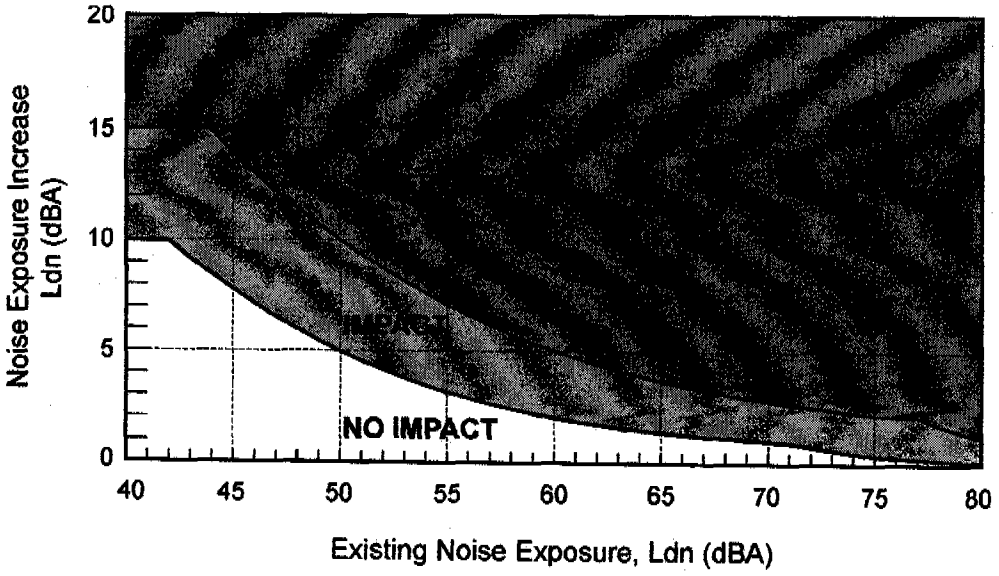


Figure 3: FTA Noise Impact Criteria for Category 1 and 2 Land Uses

Vibration

The FTA vibration criteria are based on the maximum ground vibration caused by a typical vehicle passby (e.g. an AC Transit bus or van). Unlike the FTA noise criteria, the vibration criteria are not based on a sliding scale. However, they do factor in the number of daily events. For relatively infrequent service, which is typical for commuter bus service, the FTA impact thresholds are 8 VdB higher than for frequent service. FTA defines "infrequent" service to be less than 70 events per day.

Table 2 shows FTA criteria for ground-borne vibration. Similar to the FTA noise criteria, the FTA vibration criteria are based on three land use categories. For residential buildings (Category 2), the threshold applicable to this project is 80 VdB.

Table 2: Ground-Borne Vibration and Noise Impact Criteria

Land Use Category	Ground-Borne Vibration (VdB re 1 micro inch/sec)		Ground-Borne Noise (dB re 20 micro Pa)	
	Frequent Events [1]	Infrequent Events [2]	Frequent Events [1]	Infrequent Events [2]
Category 1. Buildings where low ambient vibration is essential for interior operations.	65 VdB	65 VdB	-- [3]	-- [3]
Category 2. Residences and buildings where people normally sleep.	72 VdB	80 VdB	35 dBA	43 dBA
Category 3. Institutional land uses with primarily daytime use.	75 VdB	83 VdB	40 dBA	48 dBA

Notes:
[1] Frequent events are defined as more than 70 per day.
[2] Infrequent events are defined as less than 70 per day.
[3] Vibration sensitive equipment is not sensitive to ground-borne noise.

Table 2 also includes ground-borne noise thresholds, measured in terms of A-weighted decibels (dBA). Similar to ground-borne vibration, ground-borne noise thresholds are 8 dB higher for infrequent events compared to frequent events.

Measurements Locations & Procedures

Extensive noise and vibration measurements were taken in the project area. The purpose of these measurements was to identify the background noise levels and determine the amount of noise and vibration generated by three different vehicles. The measurements consisted of:

1. Long-Term Ambient Noise Measurements. Measurements of existing noise levels were taken over a 24-hour period at the following five residences:
   a. 1443 Hopkins: Near the northeast corner of the intersection of Hopkins Street and Gilman Street (AC Transit Line 9).
   b. 1440 Cedar: South side of Cedar Street, immediately west of Sacramento Street (AC Transit Line 52).

c. 487 Spruce: Uphill direction on Spruce Street between Michigan Avenue and Vassar Avenue (AC Transit Line 67).

d. 248 Trinity: Uphill direction on Trinity Avenue between Kenyon Avenue and Beloit Avenue (AC Transit Line 67).

e. 454 Beloit: Uphill direction on Beloit Avenue between Trinity Avenue and Colgate Avenue (AC Transit Line 67).

Figure 4 and Figure 5 are maps of the noise measurement sites. Long-term noise measurement data was used to determine the existing noise levels over the course of a day and the L_{dn} at representative locations throughout the project area. These five measurement locations are considered typical of the type and degree of noise exposure of sensitive receptors along existing and proposed AC Transit service routes potentially affected by the SDP and WCSP. Noise measurements were taken in the front yards of the residences at the approximate building setback distance from the roadway.

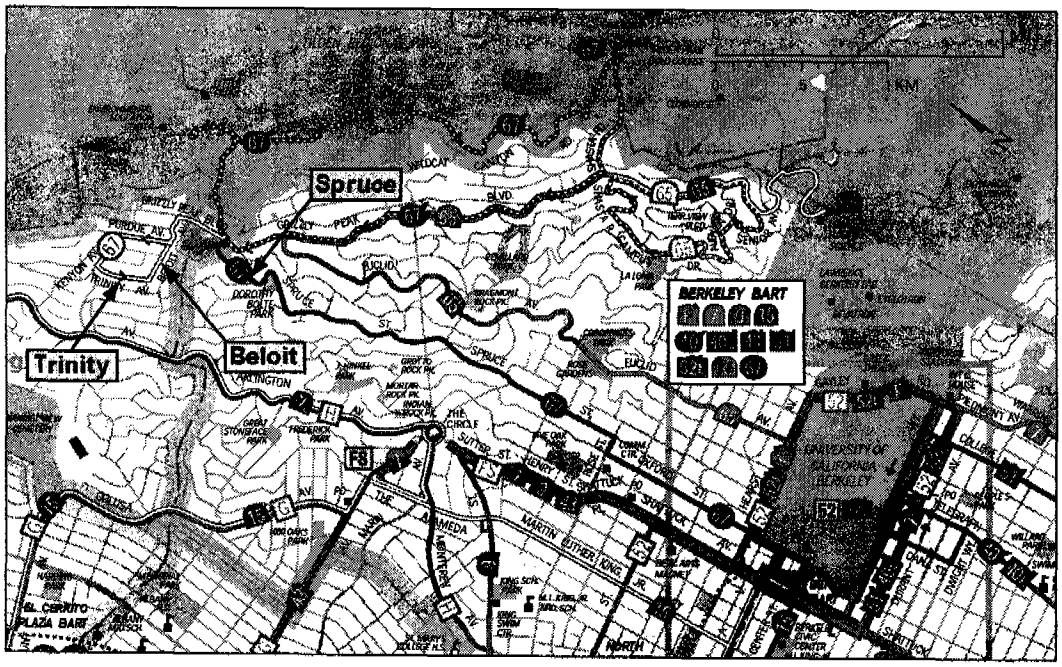


Figure 4: Map of Noise & Vibration Measurement Locations (1 of 2)

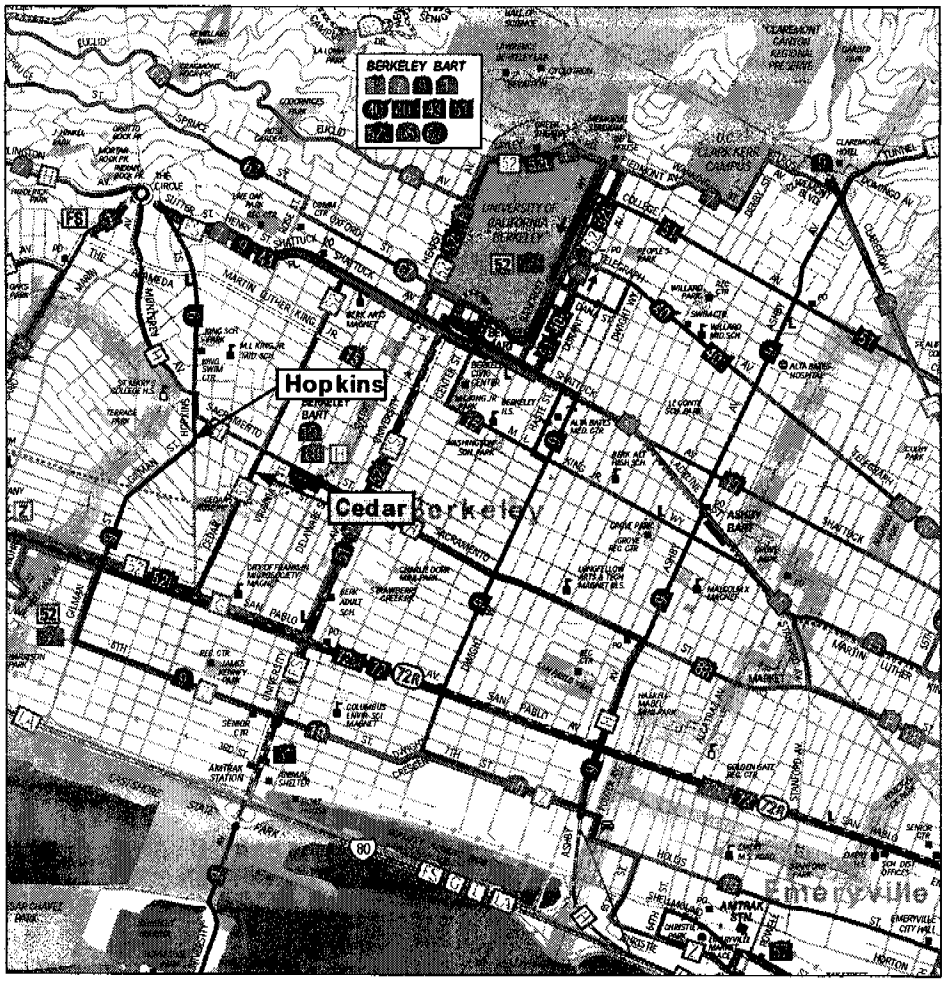


Figure 5: Map of Noise & Vibration Measurement Locations (2 of 2)

2. Short-Term Vehicle Noise Measurements. Multiple passbys of different vehicles were measured at each of the five sites listed above. The purpose of these tests was to measure vehicle noise levels at representative locations in the project area along existing and proposed routes and under normal operating conditions. The vehicles are:

   a. Van Hool: This new 30-foot bus will be replacing the Gillig bus.

   b. Gillig: This 30-foot diesel bus replaced gas vans on many AC Transit routes as part of the SDP.

   c. Gas Van: The last gasoline-powered van was phased out of service in late 2003.

