

7.0 Noise

7.1 Introduction

This chapter addresses the project relationship to noise-related issues. It includes a description of the existing noise conditions in the South Delta, a description of noise-related consequences of the project and its alternatives, and an identification of measures warranted to mitigate identified impacts. The impacts evaluation includes consideration of the issues listed in the Environmental Checklist Form, contained as Appendix I in the CEQA Guidelines, as follows. "Would the proposal result in: a) Increases in existing noise levels; and b) Exposure of people to severe noise levels?"

7.2 Environmental Setting/Affected Environment

7.2.1 Existing Noise Conditions

ISDP would be located in the southern portion of the Sacramento-San Joaquin Delta, within the boundaries of San Joaquin County, Contra Costa County, and Alameda County. The noise levels in this area are primarily dependent on the type of noise source and the distance to the noise source, and to a lesser extent on wind direction, wind speeds, and atmospheric temperature profiles. Noise levels are expressed in decibels (dB), with 0 dB roughly corresponding to the hearing threshold. Evaluation of noise impacts considers all frequencies of sound, with an adjustment to reflect that human hearing is less sensitive to low and high frequencies; adjusted noise levels are designated as A-weighted sound levels (dBA).

The principal source of noise in the area is vehicular traffic along Highway 4 and other roadways, and aircraft flyovers. Areas closest to high-volume roadways tend to have the highest levels (44-47 dB); urban areas with many traffic arterials, the next highest levels (40-45 dB); small urban communities with only one or two major roads, lower levels (34-37 dB); and country areas, the lowest levels (29-37 dB) (San Joaquin County General Plan, Noise Element).

7.2.2 Noise-Sensitive Land Uses

This section discusses the compatibility of the ISDP project activities with the surrounding communities, especially the compatibility with noise-sensitive receptors. Noise-sensitive land uses are generally considered to include residences, hotels, hospitals, schools, libraries, churches, parks, nursing and convalescent homes. Commercial and industrial land uses, by contrast, tend to be less sensitive to noise owing to relatively high ambient noise levels, and use during daytime hours.

The region that encompasses all ISDP project components is generally rural agricultural land with low to moderate density residential development. As such, the residential uses are the only noise sensitive areas. Residences are located greater than 500 feet from most Project or alternatives components, with the exception of several residences located within 500 feet of the

northern intake, and one residence located within 500 feet of the barrier site along Grant Line Canal.

7.2.3 Applicable Comprehensive Regulations And Plans

- *Federal And State Noise Emission Regulations*

There are no Federal noise standards which directly regulate noise emissions from projects either during construction or operational stages. There are, however, Federal noise standards and guidelines for workers (OSHA) and equipment (EPA) which can have an indirect effect upon community noise resulting from construction. These measures include the regulation of construction equipment, such as portable air compressors, medium and heavy-duty trucks, jack hammers and rock drills.

The California Administrative Code (Title 25, Article 4, Section 1092) also regulates noise emissions. It requires that an acoustic analysis be prepared for construction planned within an area experiencing averaged environmental noise in excess of 60 dBA. Since the ISDP project components and its alternatives are located in areas where existing noise levels are below 60 dBA, this regulation does not apply.

- *County General Plan Noise Element*

The noise element of the San Joaquin County General Plan establishes a policy to limit exterior noise levels to 65 dB Ldn (a composite 24-hour average noise level descriptor) or less for residential developments. Contra Costa County and Alameda County's policies establish the standard for outdoor noise levels in residential areas at a Ldn of 60 dB. The adopted policies of the noise elements recommend that projects be designed to incorporate sufficient measures to minimize adverse noise impacts on surrounding land uses and to mitigate the adverse effects.

7.3 Environmental Impacts/Consequences

7.3.1 Introduction

The nature of the Interim South Delta Program (ISDP) and its alternatives is such that no long-term significant increases in existing noise levels are expected. Construction activities in project areas, however, may result in temporary elevated noise levels which could affect residents in the vicinity. These issues are discussed in the following sections.

