



City of Fullerton
Development Services Dept.

Williamson
Ave.
Fullerton
DSD
1984
3-6

DSD

WILLIAMSON AVENUE 500 BLOCK

COMMONWEALTH AVENUE



CHESTNUT PLACE

WILLIAMSON AVENUE



RAILROAD RIGHT OF WAY

NORTH

SPECIFIC PLAN NO. 7



City of Fullerton
Development Services Dept.

DSD

**WILLIAMSON AVENUE
500 BLOCK**

INTRODUCTION

SPECIFIC PLAN NO. 7

SPECIFIC PLAN NO. 7
WILLIAMSON AVENUE (500 BLOCK)

INTRODUCTION AND BACKGROUND

On June 5, 1984, the City Council approved amendment GPR-84-1b to the Land Use Element of the General Plan for the 500 block of West Williamson Avenue from Industrial and Commercial designations to Medium Density Residential (up to 28 d.u./ac.). The area is composed of the properties on both sides of Williamson Avenue between Chestnut Place and Richman Avenue. (See Specific Plan Map Exhibit A). In conjunction with this General Plan Revision, Staff was directed to prepare a Specific Plan for the area to address inadequate infrastructure and railroad generated noise problems. The Specific Plan process was chosen since the State enabling law established this process in order to give local agencies the power to identify portions of the General Plan study area for more detailed planning and an area-specific regulatory program.

The Williamson Avenue Specific Plan area is developed with a mixture of single-family and multiple-family residential uses, with only one parcel partially developed as commercial in accordance with the previous C-2 (General Commercial) and C-H (Highway Commercial) zoning. The current zoning of the area is R-3, Multiple-Family Residential. The subject properties are subject to adverse noise levels generated by the railway line directly to the south, an inadequate water line size and a resident population that is primarily composed of a low-income level according to the 1980 Federal Census. In addition, the area is surrounded by uses that are normally considered incompatible with a residential area, including industrial and commercial developments. Further details regarding these concerns are contained in the following subsections.

Existing Land Uses - The subject area is developed with residential uses, with 11 parcels developed with single-family residences, two parcels with two units and six properties with three or more units. Nineteen (19) out of the 21 properties are developed residentially. The remaining two properties are developed as a parking lot for an office building across the alley to the north and the other is a vacant parcel. There is one parcel located at the southwest corner of Williamson Avenue and Richman Avenue which contains both a single-family residence and a small plumbing contractor's business.

This development pattern indicates that there has been very little change in the residential character of the area in spite of the fact that the area had been zoned commercial for 27 of the last 28 years. The remaining vacant parcel has had a Site Plan approved and is currently undergoing a building plan check to develop a four-unit apartment complex. (See Specific Plan Map Exhibit A for locations of the above-referenced uses.)

Occupancy - The area is primarily occupied by renters, with 66.7% of the properties falling into this category. In addition, the 1980 Census indicates that over 60% of the residents were categorized as a low-income economic level (below \$27,000 in annual income for a family of four). This would also seem to indicate that the rental rates are low in this area.

Age of Structures - An age of structures survey has revealed that no building permits have been issued for construction in the area since 1961. In addition, almost all the apartments in the area were constructed during the period from 1940 through 1961. The single-family residences were constructed between 1920 and 1939. The only industrial/commercial structure (plumbing business) was built in 1954. It should be noted that the only three apartment complexes (three or more attached dwelling units) were constructed during a period when the area was zoned C-2. In the 1960s, the City Zoning Ordinance allowed apartment developments in the C-2 zone. The trend towards apartment development might have continued until today if the Zoning Ordinance had not been amended to prohibit such developments in Commercial Zones. (See Zoning History below and Specific Plan Map Exhibit A for locations.)

Condition of Structures - An exterior inspection of the structures in the area indicates several properties have dwelling units in need of substantial repair or complete replacement. This evaluation was based upon a subjective evaluation of existing structural, paint, and landscaping elements. There are more structures (6 out of 11) on the south side of Williamson Avenue that could be described as blighted. On the north side of Williamson only two properties of ten should be considered in poor condition.

Zoning History - The zoning history of the area shows that an R-2 classification existed until 1957 when it was changed to C-2. In 1974, the C-2 zone classification was amended to no longer allow apartment developments in the zone. In 1975, the properties on the north side of Williamson Avenue were changed to C-H along with the properties to the north with frontage on Commonwealth Avenue.

Noise Impact - New residential development would be significantly impacted by railway noise in the absence of any mitigation measures. According to the Noise Contour Map contained in the Community Health and Safety Element of the General Plan, the area falls within a noise impact zone impacted by a noise level of over 65dB CNEL.

A review of EIRs for similar circumstances existing where residential development is located adjacent to railroads in other jurisdictions indicates that the noise impacts could be mitigated by the use of barriers 17 to 23 feet high. It appears that through proper two-story building design in the study area, the noise may be mitigated to acceptable levels (60-65 dB CNEL or lower). However, unless proposed residential buildings adjacent to the railroad right-of-way are designed to form a continuous uninterrupted noise barrier, the design will be ineffective. In order to assure that effective design controls are utilized on an incremental basis, this Specific Plan has been prepared for the area.