   Figure 20 through Figure 22 in the Appendix are photographs of the different vehicles.

3. Controlled Vehicle Noise Measurements. Measurements of the three vehicles were performed at Golden Gate Fields following SAE International Standard J1470 (June 1998). The purpose of these tests was to measure noise levels under controlled conditions that are consistent with urban driving and that lead to reproducible noise emission results.
4. Vibration Measurements. Concurrent with the short-term vehicle noise measurements, vibration levels from all three vehicles were measured at each of the five sites.

Measurement Results

This section summarizes the results from the four sets of noise and vibration measurements.

Long-Term Noise Measurements

Existing noise levels are dominated by traffic on local roadways. Other noise sources include typical residential activities and limited overhead aircraft. Figure 6 is a graph of the hourly noise levels over the course of the measurement period. The graph extends from noon on day one to 3 p.m. (15:00) on day two.[1] As can be seen, noise levels are highest in areas with the most traffic (i.e., Hopkins and Cedar). Also, there is a substantial reduction (15 to 20 dB) in nighttime noise levels at all five sites.

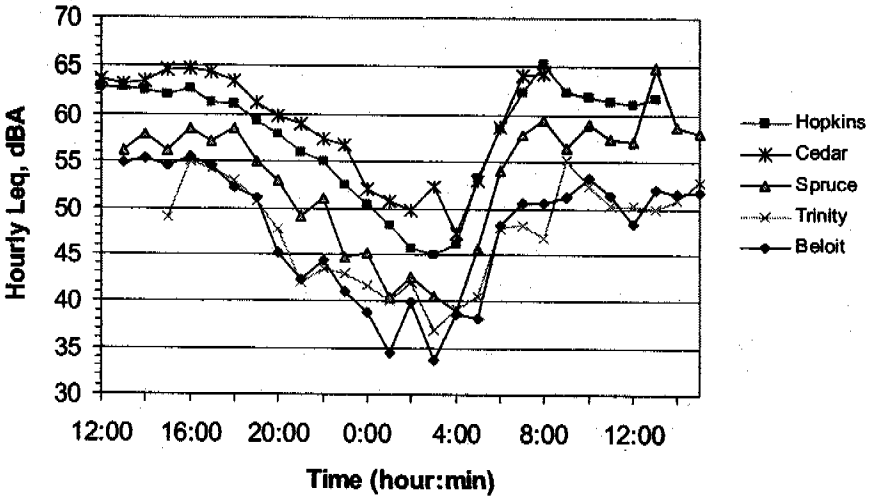


Figure 6: Hourly L_{eq} at Long-Term Noise Measurement Sites

Figure 7 shows the overall measurement results, including the L_{dn}, CNEL, and 24-hour L_{eq} over the measurement period. As expected, L_{dn} and CNEL values are within ± 1 dB at all sites. The 24-hour L_{eq} is lower than the L_{dn} and CNEL because it does not include any penalties for evening or nighttime noise.

[1] Noise data for the Cedar site is a combination of data from two separate measurements.

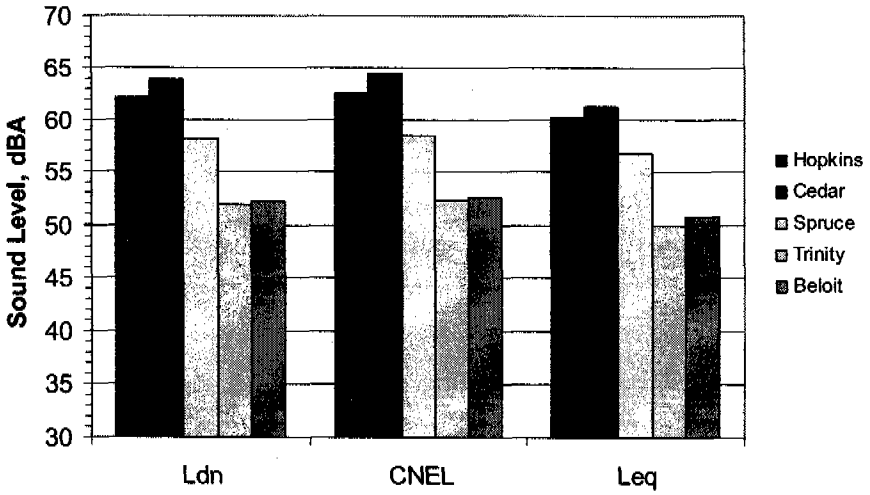


Figure 7: Overall Results for Long-Term Noise Measurement Sites

Short-Term Noise Measurements

Figure 8 shows the average SEL for each of the three vehicles at the five short-term noise measurement sites. Figure 9 is a similar graph showing the L_{max}. The Gillig was the loudest of the three vehicles in terms of both SEL and L_{max}. At most locations, noise levels from the Van Hool bus and gas van were very similar. Note that the term "near" or "far" refer to bus passbys on the near traffic lane and the far traffic lane, respectively. At the Beloit and Trinity sites, buses travel only in one direction. All three vehicles in the far lane at the Hopkins site generate higher sound levels than the vehicles in the near lane. This is because the far lane traffic is accelerating from the adjacent intersection and near lane traffic is slowing in advance of the intersection.

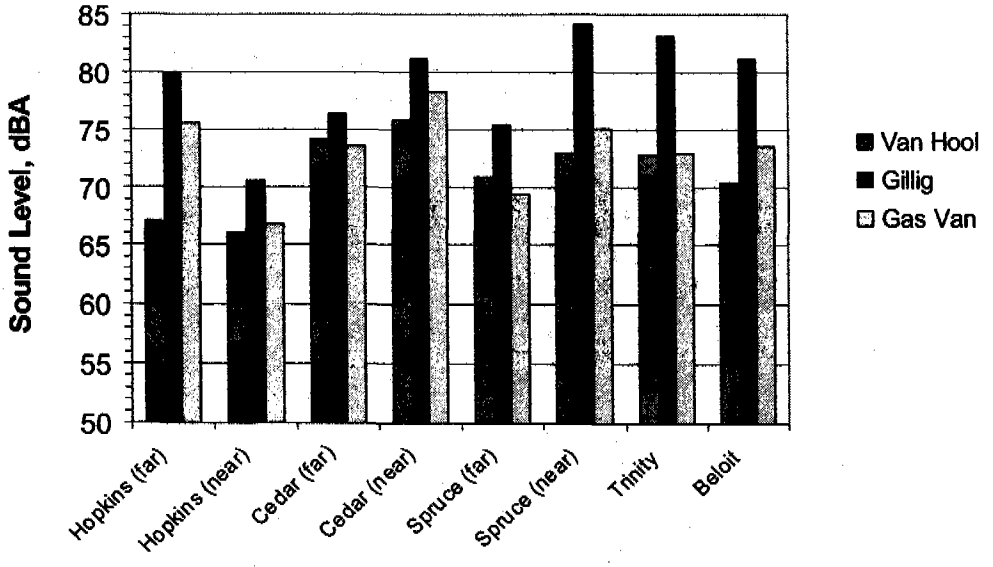


Figure 8: Average Vehicle SEL from Short-Term Measurement Sites

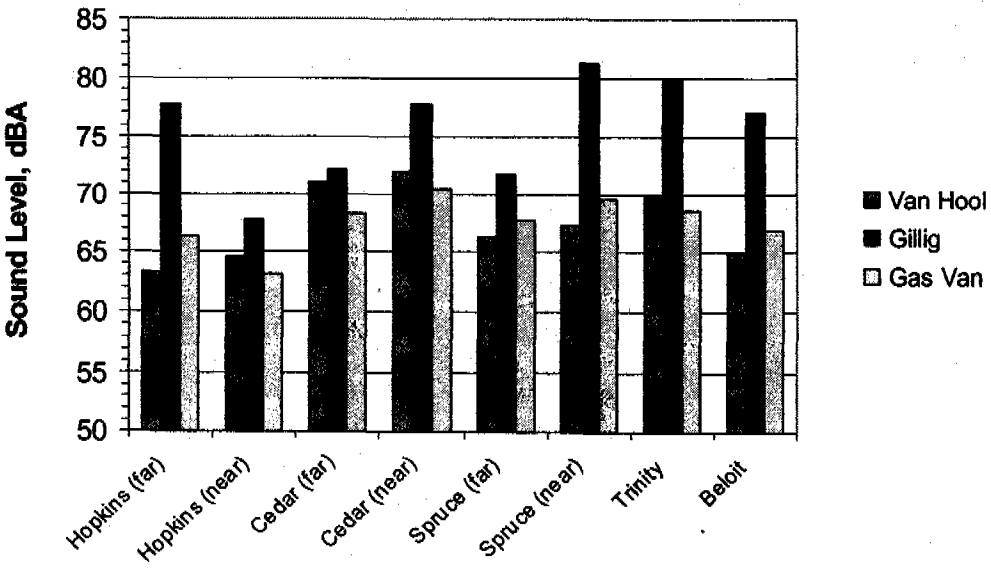


Figure 9: Average Vehicle Lmax from Short-Term Measurement Sites

Figure 10 shows the sound level versus time for a typical vehicle passbys. These data are from the Beloit measurement site. The graph shows that the Gillig bus is up to 15 dB louder than the Van Hool bus and that there is very little difference between the Van Hool bus and the gas van.