7.3.2 Significance Criteria

The criteria used to determine whether identified impacts are significant and adverse were developed through a review of the CEQA Guidelines and the CEQ NEPA Regulations. Noise levels resulting from implementation of the ISDP are judged to be significant if they would

increase existing noise levels or expose people to severe noise levels. Pursuant to Appendix G of the CEQA Guidelines, an action would have a significant effect if it would "increase substantially the ambient noise levels for adjoining areas." In addition, the Counties of Alameda and Contra Costa set a standard for maximum outdoor noise levels in residential areas at dB Ldn; the County of San Joaquin sets a similar standard of 65 dB Ldn.

7.3.3 Operational Noise Impacts

The increased diversions are expected to alter existing pumping patterns at Harvey O. Banks Pumping Plant. The increase in pumping capacity would be accommodated by four additional electric pumps and thus would increase noise levels. The pumps are housed in an insulated building having some soundproof qualities, and furthermore there are no sensitive noise receptors in the vicinity of the pumping plant. Therefore, any increase in noise levels would not have significant adverse impacts.

7.3.4 Construction-Related Noise Impacts

Traffic. The construction of ISDP project would be staged over a period of several years, and therefore the additional traffic introduced by construction of the project would not create substantial increases in noise levels. For this reason, adverse noise impacts associated with construction traffic would be less-than-significant.

Facility Construction. Construction activities would involve the use of scrapers, bulldozers, front-end loaders, backhoes, dredgers, and hauling vehicles. These types of typically generate noise levels of 76-88 dBA at a distance of 50 feet during operation (see Table 7-1). Construction equipment operations can vary from intermittent to fairly continuous, with multiple pieces of equipment operating concurrently. For construction of any one of the proposed structures, a bulldozer (87 dBA), backhoe (85 dBA), grader (85 dBA), and front-end loader (84 dBA) may be operating concurrently in the same area, resulting in peak construction-period noise levels of approximately 90 dBA at 50 feet from the construction site. For Old River dredging activities, peak construction period noise would be approximately 88 dBA at 50 feet from the dredging site.

Attenuation of noise levels with distance was calculated assuming a reference noise level of 90 dBA at 50 feet from the construction site, and a sound-level drop-off rate of 6 dBA/doubling of distance. Table 7-2 presents the results of these calculations for the proposed ISDP. At the nearest residences (500 feet), noise levels could reach 70.5 dBA. At 1,600 feet from the construction site, noise levels would be at or below the general plan guidelines (60 dBA) for all three affected counties.

Noise levels at existing residences within 500 feet of project construction would increase significantly. At these distances, construction noise would be annoying and may interfere with some regular activities. Noise impacts would be greatest at several residences within 500 feet of the proposed northern intake and near one residence within 500 feet of the barrier site on Grant Line Canal. Although the increase in noise levels would be of a temporary and episodic nature, this is considered a potentially significant adverse impact.

Table 7-1 Typical noise levels for construction equipment

<u>Equipment</u>	<u>Average A-weighted Noise Level at 50 Feet, dB</u>
Backhoe	85
Crane, Derrick (assume equal to dredger)	88
Crane, Mobile	83
Bulldozer	87
Generator	78
Grader	85
Loader	84
Pump	76
Compactor	80
Scraper	88
Shovel	82

Source: BBN Laboratories Incorporated, 1984.

Table 7-2 Distance Attenuation of Noise

Receptor Distance (feet)	Noise Level at Receptor (dBA)
50	90
100	84
200	78
400	72
500	70.5
800	66
1,600	60

7.4 *Mitigation Measures*

7.4.1 *Construction*

The operation of heavy construction equipment should be limited at the intake site and the Grant Line barrier to daytime working hours to minimize potential disturbance to adjacent residents. Stationary noise sources should be located as far as possible from adjacent residences. If they must be located near existing residences, equipment used for project construction should utilize noise control techniques (equipment redesign, use of silencers, ducts and improved mufflers) in order to minimize construction noise impacts.