Infrastructure - Full development under the current R-3 Multiple-Family Residential zoning and General Plan Land Use designation of Medium Density Residential (up to 28 dwelling units per acre) would result in a greater demand for City services. An analysis of available services indicates that deficiencies exist in the area of water fire flow used for suppression services during a fire (see Specific Plan Map Exhibit A for existing utility line sizes and locations), street lights, drainage, and domestic water service. In addition, a further analysis of the existing sewer lines indicates that these lines are adequate for possible residential development as opposed to the initial analysis contained in the Staff Report for General Plan Revision GPR-84-1b, which indicated that there was a need to upgrade sewer lines.



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**WILLIAMSON AVENUE
500 BLOCK**

ANALYSIS

SPECIFIC PLAN NO. 7

ANALYSIS:

Development Standards - Future development of the area will be regulated by the provisions of Chapters 15.17 and 15.47 of the Fullerton Municipal Code. Under the existing R-3, Limited Density Multiple-Family Residential zoning classification, the optimum development is apartments or condominiums. The maximum density permitted under the R-3 zoning classification is one unit for every 1,600 square feet of net lot area. Lot sizes in the area are generally consistent except that parcels on the north side of the street (7,800 square feet/lot) are smaller than those on the south (8,996 square feet/lot). Since the City Zoning Ordinance does not allow the counting of a fraction of a dwelling unit for density, it is advantageous to combine individual lots. Details concerning the number of dwelling units permitted is illustrated below.

LOTS ON NORTH SIDE OF STREET				LOTS ON SOUTH SIDE OF STREET			
No. of Combined Lots	Net Sq.Ft.	Gross No. of Units	Net No. of Units	No. of Combined Lots	Net Sq.Ft.	Gross No. of Units	Net No. of Units
1	7,800	4.87	4	1	8,996	5.62	5
2	15,600	9.75	9	2	17,992	11.24	11
3	23,400	14.62	14	3	26,988	16.86	16
4	31,200	19.5	19	4	35,984	22.49	22
5	39,000	24.37	24	5	44,980	28.11	28
6	46,800	29.25	29	6	53,976	33.73	33

Additional requirements concerning setbacks, coverage, usable open space, parking, and site plan review criteria are contained in the City Zoning Ordinance.

Infrastructure Analysis

The infrastructure for the subject area is in place, however, some of these improvements do not meet current City standards. The deficiencies in infrastructures are primarily due to age, with the situation further complicated by the change in zoning and General Plan land use that will allow Medium Density Residential development. Because the degree of deficiency, need, and cost of upgrading varies for each part of the infrastructure system, the following analysis is presented on an individual component basis.

Curb, Gutter, Street and Alley Pavement

The existing curb, gutter, and street pavement in the area is in need of repair because of cracks and general wear. The alleys north and south of Williamson

Avenue were replaced two years ago, as part of the Federally-financed Housing and Community Development Block Grant Program. The existing curb, gutter and street pavement are currently serviceable with normal City maintenance repairing those areas which are needed on a continuous basis. It would therefore be appropriate to provide major upgrade of these items on an incremental basis through developer contributions. In addition, however, the street pavement will be subject to an annual review for possible resurfacing using the City's gasoline tax fund program for street repair.

Street Lights

The existing street lighting system consists of light fixtures mounted on Southern California Edison Company power poles. These light fixtures are owned and operated by Southern California Edison Company, with the City paying rental maintenance and electrical costs. These existing lights do not comply with City standards with regards to spacing, height, and in some cases, type. In addition, the rental fees paid to Southern California Edison by the City is usually equivalent to the purchase price of a complete light standard after five years.

The City Engineering Department has estimated that to replace the existing Edison system would require the installation of eight, 100-watt high pressure sodium light standards, 27 feet in height and spaced 160 to 200 feet apart. It is estimated that to replace the system all at once would cost \$26,000.00.

Given the relatively substantial cost of replacing the existing street lights and that the system is serviceable, it appears appropriate to use the City's policy of charging developers a lot frontage fee for street lights. In this manner, if other funds become available, e.g., Community Development Block Grant Funds, the developer contributions can be mixed to accomplish the upgrade.

Sewer Lines

The existing sewer lines consist of a six-inch diameter vitrified clay pipe which is located in Williamson Avenue and Chestnut Place. In the previously-referenced General Plan Revision, Planning Commission Staff Report (GPR-84-1b), the sewer system was considered adequate for existing land usage, but inadequate, or "... marginal at best for the proposed ultimate land use densities." A reevaluation of this item was conducted by Staff members of both Engineering and Community Development Department and the Development Services

Department. Although standard engineering practice indicates that an eight-inch diameter sewer line would be used today if the area was undeveloped, the Staff evaluation has determined that the existing six-inch line will be adequate, based on the following two factors:

1. Based on population estimates of between 162 and 187 total persons ultimately living in the area, the City Engineering Department has calculated the existing sewer is adequately sized; and
2. Given that the area is surrounded by commercial and industrial land uses which will not be using the six-inch sewer lines, the existing system will be adequate for the area.