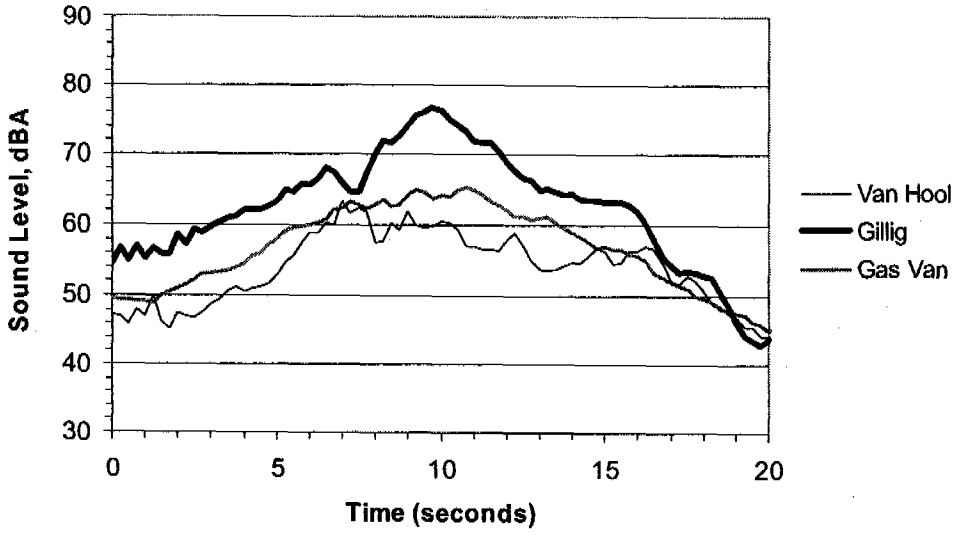


Figure 10: Typical Vehicle Passbys

Controlled Vehicle Noise Measurement Results

Measurements of each vehicle were taken in the parking lot at Golden Gates following SAE Standard J1470. Multiple measurements were taken at three different speeds: 19, 25, and 31 mph. For each measurement, noise levels were measured on both sides of the vehicles as they accelerated past the microphones. As can be seen in Figure 11, the gas van generates the highest noise levels at lower speeds whereas the Gillig bus was the loudest of the three vehicles operating at 31 mph. In all cases, the Van Hool bus generated the lowest noise levels.

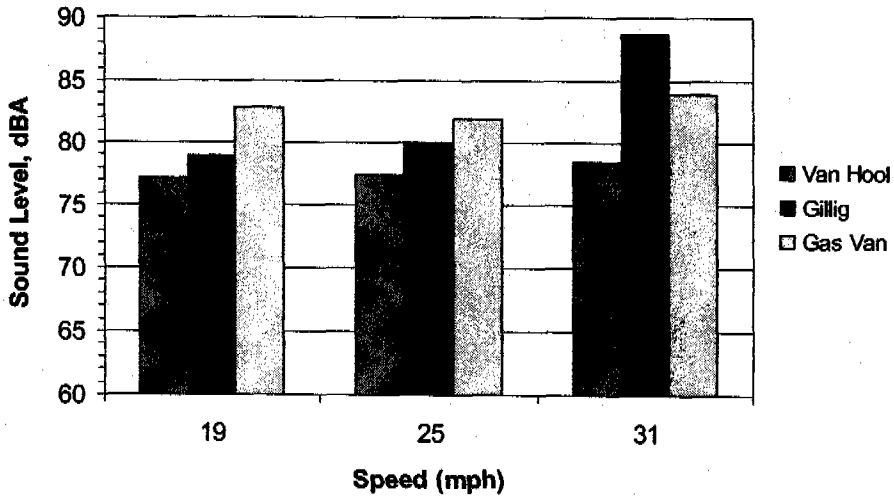


Figure 11: Average Maximum Sound Level (SPL) from Controlled Vehicle Noise Measurements

Vibration Measurements

Vibration measurements of the Van Hool, Gillig, and gas van were taken concurrent with the short-term noise measurements at each of the five sites. Vibration levels in the 6.3 to 16 Hz 1/3 octave bands are not available for the Spruce and Trinity sites because of an equipment problem. The vibration results at Cedar and Beloit were used to estimate the missing data as follows:

1. The average 1/3 octave band spectra at Beloit and Cedar were calculated.
2. The vibration levels in the 6.3 to 16 Hz 1/3 octave bands relative to the 20 Hz level were calculated (e.g., $L_{REL}(6.3\ Hz) = L_V(6.3\ Hz) - L_V(20\ Hz)$).
3. The levels in the missing 1/3 octave bands were estimated using the relative levels from step 2 (e.g., $L_{EST\text{-}SRUCE}(6.3\ HZ) = {}_{LV\text{-}SPRUCE}(20\ Hz) + L_{REL}(6.3\ Hz)$).

This process is illustrated in Table 3. Although this is an approximation that could introduce an error on the order of ± 2VdB in the overall levels at the Spruce and Trinity sites, the predicted levels are sufficiently below the impact threshold that any error introduced by this process will not affect the results of our impact assessment. The vibration levels below 20 Hz at the Spruce and Trinity sites should be sufficiently consistent with those at Beloit that additional measurements at these two sites are not necessary.

Figure 15 through Figure 14 are graphs of the 1/3 octave band frequency spectra for the three vehicles at Beloit, Cedar, Spruce, and Trinity sites. The graphs for Spruce and Trinity include the estimated levels in the 6.3 to 16 Hz 1/3 octave bands derived as discussed above.

Figure 16 is a graph of the quarter second vibration levels over a four minute period at the Hopkins site that included a Van Hool and Gillig passby. Vibration levels from both vehicles were below 50 VdB. The low vibration levels are a function of the relatively low speed of they approached the intersection of

Hopkins/Gilman. As can be seen in the graph, non-bus related traffic generated similar, and sometimes higher, vibration levels than the buses. Therefore, because of the low vibration levels of the vehicles and the high traffic volumes, a detailed analysis of vibration levels at the Hopkins site was not feasible.