7.5 *Comparative Evaluation Of Alternatives*

7.5.1 *Enlargement Of Clifton Court Forebay, Construction Of Two Intake Structures, Increased Export Capability, And Construction Of Permanent Barriers*

This alternative, the original South Delta Water Management Program preferred alternative, would entail construction and operation of the barriers proposed as a part of ISDP. Accordingly, this alternative would have the same barrier-related effects on project-area noise levels. In addition, this alternative would substantially enlarge Clifton Court Forebay from its current size of 2,100 surface acres to more than 5,000 surface acres using the northern portion of Victoria Island and the remaining area of Clifton Court Tract. Two new northern intake structures would be built, one at the confluence of North Victoria Canal and Middle River and the second at the confluence of North Victoria Canal and Old River. The southeast portion of Byron Tract would hydraulically connect the existing forebay to the new area, and the realignment of Highway 4 would be necessary, requiring construction of a new roadway parallel to the existing roadway alignment. The additional construction associated with these components would substantially increase the noise levels in the site vicinities, and could expose additional sensitive receptors in the Discovery Bay community to short-term construction-related noise impacts.

7.5.2 *Reduction Of CVP/SWP Exports And Management Or Reduction Of Demand For SWP Water*

This alternative would incorporate reductions in the amount of water exported to SWP water users, along with implementation of measures in the service areas to either better manage the available water or to reduce the demand for water. The project facilities proposed for ISDP would not be constructed or operated. Consequently, implementation of this alternative would not result in any adverse effects upon project area noise levels.

7.5.3 Modification Of CVP/SWP Exports, Consolidation Of Agricultural Diversions, Extension Of Existing Agricultural Diversions, And Increased Pumping At Harvey O. Banks Up To 10,300 cfs

This alternative was developed with a focus upon improving environmental conditions in the Delta, without installing permanent fish and flow control structures in south Delta channels. It includes operational modifications to the SWP, physical improvements to the agricultural diversions in the vicinity of the Banks Pumping Plant, and physical, operational, or management-related improvements at Clifton Court Forebay to reduce fishery losses. Most elements of this alternative do not involve physical changes to the south Delta environment, and therefore would have no adverse noise effects. The construction of consolidated and extended diversions, and regulating reservoirs could have construction-related effects on noise levels as great or greater than those associated with the ISDP.

7.5.4 ISDP Project With An Additional Clifton Court Forebay Intake At Italian Slough

This alternative would provide all of the proposed components of the ISDP project, plus a new intake at Italian Slough. Thus, the alternative would include two intakes, one at Italian Slough and one at the northeastern corner of Clifton Court Forebay. Implementation of this alternative would result in all of the effects associated with the ISDP, including increased noise levels in the project vicinity. Construction-related noise impacts would be slightly greater under this alternative due to the presence of sensitive receptors near the Italian Slough intake in addition to those near the other facilities.

7.5.5 ISDP Without The Northern Intake, And With An Expanded Existing Intake

This alternative would implement all of the proposed components of the ISDP project, except construction of a new intake at the northeastern corner of Clifton Court Forebay. Instead, the existing Clifton Court Forebay intake and West Canal would be expanded to accommodate the additional flow. Implementation of this alternative would result in all of the effects associated with the ISDP, including construction-related noise impacts. Noise levels are expected to be comparable to those anticipated under the ISDP, but would affect sensitive receptors near the existing intake instead of those north of the forebay.

7.5.6 No Action (Maintain Existing Conditions)

This alternative would involve the maintenance of environmental conditions as they presently exist in the south Delta. The ISDP would not be approved or constructed. The potential adverse noise effects of the ISDP project would not occur, nor would the potential environmental benefits occur. As no additional facilities would be constructed or operated, this alternative would not cause increased noise levels in the project area.

7.5.7 No Action (Maintain Conditions As They Would Exist In The Future)

This alternative primarily involves water management procedures in the SWP service areas, such as water conservation measures in urban areas, agriculture efficient water management practices, land retirement and water transfers. Implementation of this alternative would result in the maintenance of environmental conditions as they will exist in the future, without construction or operation of ISDP. None of the proposed actions would affect noise levels in the south Delta. Accordingly, the noise levels in the project area would either stay the same or change, without the influence of construction and operation of ISDP.