Water Lines (Domestic and Fire Flow)

The existing water line consists of a four-inch diameter cast iron pipe located in Williamson Avenue. This line connects to a twelve-inch diameter water line located in Richman Avenue, a four-inch line in Chestnut Place and an eight-inch in Williamson west of Chestnut Place. Although the existing water lines in Williamson Avenue and Chestnut Place are adequate for current and future residential domestic water, they are not adequate for fire flow suppression purposes. According to the Fullerton Water System Master Plan and Related Studies, adopted July, 1983 (pp. 9-4); "Four-inch diameter water mains should be permitted only where the length is less than 500 feet and the main does not serve fire hydrants." According to the City Water Engineering Division computer model projection, the existing combined fire flow level of the existing hydrants at Chestnut Place and Richman Avenue is 2,500 gallons per minute. Therefore, the fire flow level is considered adequate for existing as well as future multiple-family development of the area. However, City Fire Department regulations specify that fire hydrants may not be greater than 500 feet apart. Therefore, a deficiency of approximately 60 feet of separation places the properties in the middle of the 500 block of Williamson beyond the maximum limit. In order to assure adequate fire fighting capability in the area, an upgrade of the existing four-inch main to serve a new hydrant will be needed.

The recommended water main upgrade includes a new eight-inch diameter line from Chestnut Place to Richman Avenue. A new line in Chestnut Place will not be necessary. The line upgrade would be scheduled as follows:

1. Installation during the next two fiscal years (85-86 and 86-87) by using the City Capital Improvement Program water main replacement fund, providing these funds are not used for main replacements which have a greater priority; or
2. If the funds are unavailable and development is proposed, the first developer will be required to extend the line from the 12-inch main in Richman Avenue to a point in the middle of the 500 block of Williamson Avenue and the installation of a standard fire hydrant at the west end of said line extension; and
3. If a second development is proposed prior to the availability of funds, said developer will be required to complete the main in Williamson Avenue by extending the line west and connecting to the existing eight-inch line at Chestnut Place.

If the main and hydrant improvements are installed at one or both of the developer's expense, the City will enter into a standard reimbursable agreement which will be used to charge future developers connection fees in order to recoup the original developer's partial costs.

The water line deficiencies described herein are not an unusual or isolated event, since the topic is discussed at length in the Fullerton Water System Master Plan and Related Studies adopted July, 1983. As recommended by the previously-referenced document, \$250,000 per year has been allocated in the City's Capital Improvement Program for water main replacement. On November 27, 1984, the Engineering and Community Development Department estimated the water system improvement costs for the area as follows:

600 linear feet of 8-inch cast iron pipe at \$40/linear foot.	\$24,000
1 fire hydrant at \$2,000	<u>\$ 2,000</u>
Total Estimated Construction Cost	\$26,000
Engineering and Inspection - 10%	\$ 2,600
Contingencies 20%	<u>\$ 5,200</u>
TOTAL	\$33,800

The estimated cost of upgrading the system would only use 13.52% of one year's CIP allocation for water main replacement.

Drainage

The existing drainage of this area is generally to the south. Drainage facilities consist of concrete gutters which surface drain to the southern ends of Richman Avenue and Chestnut Place, where the water is carried under the railroad right-of-way. There are no known drainage problems being experienced by the area, however, the City has approved a capital improvement project for a storm drain in Richman Avenue from Amerige Avenue southerly under the ATSF railroad tracks to connect with the existing storm drain at Walnut Avenue. This work is planned to coincide with the Sanitation District's main sewer trunk construction in this area. The total budget for this project is \$267,500, with funding split at \$21,400 for 1985-86 (Engineering studies) and \$246,000 for 1986-87 (construction).

On a long range basis, it is important to note that this area, as is most of the southern part of the City, is in Federal Flood Insurance Zone B. All properties within Zone B are required to provide a building pad a minimum of one foot above the top of street curb elevation, for all new development. The reason for this requirement is to eventually elevate all development above the projected 100-year flood level established by the U.S. Army Corp of Engineers. All building plans and permits will be conditioned to comply with this requirement.

Noise Impacts and Mitigation Measures - A noise analysis of this area was necessary because of the proximity to the Santa Fe Railroad to the south. The City of Fullerton requires all multi-family projects to conform to the requirements of Table 1.

TABLE 1

NOISE CRITERIA

Exterior	60 CNEL
Interior	45 CNEL

Noise measurements have been made over a period of time on this railroad line, so the referenced material is fairly well documented. Specifically a recent noise study was submitted to the City by Gordon Bricken and Associates, consulting Acoustical and Energy Engineers for the owners of the property at 507 West Williamson Avenue. (See Appendix A for details.)