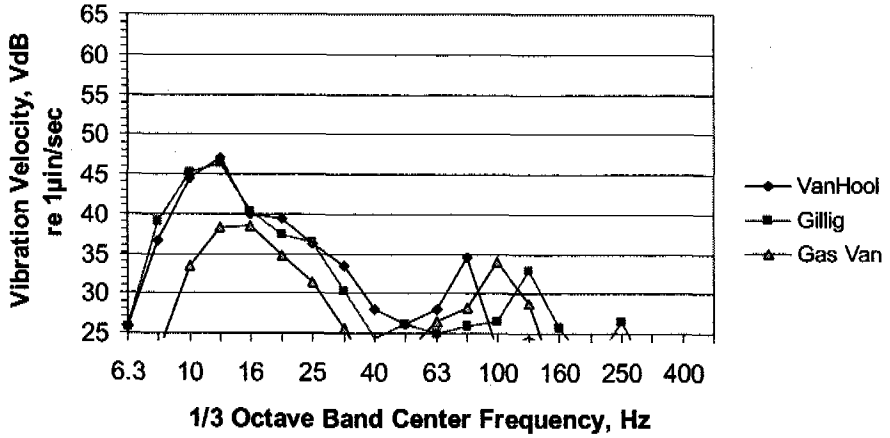


Figure 12: Frequency Spectra of Average Vehicle Passby at Cedar

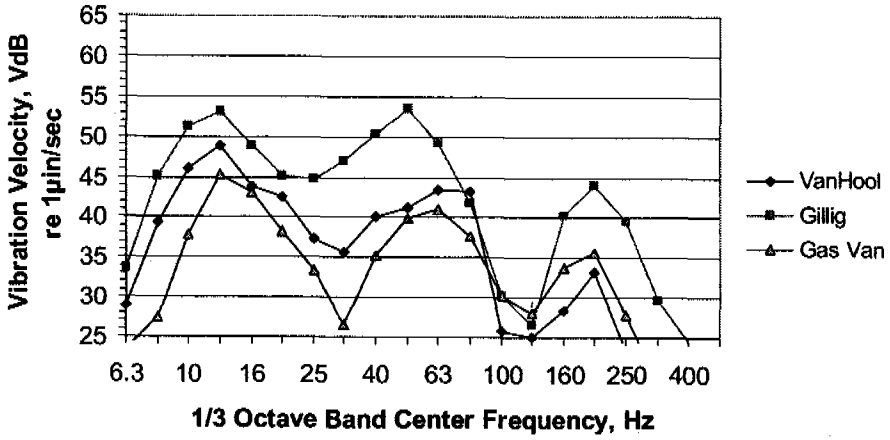


Figure 13: Frequency Spectra of Average Vehicle Passbys at Spruce

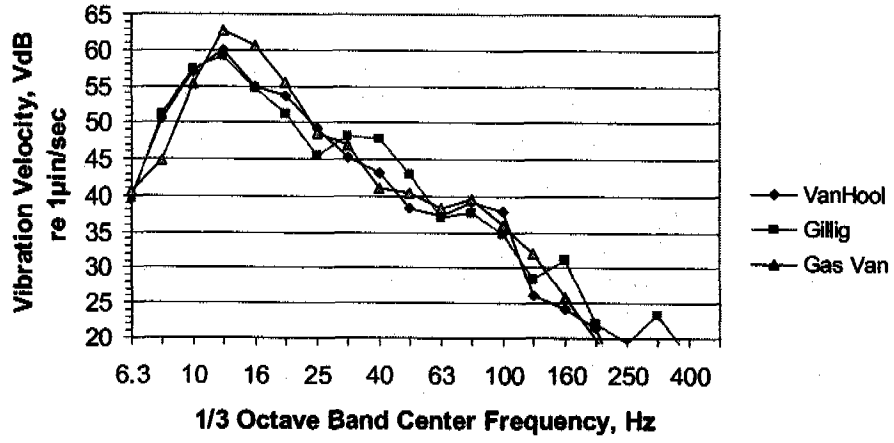


Figure 14: Frequency Spectra of Average Vehicle Passby at Trinity

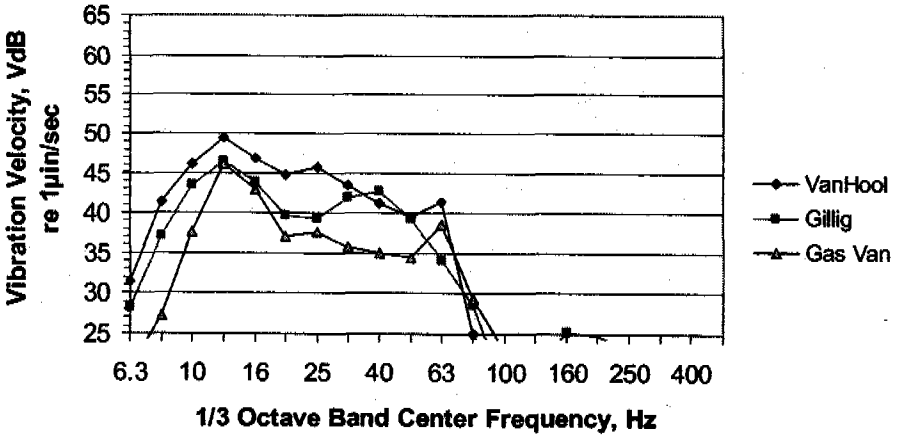


Figure 15: Frequency Spectra of Average Vehicle Passbys at Beloit

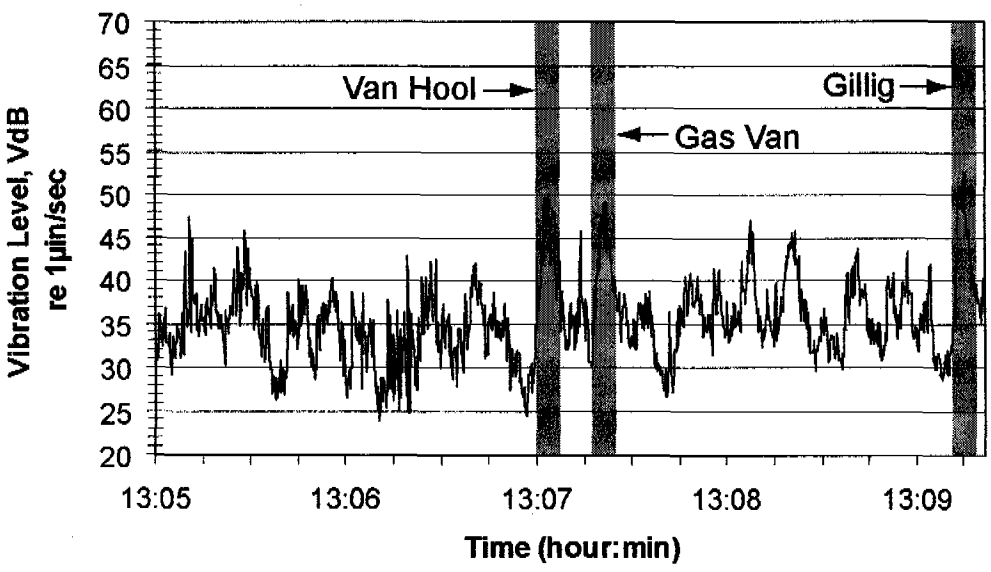


Figure 16: Vibration Time History - Hopkins

Table 3: Example Adjustments for 1/3 Octave Bands below 20 Hz at Spruce

	1/3 Octave Band, Center Frequency (Hz)					
	6.3	**8**	**10**	**12.5**	**16**	**20**
Average vibration levels at Cedar & Beloit for Van Hool bus	29	39	45	48	43	42
Level relative to 20 Hz	-13.5	-3.1	3.1	6.2	1.4	--
Measured vibration levels at Spruce for Van Hool bus	--	--	--	--	--	42
Estimated vibration levels at Spruce for Van Hool bus	29	40	46	49	44	42
Notes: All vibration levels in terms of VdB, re 1µin/sec.						

Figure 17 shows the overall vibration levels for each vehicle at the four measurement sites. As can be seen, vibration levels from the Van Hool bus were equal to or lower than the Gillig bus (which is currently in service) at two of the measurement sites and slightly higher (1 to 3 VdB) at the other two

sites. The gas van generated the highest vibration levels at the Trinity site, which had the highest vibration levels for all three vehicles. We observed that:

- Vibration levels at Trinity were the highest of all five sites.
- Except at Spruce, the Gillig and Van Hool had similar vibration levels. This is due to vibration in the 25 to 60 Hz range.
- The Gas van tended to have lower vibration levels, except at Trinity.
- The vibration spectra vary substantially between sites, probably because of differences in soil properties.

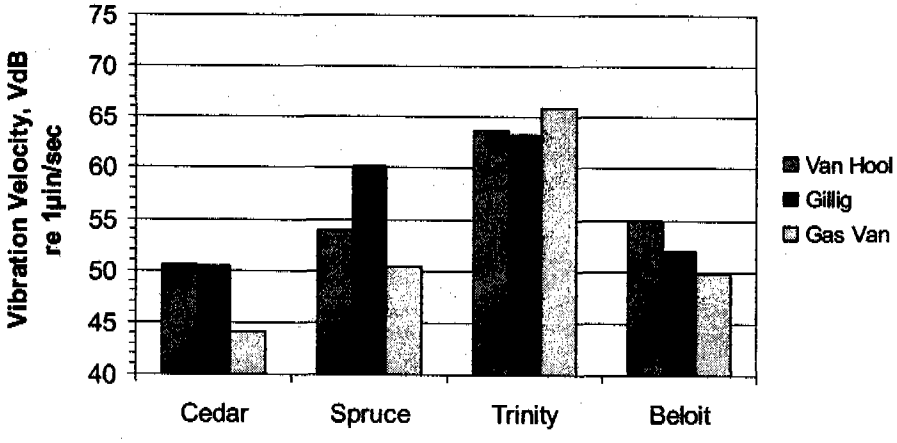


Figure 17: Overall Vibration Levels at Each Site

Predictions & Impacts

Noise

The following steps were taken to evaluate potential noise impacts resulting from the proposed project.

1. **Vehicle L_{dn}**: First, the L_{dn} from all three vehicles at each of the five measurement sites was calculated by:

$$Ldn = SEL + 10 \times log(N_{Day} + 10 \times N_{Night}) - 49.4$$

where *SEL* is the averaged measured SEL from the vehicle from the short-term noise measurements, N_{Day} is number of daytime (7 a.m. to 10 p.m.) bus passbys and N_{Night} is the number of nighttime (10 p.m. to 7 a.m.) bus passbys.

2. **Background L_{dn}**: Next, the background noise level (i.e., the noise levels without any vehicles) at each site was estimated by subtracting the Gillig L_{dn} from the measured L_{dn} as follows:[2]

$$Background\ Ldn = 10 \times log\left(10^{\left(Measured\ Ldn/10\right)} - 10^{\left(Gillig\ Ldn/10\right)}\right)$$

This provides a baseline to evaluate the noise impacts from adding bus service to a particular area.

3. **Predicted L_{dn}**: Lastly, the predicted L_{dn} (background plus vehicle) with the Van Hool bus and gas van was estimated as follows:

$$Predictd\ Ldn = 10 \times log\left(10^{\left(Background\ Ldn/10\right)} + 10^{\left(Vehicle\ Ldn/10\right)}\right)$$

Figure 18 shows the resulting predicted L_{dn} at all five measurement sites with each of the three vehicles. Also, the last column for each site shows the background L_{dn}.

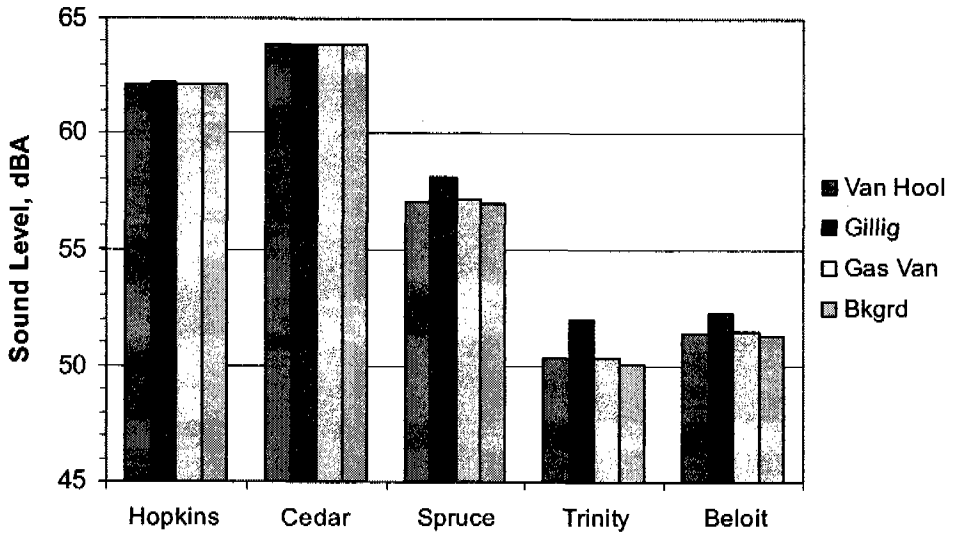


Figure 18: Predicted L_{dn} at Each Representative Receiver with Different Vehicles

4. **Impacts**: Potential noise impacts were predicted using the FTA noise impact criteria. Table 4 provides a summary of predicted noise levels and impacts for the five representative sites. The table lists the estimated background noise level, the vehicle L_{dn}, the predicted L_{dn}, the increase in noise levels caused by the introduction of service using each of the three vehicles, the FTA impact threshold for each site, and whether or not impacts are predicted.

[2] Noise from the Gillig was removed because it currently operates on lines running in front of each of the measurement sites.

Table 9: Predicted Ground-Borne Noise Levels – All Vehicles

Location	dBA		
	Van Hool	Gillig	Gas Van
Hopkins [1]			
Cedar	23	27	21
Spruce	22	28	23
Trinity	32	42	33
Beloit	28	30	28

[1] Ground-borne noise levels for the three vehicles were not predicted for the Hopkins site because the measure vibration levels were generally less than 50 VdB and were difficult to separate from the background vibration.
Source: ATS Consulting, 2005

APPENDIX

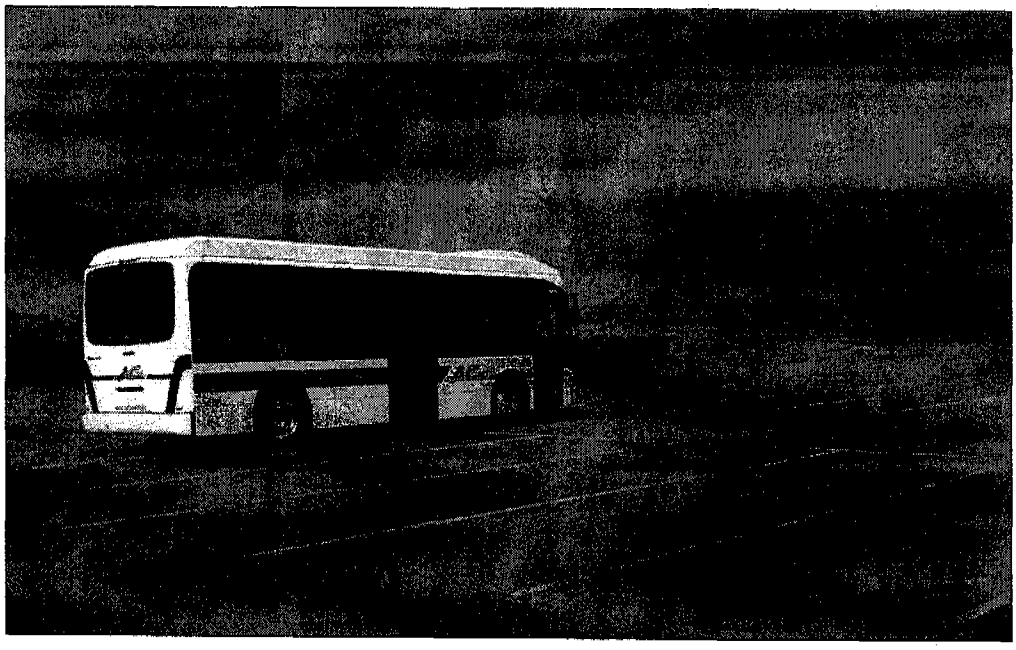


Figure 20: Photograph of Van Hool bus During Controlled Vehicle Noise Measurements

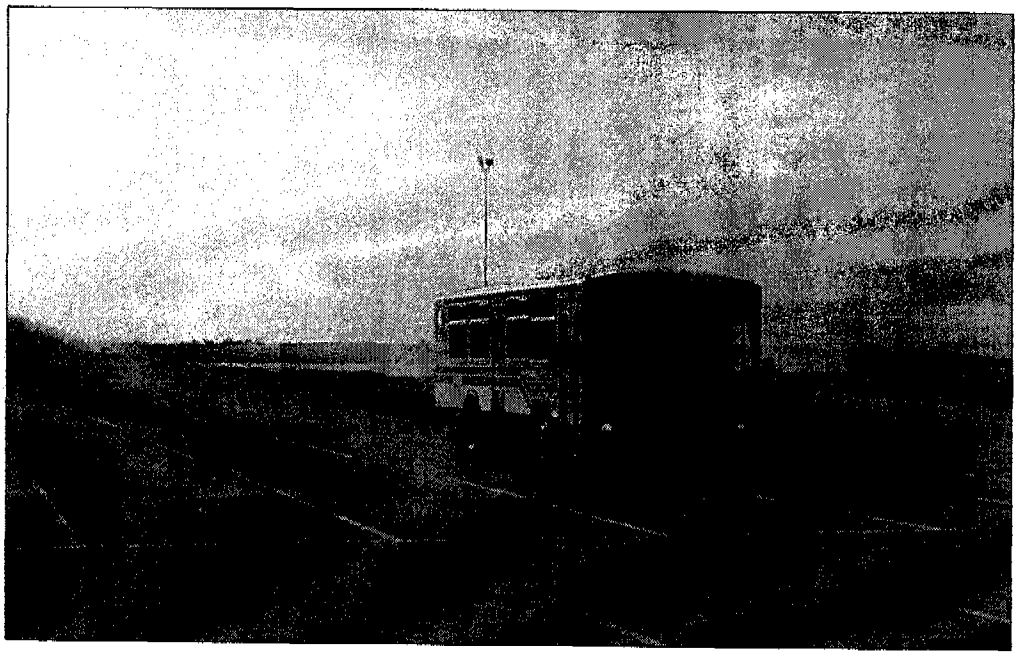


Figure 21: Photograph of Gillig Bus During Controlled Noise Measurements

Due to the relatively low number of daily events, the contribution of each vehicle to the predicted L_{dn} is very small. At those locations with the highest background noise levels (Cedar and Hopkins), the addition of bus service has a negligible effect on the predicted noise levels, regardless of the vehicle. At the other three locations, the addition of transit service using the Van Hool or the gas van is predicted to increase the background L_{dn} by less than 0.5 dB. Predicted increases with the Gillig bus range from 1 to 2 dB. As can be seen in Table 4, impacts are not predicted at any of the representative receiver locations using any of the three vehicles. Predicted noise levels are highest with the Gillig bus and lowest with the Van Hool bus.

Table 4: Summary of Predicted Noise Levels (L_{dn}) and Impacts

Site	Vehicle	L_{dn}, dBA					
		Back-ground	Predicted, Bus/Van Only	Predicted [1]	Increase [2]	FTA Threshold [3]	Impact?
Hopkins	Van Hool	62	35	62	0.0	1.7	No
	Gillig	62	46	62	0.1		No
	Gas Van	62	42	62	0.0		No
Cedar	Van Hool	64	36	64	0.0	1.5	No
	Gillig	64	41	64	0.0		No
	Gas Van	64	38	64	0.0		No
Spruce	Van Hool	57	42	57	0.1	2.7	No
	Gillig	57	52	58	1.2		No
	Gas Van	57	43	57	0.2		No
Trinity	Van Hool	50	37	50	0.2	5.0	No
	Gillig	50	47	52	1.9		No
	Gas Van	50	37	50	0.2		No
Beloit	Van Hool	51	35	51	0.1	4.5	No
	Gillig	51	45	52	1.0		No
	Gas Van	51	38	51	0.2		No

Notes:
Background and predicted noise levels shown rounded to the nearest dB. Increases and FTA Thresholds shown to the nearest tenth of a dB.
[1] Predicted = Background L_{dn} + Bus/Van Only L_{dn}
[2] Increase = Predicted Ldn – Background L_{dn}
[3] FTA Threshold = maximum allowable increase in L_{dn} caused by project.

For Category 3 land uses (i.e., parks, schools, hospitals, etc.), the same process described above was followed to predict the peak hour L_{eq} at each of the measurement sites with and without AC Transit service. Figure 19 is a graph showing the peak hour L_{eq} with each vehicle. The final column for each site is the estimated existing background noise levels without any transit service. As can be seen, there is very little difference in the predicted noise levels with and without service. The largest increase is less than 2 dB at Trinity with the Gillig bus.

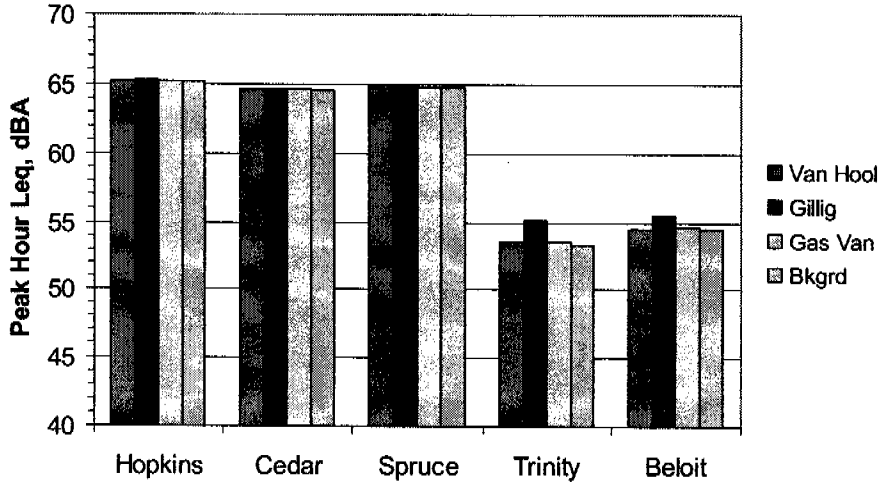


Figure 19: Predicted Peak Hour L_{eq} at Each Representative Receiver with Different Vehicles

Table 5 summarizes the results analysis and compares the predicted increases in the peak hour L_{eq} with the FTA impact criteria for Category 3 land uses. In summary, impacts are not predicted at any of the representative receiver locations using any of the three vehicles.

Table 5: Summary of Predicted Noise Levels (L_{eq}) and Impacts

Site	Vehicle	L_{eq}, dBA					
		Back-ground	Predicted, Bus/Van Only	Predicted [1]	Increase [2]	FTA Threshold [3]	Impact?
Hopkins	Van Hool	54	38	55	0.1	6.6	No
	Gillig	54	49	55	1.0		No
	Gas Van	54	41	55	0.2		No
Cedar	Van Hool	65	39	65	0.0	3.4	No
	Gillig	65	50	65	0.1		No
	Gas Van	65	45	65	0.0		No
Spruce	Van Hool	65	45	65	0.0	3.5	No
	Gillig	65	49	65	0.1		No
	Gas Van	65	46	65	0.1		No
Trinity	Van Hool	65	52	65	0.2	3.5	No
	Gillig	65	52	65	0.2		No
	Gas Van	65	44	65	0.0		No
Beloit	Van Hool	53	40	54	0.2	7.2	No
	Gillig	53	51	55	1.9		No
	Gas Van	53	40	54	0.2		No

Notes:
[2] Predicted = Background L_{eq} + Bus/Van Only L_{eq}
[2] Increase = Predicted L_{eq} – Background L_{eq}
[3] FTA Threshold = maximum allowable increase in L_{eq} caused by project.

Note: Predicted noise levels are shown rounded to the nearest dB, which is consistent with the accuracy of the measurements and predictions. The increases and FTA thresholds are shown to the nearest tenth of a dB, otherwise, the round-off value would often equal zero. The effects of round-off are why the noise levels with the gas van at the Hopkins site appear to increase by 1 dB (from a background of 54 dBA to a predicted of 55 dBA) when noise levels are only predicted to increase by 0.2 dB.

Vibration

Potential vibration impacts were analyzed by comparing the measured vibration levels relative to the appropriate FTA impact threshold. The vibration measurements were taken outside the residences; however, the criteria are based on interior vibration levels. Vibration levels will be changed when the ground vibration interacts with a building structure. Experience is that vibration levels on first floor spaces will typically be 0 to 3 VdB lower than outdoor vibration and that vibration in second floor spaces will sometimes be amplified by resonances in the building structure. A reasonable estimate is that second floor vibration will be 0 to 5 VdB greater than the outdoor vibration, although there are examples of second floor vibration being as much as 10 VdB great then the outdoor vibration.

For the purposes of this analysis, we have applied a conservative estimate that interior vibration is 5 VdB higher than the exterior vibration levels. Therefore, if the exterior vibration level was measured at 60 VdB, we estimate that the interior levels are likely to be 65 VdB or less.

There are currently less than 70 vehicle passbys at the vibration measurement locations. As a result, the "infrequent" vibration criterion of 80 VdB is applicable for the impact analysis. Table 6 is a summary of the predicted interior vibration levels based on the Van Hool bus. As can be seen, even with the conservative assumption regarding exterior-interior amplification, vibration levels are well below the impact threshold of 80 VdB. In fact, the predicted levels are below the "frequent" event criterion of 72 VdB. Although vibration levels may be perceptible inside some residences immediately adjacent to the bus service or when potholes form in the streets, impacts are not predicted as a result of the proposed project.

Table 6: Predicted Vibration Levels and Impacts – Van Hool

Location	Vibration Level, VdB re 1μin/sec				Impact? (Y/N)
	Exterior	Amplification	Interior	Threshold	
Hopkins [1]	--	+5	--	80	N
Cedar	51	+5	56	80	N
Spruce	54	+5	59	80	N
Trinity	64	+5	69	80	N
Beloit	55	+5	60	80	N

Note: Vibration levels from the Van Hool bus were not predicted for the Hopkins site because they were generally less than 50 VdB during the measurements and were difficult to separate from the background vibration.