The data generated indicates that properties on the north side of Williamson Avenue will be impacted by noise less than those lots on the south side. The reasons for this are twofold. First the lots on the north side of Williamson Avenue are further from the center line of the railroad right-of-way (approximately 303 feet) than those on the south side. Secondly, the properties on the north are shielded by a series of primarily noncontinuous single-story structures. The resulting design values (as indicated in Mr. Bricken's report) are indicated in Table 2.

TABLE 2
 DESIGN NOISE LEVELS AT THE
 SOUTH FACE OF PROPOSED BUILDINGS
ON THE NORTH SIDE OF WILLIAMSON AVENUE

CNEL	
First Floor	60.1
Second Floor	65.4

To achieve the 60 CNEL noise criteria, all required usable open space will have to be shielded by a two-story continuous barrier. There are two possible means of providing the necessary barriers and these are presented as follows:

1. Construct a continuous 15-foot high wall along the railroad right-of-way (on the south side of the alley south of Williamson Avenue), with the starting and ending points 150 feet west of Chestnut Place and east of Richman Avenue. The estimated cost of constructing a barrier of this height is from \$150 to \$200 per linear foot, or a total of \$141,000 to \$190,000 in construction costs alone. A number of financial sources are available to fund this alternative including: Assessment District formation, Housing and Community Development Block Grant funds, and the City General Fund.
2. The second alternative involves constructing barriers on individual sites as development occurs in accordance with the recommendations contained in the following discussion.

It appears that the City's 60 CNEL requirement would be met for all ground level usable open space on properties on the north side of Williamson Avenue. However, all required second floor balconies which are exposed to the southerly railroad line and would require a barrier wall of sufficient height. Two options are suggested for barrier construction. These are:

- (1) A barrier constructed on all south ends of balconies, from the deck to the eave and extending to the balcony edge. This option would only apply to balconies which were not already shielded by a two-story structure.
- (2) Construct a 5.5-foot high barrier around all balconies which are not shielded by a two-story structure.

Both types of barriers would be light-tight of a material with a surface weight of 3#/sq. ft. or greater. The two options are diagramed on Exhibit B.

Properties on the south side of Williamson Avenue are subject to much higher noise levels since they are closer to the railroad right-of-way and there are no buildings interposing to act as a noise shield. Estimates by Gordon Bricken and Associates indicate that to protect usable open space on both ground and second floor levels, a continuous barrier designed to the following heights will be needed:

<u>HEIGHT</u>	<u>CNEL</u>
15 feet+/-	60
12 feet+/-	65

In order to achieve the City 60 CNEL standard, all required usable open space will have to be shielded by a two-story barrier that is continuous between structures. Typical noise mitigation standards are illustrated in Exhibit C.

Interior Noise Standards - Based upon standard construction methods, interior noise levels of 45 CNEL cannot be satisfied unless windows are closed. In addition, windows (unless double-paned insulated) should not be permitted on southerly exposed walls of buildings adjacent to the railroad right-of-way. The maximum interior levels are listed in Table 3.

TABLE 3

INTERIOR NOISE LEVELS	
CNEL	
Windows open	50
Windows closed	43
Allowed	45

The closed window condition satisfies the requirement. However, because the windows must be closed, special ventilation is required. Mechanical ventilation options may be provided using one of the following alternative methods listed in Appendix B.

Conclusion of Alternative Noise Mitigation Measures - Given the relatively high cost of constructing a continuous barrier along the railroad right-of-way and the relative existing residential stability of the affected area, it appears that the incremental private development approach to mitigating noise impacts would be appropriate.



City of Fullerton
Development Services Dept.

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**WILLIAMSON AVENUE
500 BLOCK**

**RECOMMENDED
IMPLEMENTATION PROGRAM**

SPECIFIC PLAN NO. 7

RECOMMENDED IMPLEMENTATION PROGRAM

The following recommendations are presented to provide an action implementation program. This program will be used by City Staff, developers-owners, and the City Planning Commission in making decisions affecting development within the Williamson Avenue Specific Plan Area. This section is intended to comply with the requirements of California Government Code Section 65451(a)(4).

Development Standards - The current development standards of Chapters 15.17 and 15.47 of the Fullerton Municipal Code are both adequate and applicable for use in the Specific Plan Area. Chapter 15.17 regulates uses, yards, heights, areas, densities, open space and parking. Chapter 15.47 requires the approval of a Site Plan utilizing design criteria which allows for the review of items which are not necessarily measurable.