Table 7 shows the predicted vibration levels with all three vehicles. The gas van has been replaced by the Gillig and is only shown for comparative purposes. In addition, the Van Hool bus will be replacing the Gillig buses. As can be seen, vibration levels are predicted to be the highest at Cedar, Trinity, and Beloit with the gas van and at Spruce with the Gillig. With all vehicles, predicted vibration levels are below the FTA impact threshold of 80 VdB.

Table 7: Predicted Vibration Levels – All Vehicles			
	Vibration Velocity, VdB		
Location	**Van Hool**	**Gillig**	**Gas Van**
Hopkins [1]	--	--	--
Cedar	56	55	61
Spruce	59	65	64
Trinity	69	68	74
Beloit	60	57	65
Note: Vibration levels from the vehicles were not predicted for the Hopkins site because they were generally less than 50 VdB during the measurements and were difficult to separate from the background vibration.			

Ground-Borne Noise

Table 8 lists the predicted ground-borne noise levels from AC Transit service using the Van Hool bus. These levels were estimated by applying the A-weighted scale to the average vibration frequency spectrum for the Van Hool bus at each of the representative receivers. Even with the +5 dB amplification of the vibration, the predicted ground-borne noise levels are well below the applicable FTA threshold of 43 dBA.

Table 8: Predicted Ground-Borne Noise Levels			
Location	**Ground-Borne Noise Level, dBA**	**Threshold**	**Impact? (Y/N)**
Hopkins [1]	--	--	N
Cedar	23	43	N
Spruce	22	43	N
Trinity	32	43	N
Beloit	28	43	N
[1] Ground-borne noise levels from the Van Hool were not predicted for the Hopkins site because the measured vibration levels were generally less than 50 VdB and were difficult to separate from the background vibration. Source: ATS Consulting, 2005			

Table 9 compares the predicted ground-borne noise levels from the three vehicles. As can be seen, the Gillig buses generated the highest ground-borne noise levels while the gas van and the Van Hool bus are comparable.

Figure 22: Photograph of Gas Van During Controlled Noise Measurements

Appendix E

Title VI Compliance Analysis

Title VI, Environmental Justice, and Limited English Proficiency Analysis for the West County Service Plan

1) **What service changes does AC Transit propose? Please describe the nature of the change, the bases or rationale for the change, the modes of service impacted, and the communities affected by the change.**

   Service Change Descriptions and Rationale Table attached (Table 1).

2) **What are the impacts of the service changes on minority and/or low income communities?**

   Minority and Low-Income Impact Table attached (Table 1).

3) **What are the transit alternatives available for riders who would be impacted by proposed service changes?**

   Trip Analysis Table attached (Table 2.)

4) **If AC Transit believes that the service changes will have an adverse and disproportionate impact on low income and/or minority riders and communities, what alternatives to the proposed changes were considered?**

   The West County Service Plan (WCSP) will have an overall positive impact on low income and/or minority riders and communities. The WCSP will provide additional service miles and service hours to the existing AC Transit route network for low income and/or minority riders and communities.

5) **If AC Transit believes that the service changes will have an adverse and disproportionate impact on low income and/or minority riders and communities, what measures does it plan to take to avoid, minimize and/or mitigate these impacts?**

   The WCSP will have an overall positive impact on low income and/or minority riders and communities. The WCSP will provide additional service miles and service hours to the existing AC Transit route network for low income and/or minority riders and communities.

6) **(For fare increase). What method was utilized to determine the type of increase (flat or percentage), the amount of the increase, and the fare instruments affected, or to be affected, by the change?**

   No fare increase

7) **What mode(s) of service were, or will be, affected by the fare increase?**

No fare increase

8) **What steps does AC Transit plan to take to determine the impacts of the fare increase on each major protected group in the service area? What impacts, if any, were identified? Were alternatives to avoid or substantially limit the impacts considered?**

No fare increase

9) **Does AC Transit have a process for soliciting and considering public comment prior to the service changes/fare increases ? How is the process documented?**

AC Transit has drafted an Environmental Impact Report (EIR) for the WCSP. The plan will be distributed to various stakeholders and impacted public agencies. In addition, the EIR will be made available to the public via the County Clerk's Office. In conjunction with the EIR, AC Transit will hold a public hearing to receive and consider public comment prior to implementation of the WCSP. After receiving comments, AC Transit will have a period of time to consider comments and adjust the plan as necessary for final approval from AC Transit's Board of Directors.

10) **What steps does AC Transit plan to take to disseminate information regarding the proposed service changes/fare increases to all protected groups?**

Information regarding the proposed WCSP will be disseminated via written literature, public notification through various media outlets, and on the internet. AC Transit staff will continue to hold public discussions with the various project stakeholders. AC Transit has presented the WCSP to various communities within West County. The public information process will culminate in a formal public hearing following consent from AC Transit's Board of Directors.

11) **Does AC Transit believe that it is necessary to disseminate information on the service changes/fare increases that is accessible to Limited English Proficient persons? If so, what steps to provide information in languages other than English does AC Transit propose?**

Information shall be disseminated in English, Spanish, Chinese and Laoatian. All public materials produced for public outreach for the WCSP will be printed in these four languages.

AC Transit West County Service Plan Title VI Analysis - Table 1

Line #	Change	Rationale	Impact Mode / Service	Affected Census Tracts (by Census Tract)	Minority Route Classification	Low Income Route Classification
52	Discontinue Line 52	Run Cedar St service with Line 19 for increased productivity; service from UC Berkeley to UC Village via Line 52L as alternate	Fixed-route Bus	4228, 4226, 4225, 4224, 4217, 4218, 4223, 4219, 4222, 4205, 4204, 4203	Non-minority	Non-low income
19	Discontinue service from 6th & University to North Berkeley BART via University; left on Sacramento; left on Virginia; left into BART Station	Existing duplicate service from Lines 51 and 52L on University Ave	Fixed-route Bus	4221, 4222, 4223	Minority	Low income
19	Bring Line 19 from 6th & University to Downtown Berkeley BART via 6th Street; right on Cedar; right on Shattuck; stop at Shattuck & Allston; end of line.	Connect Downtown Berkeley and UC Berkeley with 4th Street Shopping District, Emeryville Business District, West Oakland, Alameda and Fruitvale	Fixed-route Bus	4221, 4222, 4219, 4223, 4218, 4217, 4224	Minority	Low income
43	Discontinue service from San Pablo & Buchanan to El Cerrito Plaza BART via Buchanan; right on Pierce; left on Central; right on Rydin to U.S. Postal Service Bulk Mail Facility; return on Rydin; right on Central; right on Isabel to Point Isabel Regional Shoreline; return on Isabel; left on Central; right on San Pablo; left on Fairmount; left into El Cerrito Plaza BART	Eliminate unproductive service to Pt. Isabel and use cost savings to serve areas with more demand or potential ridership; have common endpoint for Line 43 at UC Village for improved on-time performance; tie Pierce/Plaza BART segment of route to Line 52L for increased productivity from Pacific East Mall and apartment housing	Fixed-route Bus	4204, 4203, 3892, 3830, 3820, 3800, 3891	Minority	Low income
43	Bring Line 43 from San Pablo & Buchanan to Jackson & Buchanan in UC Village via San Pablo; right on Monroe; right on Jackson; end of line. On return trip from Jackson & Buchanan, right on Buchanan; left on San Pablo; proceed with regular route.	Eliminate unproductive service to Pt. Isabel and use cost savings to serve areas with more demand or potential ridership; have common endpoint for Line 43 at UC Village for improved on-time performance; tie Pierce/Plaza BART segment of route to Line 52L for increased productivity from Pacific East Mall and apartment housing	Fixed-route Bus	4203, 4204, 4205	Minority	Low income
52L	Extend 52L from UC Village to El Cerrito Plaza BART via left on Jackson; left on Buchanan; right on Pierce; right on Central; right on San Pablo; left on Fairmount; left into El Cerrito Plaza BART; end of line	Have common endpoint for Line 43 at UC Village for improved on-time performance; tie Pierce/Plaza BART segment of route to Line 52L for increased productivity from Pacific East Mall and apartment housing	Fixed-route Bus	4204, 4203, 3892, 3830, 3820, 3891	Non-minority	Non-low income
76	Discontinue service from CCC to Hilltop Mall via right on College Lane; right on San Pablo (Del Camino in reverse direction); right on Lancaster; left on Aberdeen; left on Lancaster; right on Birmingham; left on Shane; left on Hilltop Mall Road; right into Hilltop Mall	Run discontinued Line 76 segment with Line 71 for a more organized and comprehensible route network in and around CCC, Hilltop Mall and RPTC	Fixed-route Bus	3672, 3660.02, 3660.01, 3671, 3650.01	Minority	Low income
76	Extend Line 76 from Hilltop Mall to Richmond Parkway Transit Center via right on Hilltop Mall Rd; left on Klose; right on Blume; right into Richmond Parkway Transit Center; end of line.	Establish RPTC as a regional transit center for AC Transit and Westcat. Facilities are scheduled for improvement beginning 2006 with major re-construction beginning in 2007	Fixed-route Bus	3650.01	Minority	Low income
71	Discontinue service from CCC to Richmond Parkway Transit Center via Campus; right on College; left on Rumrill; right on Broadway; right on 11th; left on Stanton (John in reverse direction); right on giant; left on Phanor; right on McGlothen; left on Banks; left on Jenkins; left on Williams; left on McGlothen; right on Griffin; left on Giant; right on Atlas; left on Richmond Parkway; right on Blume; left into RPTC	Run discontinued Line 71 segment with extension of Line 70; Line 71 re-routed for a more organized and comprehensible route network in and around CCC, Hilltop Mall and RPTC.	Fixed-route Bus	3672, 3660.02, 3660.01, 3650.01	Minority	Low income

AC Transit West County Service Plan Title VI Analysis - Table 1

71	Reroute Line 71 from CCC to Hilltop Mall to Richmond Parkway Transit Center via right on College Lane; right on San Pablo (Del Camino in reverse direction); right on Lancaster; left on Aberdeen; left on Lancaster; right on Birmingham; left on Shane; left on Hilltop Mall Road; right into Hilltop Mall; left on Hilltop Mall Road; right on Klose; left on Blume; right into Richmond Parkway Transit Center; end of line.	Line 71 re-routed for a more organized and comprehensible route network in and around CCC, Hilltop Mall and RPTC. Establish RPTC as a regional transit center for AC Transit and Westcat. Facilities are scheduled for improvement beginning 2006 with major re-construction beginning in 2007	Fixed-route Bus	3672, 3660.02, 3660.01, 3671, 3650.01	Minority	Low income
70	Discontinue segment of Line 70 from RPTC to Hilltop Green via left on Blume; left on Hilltop; left on Park Central; left on Parkway; right on Fairway	Eliminate unproductive service to Hilltop Green and use cost savings serve areas with more demand or potential ridership; Demand in Hilltop Green can be met with existing supplemental school service to that neighborhood	Fixed-route Bus	3650.01, 3671	Minority	Low income
70	Extend Line 70 from Richmond Parkway Transit Center to CCC via right on Blume; left on Richmond Parkway; right on Atlas; left on Giant; right on Phanor; right on McGlothen; left on Banks; left on Jenkins; left on Williams; left on McGlothen; right on Griffin; right on Giant; left on John; right on 11th; left on Broadway; left on Rumrill; right on College; left on Campus into CCC.	Run discontinued Line 71 segment with extension of Line 70; Line 71 re-routed for a more organized and comprehensible route network in and around CCC, Hilltop Mall and RPTC	Fixed-route Bus	3672, 3660.02, 3660.01, 3671, 3650.01	Minority	Low income
70	Extend span of service to 11PM	Provide extended service on Line 70 for customers and employees of Pinole Shopping Center	Fixed-route Bus	3672, 3660.02, 3660.01, 3671, 3650.01, 3630, 3602, 3610	Minority	Low income
68	Reinstate service from Richmond BART to Del Norte BART via left on Macdonald; right on 23rd; right on Garvin; left on San Pablo; right on McBryde; right on Arlington; right on Cutting; left into Del Norte BART	Run additional service to meet transit demand in Richmond View and El Cerrito Hills where there is currently no service	Fixed-route Bus	3760, 3770, 3750, 3810, 3740, 3720, 3710, 3700, 3690.02, 3620, 3840, 3852, 3860	Minority	Low income
376	Discontinue segment of 376 from Macdonald to RPTC via left on 23rd; right on Rheem; left on 29th; right on Vale; right on San Pablo; left on I-80; left on El Portal	Eliminate unproductive segments of Route 376 and use cost savings to serve areas with more demand or potential ridership	Fixed-route Bus	3672, 3690.02, 3690.01, 3720, 3710, 3700, 3740, 3730, 3750, 3810, 3760, 3770	Minority	Low income
15	Discontinue service from Downtown Berkeley (UC Loop) to El Cerrito Plaza BART via University; right on MLK to The Alameda; left Solano; right Colusa; left Fairmount; right into BART	Run discontinued service on Line 15 segment with new Line 79 to Richmond Marina for more productive service from Berkeley and the University	Fixed-route Bus	4226, 4224, 4217, 4214, 4213, 3910, 3902, 3891	Minority	Low income
79	New line that will travel at 30 minute frequency from Downtown Berkeley (UC Loop) to El Cerrito Plaza BART via University; right on MLK to The Alameda; left Solano; right Colusa; left Fairmount; right into BART. From Plaza BART, bus will travel to Marina Bay and Richmond BART via left on Central; right on I-580 North; left on Bayview; right on Meade; left on Regatta; left on Marina Way South; right on Hall; right on Harbour Way South; right on Wright; right on S. 19th; left on Meeker; left on Marina Bay to 23rd; left on Macdonald; right into Richmond BART; end of line	New service will provide connection between the Richmond BART Station, the growing Richmond Marina Business District, El Cerrito BART Station, Albany and Berkeley	Fixed-route Bus	4226, 4224, 4217, 4214, 4213, 3910, 3902, 3891, 3892, 3800, 3790, 3770, 3810, 3760	Minority	Non-low income
74	Discontinue service from Richmond BART to Marina Way via left on Macdonald; right on 22nd (23rd in reverse direction) into Marina Bay Pkwy; right on Regatta; right on Marina Wy; left on Wright; left on Harbour; left on Hall	The new Line 79 will serve this discontinued service for increased productivity for segment and improved run-time for the 74. There are only a few through riders on the existing 74 passed the Richmond BART Station	Fixed-route Bus	3800, 3790, 3770, 3810, 3760	Minority	Low income

AC Transit West County Service Plan Title VI Analysis - Table 1

72M	Discontinue Line 72M	Discontinued service will be run by the existing 72 Local and the new 73. This change provides common endpoints for all 72 Local service for improved reliability, spacing and on-time performance	Fixed-route Bus	3780, 3770, 3760, 3750, 3740, 3710, 3810, 3700, 3860, 3870, 3830, 3880, 3892, 3891, 4203, 4202, 4205, 4204, 4220, 4219, 4221, 4222, 4232, 4231, 4220, 4233, 4240.02, 4008, 4009, 4251, 4010, 4015, 4014, 4016, 4013, 4027, 4028, 4029, 4030, 4032, 4033	Minority	Low income
73	New line that will travel at 30 minute frequency from Del Norte BART to Richmond BART to Pt. Richmond via left on Cutting; right on San Pablo; left on Macdonald; right into Richmond BART; left on Macdonald; left on Garrard; right on E. Richmond; right on Railroad; left on Tewksbury; right into Pt. Richmond Transit Center; end of line	New line will serve discontinued segment of 72M on Macdonald Avenue. Service separates Macdonald Avenue Corridor and San Pablo Corridor for a more organized and comprehensible route network. Shortened Macdonald Corridor service will have improved reliability and on-time performance	Fixed-route Bus	3780, 3770, 3760, 3750, 3740, 3710, 3810, 3700, 3860	Minority	Low income
GGT 40	Discontinue service from Tewksbury Transit Center to Del Norte BART via left on Tewksbury; left on I-580; left on Cutting; left on San Pablo; left on Hill; left into Del Norte BART	Re-route service to Macdonald Ave to meet transit demand and potential ridership. Existing GGT 40 has few stops and will have more stops on Macdonald to better serve the community; service on Cutting supplemented with existing AC Transit local service	Fixed-route Bus	3780, 3790, 3800, 3810, 3820, 3860	Non-minority	Non-low income
GGT 42	Discontinue service from Tewksbury Transit Center to Del Norte BART via left on Tewksbury; left on I-580; left on Cutting; left on Harbour; right on Macdonald; left into Richmond BART; left on Macdonald; left on 22nd (23rd in reverse direction); left on Carlson; left on Cutting; left on San Pablo; left on Hill; left into Del Norte BART	Re-route service to Macdonald Ave to meet transit demand and potential ridership. Existing GGT 42 has few stops and will have more stops on Macdonald to better serve the community; Service on Harbour, Carlson and Cutting supplemented with existing AC Transit local service	Fixed-route Bus	3780, 3770, 3790, 3810, 3800, 3820, 3860	Non-minority	Non-low income
GGT 40/42	Re-route service from Tewksbury Transit Center to Del Norte BART via left on Tewksbury; right on Railroad; left on E. Richmond; left on S. Garrard; left on Garrard; right on Macdonald; right into Richmond BART; left on Macdonald; right on San Pablo; left on Hill; left into Del Norte BART; end of line	Re-route service to Macdonald Ave to meet transit demand and potential ridership. Existing GGT 40/42 has few stops and will have more stops on Macdonald to better serve the community; Service on Harbour, Carlson and Cutting supplemented with existing AC Transit local service	Fixed-route Bus	3780, 3770, 3760, 3750, 3810, 3740, 3710, 3700, 3860	Non-minority	Non-low income
72 Local	Discontinue 72 Local from CCC to Hilltop Mall via Campus Dr; right on College; right on San Pablo; right on Robert Miller; right on Hilltop Mall Rd; left into Hilltop Mall	Replace discontinued segment with 72 Rapid. 72 local re-routed to serve new residential communities in Richmond where there is demand and potential ridership. This creates a more comprehensive route network. Establish RPTC as a regional transit center for AC Transit and Westcat. Facilities are scheduled for improvement beginning 2006 with major re-construction beginning in 2007	Fixed-route Bus	3660.02, 3660.01, 3671, 3650.01	Minority	Low income
72 Local	Extend 72 Local from CCC to Richmond Parkway Transit Center via Campus Dr; right on College; right on San Pablo; left on Hilltop Drive; right on Richmond Parkway; right on Blume; left into Richmond Parkway Transit Center; end of line	Replace discontinued segment with 72 Rapid. 72 local re-routed to serve new residential communities in Richmond where there is demand and potential ridership. This creates a more comprehensive route network	Fixed-route Bus	3672, 3660.02, 3671, 3660.01, 3650.01	Minority	Low income

AC Transit West County Service Plan Title VI Analysis - Table 1

72 Local	Increase frequency from 30 minutes to 15 minutes on 72 Local between Oakland Amtrak Station and the Richmond Parkway Transit Center	Increased frequency will meet transit demand and potential ridership on San Pablo between Del Norte BART and the RPTC	Fixed-route Bus	3720, 3690.01, 3680, 3660.02, 3672, 3660.01, 3671, 3650.01, 3710, 3810, 3700, 3860, 3870, 3830, 3880, 3892, 3891, 4203, 4202, 4205, 4204, 4220, 4219, 4221, 4222, 4232, 4231, 4220, 4233, 4240.02, 4008, 4009, 4251, 4010, 4015, 4014, 4016, 4013, 4027, 4028, 4029, 4030, 4032, 4033	Minority	Low income
72R	Extend 72R to from CCC to Richmond Parkway Transit Center via Campus Dr; right on College; right on San Pablo; right on Robert Miller; right on Hilltop Mall Rd; left into Hilltop Mall; left on Hilltop Mall Rd; right on Klose; right on Blume; right into Richmond Parkway Transit Center; end of line	Provides Rapid Bus service to two major attractors in Richmond: Hilltop Mall and the RPTC. This change will meet transit demand and potential ridership. Establish RPTC as a regional transit center for AC Transit and Westcat. Facilities are scheduled for improvement beginning 2006 with major re-construction beginning in 2007	Fixed-route Bus	3672, 3660.02, 3660.01, 3671, 3650.01	Minority	Low income

AC Transit West County Service Plan Title VI Trip Analysis - Table 2

	Existing Condition						West County Service Plan					
	Richmond BART Station						Richmond BART Station					
	Minority Tracts			Non-Minority Tracts			Minority Tracts			Non-Minority Tracts		
Tract ID	3710	3740	3800	4217	3880	4214	3710	3740	3800	4217	3880	4214
Route ID's	72M	72M	74	43, 72M	72M	43,72M	73/40/42	73/40/42	79	43, 72/72R, 73/40/42	72, 73/40/42	43, 72/72R, 73/40/42
Walk Time (minutes)	7.5	6	7.5	1	5	2	7.5	6	1	1	5	2
Wait Time (minutes)	15	15	15	22.5	15	22.5	5	5	15	16	12	16
Vehicle Time (minutes)	3	2	7	33	19	30	3	2	12	33	19	30
Total Travel Time (minutes)	25.5	23	29.5	56.5	39	54.5	15.5	13	28	50	36	48
Number of Transfers	0	0	0	1	0	1	0	0	0	2	1	2
Total Cost Per Trip (dollars)	$1.50	$1.50	$1.50	$1.75	$1.50	$1.75	$1.50	$1.50	$1.50	$1.75	$1.75	$1.75

Title VI, Environmental Justice, and Limited English Proficiency Analysis for AC Transit's Service Deployment Plan Phase 2

1) **What service changes does AC Transit propose? Please describe the nature of the change, the bases or rationale for the change, the modes of service impacted, and the communities affected by the change.**

   Information attached in Table 1.