Infrastructure Improvement - Improvements will be undertaken utilizing the following resources and schedule:

Type of Improvement	Resources and Schedule
Deteriorated Curb, Gutter, Sidewalk & Street Pavement.	Replaced on an incremental basis as development occurs with the developer providing the improvements. An exception to this would be made if the street pavement condition warranted replacement or improvement on a comprehensive basis; then the City will use gas tax funds as part of the ongoing Street Maintenance Program.
Street Lights	Replace on an incremental basis as development occurs with the developer providing the improvements. If street light replacement is inappropriate on an incremental basis, then developer fees will be collected on a project-by-project basis until adequate funds are acquired.
Augment the existing four-inch waterline with a new eight-inch waterline in Williamson Avenue. The new eight-inch line will include one new fire hydrant.	The City Water Engineer has determined that a new eight-inch diameter waterline in Williamson Avenue is required to provide an adequate minimum distance between hydrants. However this is a Water Maintenance item which is provided for in the City's Capital Improvement Program. The line upgrade will be scheduled as follows: 1. Installation sometime during the next two fiscal years (85-86 and 86-87) by using the City Capital Improvement Program water main replacement fund, providing these funds are not used for main replacement which has a greater priority; or

2. If the funds are unavailable and development is proposed, the first developer will be required to extend the line from the 12-inch main in Richman Avenue to a point in the middle of the 500 block of Williamson Avenue and the installation of a standard fire hydrant at the west end of said line extension (see Exhibit A); and
3. If a second development is proposed prior to the availability of funds, said developer will be required to complete the main in Williamson Avenue by extending the line west and connecting to the existing eight-inch line at Chestnut Place.

If the main and hydrant improvements are installed at one or both of the developer's expense, the City (at the request of the developer) will enter into a standard reimbursable agreement which will be used to charge future developers connection fees in order to recoup the original developer's partial costs. If a reimbursable agreement is utilized, future fees to recover costs will be based upon one of the following methods: lot frontage, acreage, or per lot fees.

All new water services would connect to the eight-inch diameter line after completion, since the connection of existing meters would result in water pressure problems for existing on-site water systems.

Sewer Line

The existing sewer line is adequate for existing and future land use, however, development of the area east of Richman will not be allowed to use the Williamson Avenue sewer line unless the use can be accommodated or the existing line is replaced to accept the flow from outside the affected area. In other words, future uses from outside the subject area which propose to tie into the existing sewer will be evaluated on the basis of waste water generated e.g., a restaurant is a higher water user than a retail store.

Drainage

The City has budgeted \$267,400 to replace an existing storm drain in Richman Avenue in conjunction with the Sanitation District sewer main construction project. The storm drain project is expected to upgrade the drainage capability for the area north of Commonwealth Avenue. However, all future development in the Project Area is required by Federal Flood Insurance regulations to raise habitable building pads one-foot above the top of street curb elevation. This requirement is and will be enforced as a condition of building permit issuance.

Noise Mitigation Measures - Based upon the noise levels predicted in this study the following measures will be required for all future development in the area.

PROPERTIES ON THE NORTH SIDE OF WILLIAMSON AVENUE:

Outdoor Requirements

1. Patios which are not screened by an on-site building will require a minimum five-foot high wall constructed of the same materials as the main building (see Exhibit B for illustrated example).
2. Second floor balconies will be shielded using one of two possible options (see Exhibit B for illustrated examples):

- a. A barrier* constructed on all south ends of balconies, from the deck to the eave and extending to the balcony edge. This option would only apply to balconies which were not already shielded by a two-story structure.
- b. Construction of a 5.5-foot high barrier* around all balconies which are not shielded by a two-story structure.

*Both types of barriers would be solid of a material with a surface weight of 3#/sq. ft. or greater. In other words the barriers are to be constructed with the same materials as the main building walls.

Interior Requirements

In order to assure that the minimum interior noise level of 45 CNEL is met, mechanical ventilation is required for all units. Acceptable mechanical ventilation methods are listed in Appendix B of this study.

PROPERTIES ON THE SOUTH SIDE OF WILLIAMSON AVENUE:

Outdoor Requirements

All required usable open space (both private and public) will have to be shielded by a two-story structure. In order to create the optimum barrier, all future buildings will construct wing walls at the same locations (approximately 25 feet north of the alley property line). Eventually these wing walls will create uniform noise barriers along the alley. Examples of these provisions are contained in Exhibit C of this study.

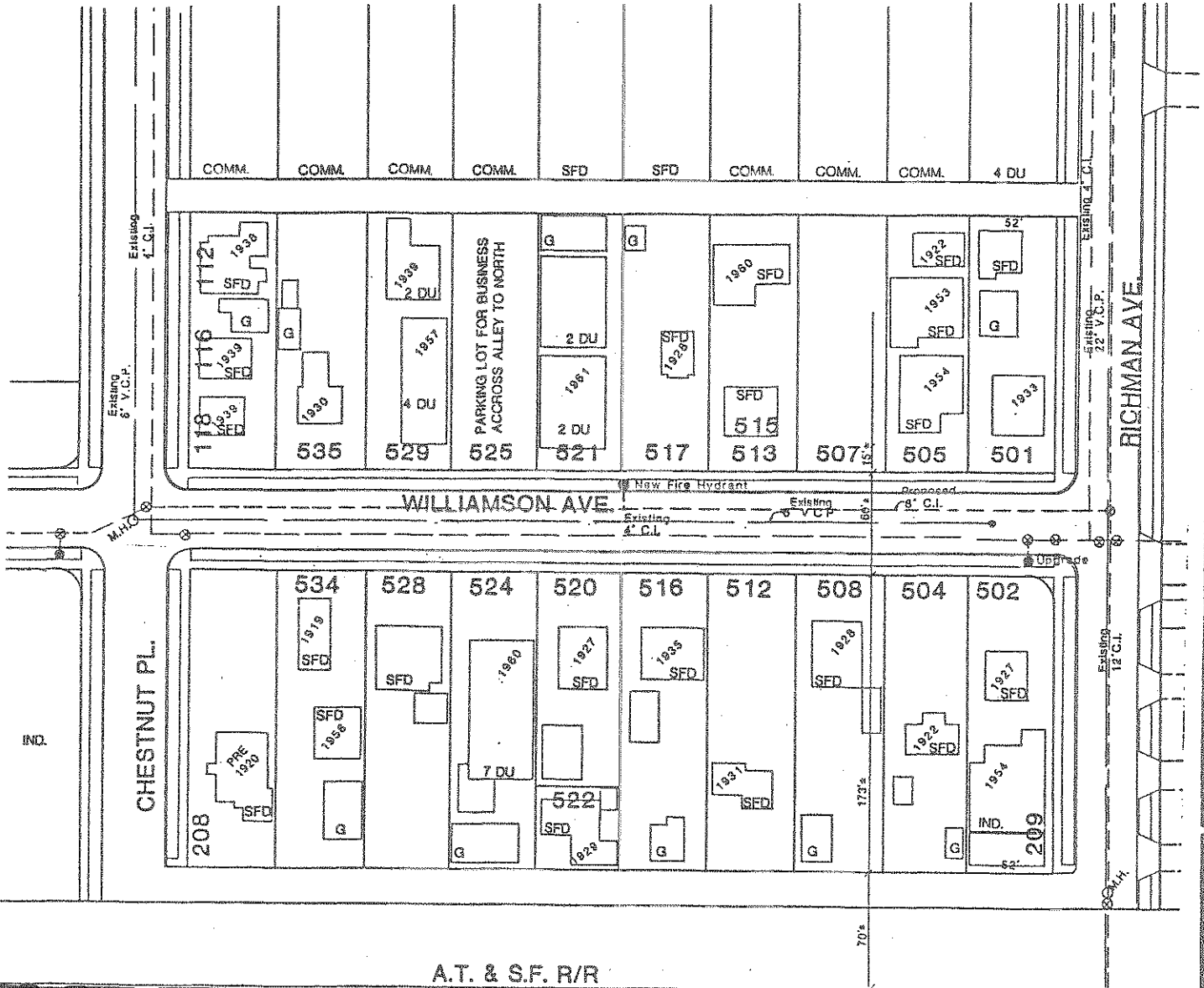
Interior Requirements

The requirements for mechanical ventilation of all units will have to be provided as described in the interior requirements for the properties on the north side of Williamson Avenue. In addition, windows (unless double-paned insulated) will not be permitted on the southerly exposed walls of buildings adjacent to the railroad right-of-way (see Appendix B for an illustrated example).



DSD

WILLIAMSON AVENUE 500 BLOCK



LEGEND

- | | | | |
|------------|--|-------|-------------------------|
| — V.C.P. — | VITRIFIED CLAY PIPE | SFD | SINGLE FAMILY DWELLING |
| — C.I. — | CAST IRON WATER MAIN (FUTURE)
CAST IRON WATER MAIN (EXISTING) | 4 DU | ATTACHED DWELLING UNITS |
| • | WATER MAIN VALVE | G | GARAGE |
| 500 | PROPERTY ADDRESS | COMM. | COMMERCIAL USE |
| 1944 | APPROXIMATE YEAR CONSTRUCTED | IND. | INDUSTRIAL |
| — | CENTERLINE OF RAILROAD
RIGHT OF WAY | | |