2) **What are the impacts of the service changes on minority and/or low income communities?**

   Information attached in Table 1.

3) **What are the transit alternatives available for riders who would be impacted by proposed service changes?**

   Information attached in Table 2.

4) **If AC Transit believes that the service changes will have an adverse and disproportionate impact on low income and/or minority riders and communities, what alternatives to the proposed changes were considered?**

   Phase 2 of the Service Deployment Plan (SDP) has a more adverse impact on non-minority and non-low income riders and communities. Service was cutback in this phase of the SDP in areas with low ridership. Areas with low ridership directly corresponded with non-minority and non-low income census tracts. Service was improved for routes classified as "non-minority" or "non-low income" with the introduction of the 72R-San Pablo Rapid.

5) **If AC Transit believes that the service changes will have an adverse and disproportionate impact on low income and/or minority riders and communities, what measures does it plan to take to avoid, minimize and/or mitigate these impacts?**

   Phase 2 of the Service Deployment Plan (SDP) has a more adverse impact on non-minority and non-low income riders and communities. Service was cutback in this phase of the SDP in areas with low ridership. Areas with low ridership directly corresponded with non-minority and non-low income census tracts. Service was improved for routes classified as "non-minority" or "non-low income" with the introduction of the 72R-San Pablo Rapid.

6) **(For fare increase). What method was utilized to determine the type of increase (flat or percentage), the amount of the increase, and the fare instruments affected, or to be affected, by the change?**

No fare increase.

7) **What mode(s) of service were, or will be, affected by the fare increase?**

No fare increase.

8) **What steps does AC Transit plan to take to determine the impacts of the fare increase on each major protected group in the service area? What impacts, if any, were identified? Were alternatives to avoid or substantially limit the impacts considered?**

No fare increase.

9) **Does AC Transit have a process for soliciting and considering public comment prior to the service changes/fare increases ? How is the process documented?**

AC Transit has drafted an Environmental Document for the SDP Phase 2. The plan will be distributed to various stakeholders and impacted public agencies. In addition, the document will be made available to the public via the County Clerk's Office. In conjunction with the document, AC Transit will hold a public hearing to receive and consider public comment on the implementation of the SDP Phase 2. After receiving comments, AC Transit will have a period of time to consider comments and adjust the plan as necessary for final approval from AC Transit's Board of Directors.

10) **What steps does AC Transit plan to take to disseminate information regarding the proposed service changes/fare increases to all protected groups?**

Information regarding the SDP Phase 2 was disseminated via written literature, public notification through various media outlets, and on the internet. AC Transit staff will continue to hold public discussions with the various project stakeholders. AC Transit has presented the SDP Phase 2 to various communities. The public information process will culminate in a formal public hearing following consent from AC Transit's Board of Directors.

11) **Does AC Transit believe that it is necessary to disseminate information on the service changes/fare increases that is accessible to Limited English Proficient persons? If so, what steps to provide information in languages other than English does AC Transit propose?**

Information shall be disseminated in English, Spanish, and Chinese. All public materials produced for public outreach for the SDP Phase 2 will be printed in these four languages.

AC Transit Service Deployment Plan Phase 2 Title VI Analysis - Table 1

Line #	Change	Rationale	Impacted Modes of Service	Affected Communities (by Census Tract)	Minority Route Classification	Low Income Route Classification
6	Discontinue Line 6	Discontinue unproductive segments of Line 6 and add productive segments to Line 9	Fixed-route Bus	4001, 4238, 4237, 4236.01, 4238.02, 4235, 4239.01, 4234, 4240.01, 4233, 4240.02, 4220, 4251	Non-minority	Non-low income
8	Discontinue Line 8	Discontinue unproductive segments of Line 8 and add productive sgements to Line 65	Fixed-route Bus	4229, 4224, 4225, 4226, 4216, 4215	Non-minority	Non-low income
42	Discontiue Line 42	Discontinue service and replace with new Line 19 service	Fixed-route Bus	4030, 4031, 4032, 4274, 4273,	Non-minority	Non-low income
64	Discontinue Line 64	Discontinue service because it runs similar service to Lines 51, 40, and 17.	Fixed-route Bus	4229, 4224, 4225, 4226, 4227, 4228, 4236.02, 4236.01, 4239.02, 4238, 4002	Non-minority	Low income
325	Discontinue Line 325	Discontinue service due to low productivity	Fixed-route Bus	4276, 4277, 4273, 4278, 4279, 4280, 4281	Non-minority	Non-low income
9	Establishment of new services on Line 9 operatin on Gilman Street, Shattuck Avenue, Dwight Way, 7th Street, Ashby Avenue to the Claremont District in Oakland	Combine segments of existing Line 9, Line 6, and Line 65 to create comprehensive cross-town Berkeley line. Service eliminates inefficiencies in Berkeley's existing cross-town service.	Fixed-route Bus	4220, 4221, 4219, 4218, 4213, 4214, 4217, 4224, 4229, 4235, 4230, 4234, 4231, 4233, 4232, 4240.02, 4240.01, 4239.01, 4236.01, 4239.02, 4237, 4238	Non-minority	Non-low income
19	Establishment of new service on Line 19, from Alameda to West Berkeley via Buena Vista Avenue, downtown Oakland, 7th Street, Peralta Street, Hollis Street, 7th Street, University Avenue to the North Berkeley BART Station	The proposed Eastshore/Alameda Trunk Route would tie together residential neighborhoods, employment centers, and other destinations along a north-south route that operates over streets and roads that are located close to the shoreline of the cities of Albany, Berkeley, Emeryville, Oakland and Alameda.	Fixed-route Bus	4223, 4222, 4231, 4221, 4232, 4220, 4251, 4017, 4015, 4016, 4023, 4022, 4018, 4019, 4021, 4025, 4026, 4031, 4030, 4032, 4274, 4273, 4272, 4271, 4061	Non-minority	Non-low income
21	Establishment of new Line 21 from the North Berkeley BART Station to El Cerrito	Provides service that is discontinued in proposed Line 67. Line 21 retains a segment of service with some productivity.	Fixed-route Bus	4233, 4222, 4218, 4219, 4206, 4201, 3891, 3880, 3901	Non-minority	Non-low income

AC Transit Service Deployment Plan Phase 2 Title VI Analysis - Table 1

72R	Establishment of new Line 72R-San Pablo Rapid, with high frequency, high speed service from Contra Costa College in the City of San Pablo to Jack London Square in downtown Oakland via San Pablo Avenue. The service would operate with fewer stops and with 12-minute frequencies. New 60-foot articulated buses would be deployed on this route.	Trunk service is improved to increase ridership along Northern Alameda County/Contra Costa County's main trunk line. Limited service stops at only major destinations to improve bus speed and improve overall quality	Fixed-route Bus	3720, 3690.01, 3680, 3660.02, 3672, 3710, 3810, 3700, 3860, 3870, 3830, 3880, 3892, 3891, 4203, 4202, 4205, 4204, 4220, 4219, 4221, 4222, 4232, 4231, 4220, 4233, 4240.02, 4008, 4009, 4251, 4010, 4015, 4014, 4016, 4013, 4027, 4028, 4029, 4030, 4032	Minority	Low income
65	Line 65 would be shortened to operate from the Downtown Berkeley BART Station to the Berkeley Hills. Every other weekday trip would operate on 30-minute frequencies, and serve the Lawrence Hall of Science (LHS) on the university of California, Berkeley Campus via Euclid Avenue and Grizzly Peak Boulevard, or Senior Avenue, Campus Drive and Shasta Ddrive. Weekend trips would operate to LHS only with a 60-minute frequency.	Separate hill service to create comprehensive cross-town Line 9. Berkeley Hill service is tied into Line 67	Fixed-route Bus	4224, 4225, 4226, 4216, 4215, 4211	Non-minority	Non-low income
67	Line 67 would be shortened to operate from the Downtown Berkeley BART Station to Spruce Street and Grizzly Peak Boulevard. Direct service between the North Berkeley BART Station and downtown Berkeley would be discontinued. Weekday service would be extended by one hour in the evening. Weekend trips could continue to serve Tilden Regional Park.	Maintain productive/needed segments of Line 67 and tie service with Line 65	Fixed-route Bus	4224, 4226, 4225, 4217, 4216, 4215, 4214, 4211, 4212, 3920, 3560.02	Non-minority	Non-low income

AC Transit Service Deployment Plan Title VI Trip Analysis - Table 2

	Existing Condition						Service Deployment Plan Phase 2					
	Downtown Berkeley						Downtown Berkeley					
	Minority Tracts			Non-Minority Tracts			Minority Tracts			Non-Minority Tracts		
Tract ID	4016	4007	4276	4004	4216	4272	4016	4007	4276	4004	4216	4272
Route ID's	14, 43	F	63, 40/43	40	8	42, 40/43	14, 43	F	63, 40/43	40	65	19, 51
Walk Time (minutes)	2	2	4	3	4	3	2	2	4	3	4	3
Wait Time (minutes)	22.5	15	19	7.5	15	11	22.5	15	19	7.5	30	20
Vehicle Time (minutes)	22	14	50	7	20	51	22	14	50	7	26	45
Total Travel Time (minutes)	46.5	31	73	17.5	39	65	46.5	31	73	17.5	60	68
Number of Transfers	1	0	1	0	0	1	1	0	1	0	0	1
Total Cost Per Trip (dollars)	$1.50	$1.25	$1.50	$1.25	$1.25	$1.50	$1.50	$1.25	$1.50	$1.25	$1.25	$1.50