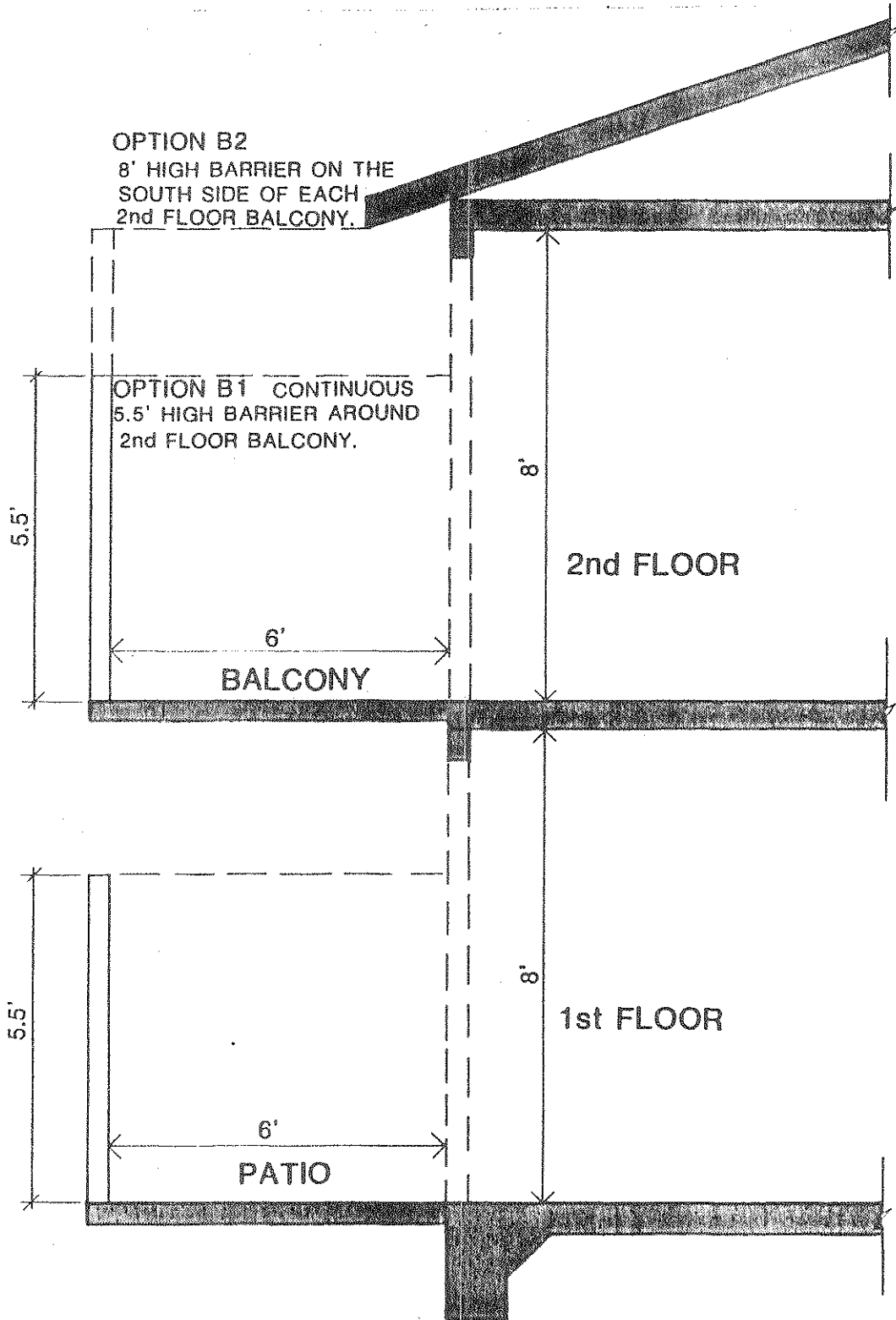
SCALE: 1" = 40' MARCH 26, 1985

SPECIFIC PLAN NO. 7 EXHIBIT A



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WILLIAMSON AVENUE 500 BLOCK



Properties on the north side of Williamson Avenue
with a southerly exposure.

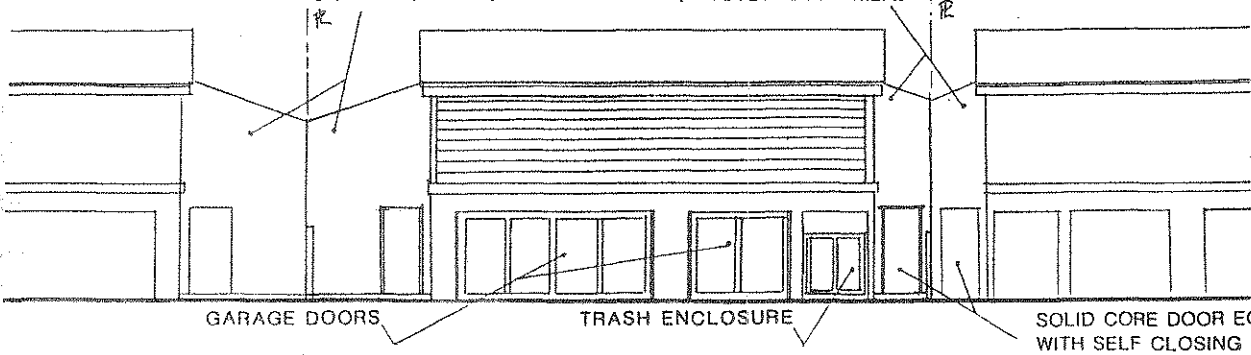
SPECIFIC PLAN NO. 7 EXHIBIT B



DSD

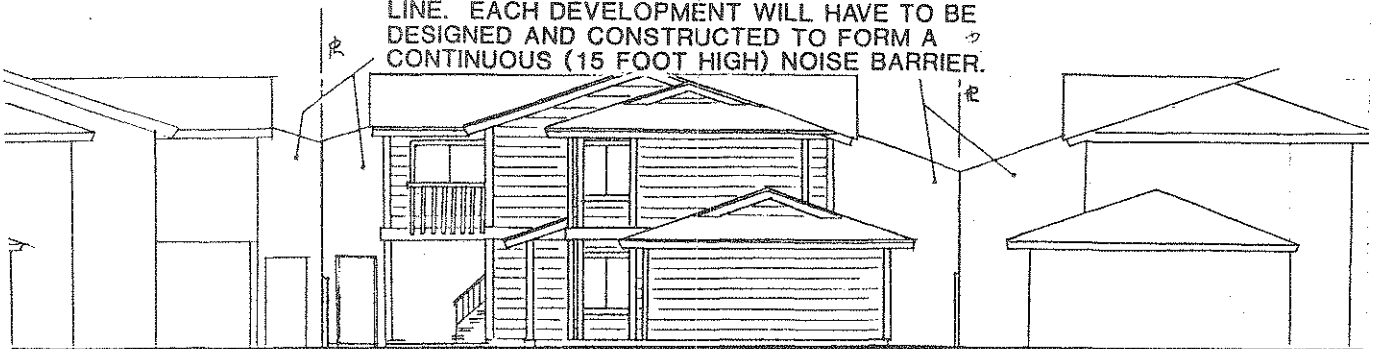
WILLIAMSON AVENUE 500 BLOCK

NOISE (WING WALLS) JOINED AT THE PROPERTY LINE. EACH DEVELOPMENT WILL HAVE TO BE DESIGNED AND CONSTRUCTED TO FORM A CONTINUOUS (15 FOOT HIGH) NOISE BARRIER.



TYPICAL ALLEY ELEVATION FACING THE RAILROAD
RIGHT OF WAY

NOISE (WING WALLS) JOINED AT THE PROPERTY LINE. EACH DEVELOPMENT WILL HAVE TO BE DESIGNED AND CONSTRUCTED TO FORM A CONTINUOUS (15 FOOT HIGH) NOISE BARRIER.



TYPICAL STREET ELEVATION (South side of Williamson Ave.)

SPECIFIC PLAN NO. 7 EXHIBIT C

APPENDIX A

TYPICAL MEASURED SAMPLE OF NOISE LEVELS
AT 100 FEET FROM CENTER LINE OF THE TRACK

EVENT	TYPE	MAXIMUM dBA	SENEL
1	Passenger	88	91.3
2	Passenger	84	89.0
3	Passenger	91	94.9
4	Switch Freight	78	89.7
5	Main Line Freight	92	101.1
6	Main Line Freight	88	97.8
7	Main Line Freight	94	102.5
	Average Main Line	92.0	100.2
	Average Passenger	88.6	90.8

Rail service on this line consists of inbound or outbound to the east and to San Diego. These rail operations consist of both AMTRAK passenger as well as freight service.

The operational data collected on these routes for several years is given in an average operational 1984 Model in the following Table.

1984 AVERAGE RAILROAD OPERATIONAL MODEL

	FREIGHT	PASSENGER	TOTAL
7:00 A.M. to 7:00 P.M.	10.5	10	20.5
7:00 P.M. to 10:00 P.M.	4.5	2	6.5
10:00 P.M. to 7:00 A.M.	<u>12.5</u>	<u>1</u>	<u>13.5</u>
	27.5	13	40.5

The CNEL equation is given by the formulae:

$$CNEL = \overline{SENEL} + 10 \log W - 49.4$$

Where:

$$\overline{SENEL} = \text{Average Daily SENEL}$$

$$W = \frac{N}{D} + 3 \frac{N}{E} + 10 \frac{N}{N}$$

$$N_D = \text{Number of trains -- 7:00 A.M. to 7:00 P.M.}$$

$$N_E = \text{Number of trains -- 7:00 P.M. to 10:00 P.M.}$$

$$N_N = \text{Number of trains -- 10:00 P.M. to 7:00 A.M.}$$

$$SENEL = \text{Single Event Noise Exposure Level.}$$

Using the CNEL equation, subtotal SENEL values from Table 2, and the Operations Data from Table 3, yields:

$$CNEL_{\text{passenger}} = 52.9 \text{ at 100 feet, and}$$

$$CNEL_{\text{freight}} = 72.5 \text{ at 100 feet.}$$

$$\text{The combined CNEL} = 72.6 \text{ at 100 feet.}$$

APPENDIX B

- (1) A "summer switch" on the forced air heating, or heating/cooling unit for each dwelling. The "summer switch" permits fan operation for ventilation independent of the heating and/or cooling functions. The Uniform Building Code requires that the system provide two air changes per hour in all habitable rooms. Twenty percent (20%) of the total air supply must be taken from the outside. The fresh air intake duct should be of flexible fiberglass sound-attenuated construction. The duct may be at least ten (10) feet long or at least six (6) feet long with one (1) sharp 90° bend. The intake duct should have an in-line mechanical quad damper before the fan.
- (2) A through-wall air conditioner or heat pump unit must supply two air changes per hour with at least twenty percent (20%) fresh air taken directly from the outside to satisfy the Uniform Building Code requirements. The unit should have approximate overall dimensions of 18" by 24" or less with a vent opening no greater than six (6) inches in diameter. Or, the unit may be an approved alternative with acceptable acoustical transmission loss performance.
- (3) An attic fan system would bring outside air to the house interior and exhaust the indoor living area air past a ceiling fan into the attic space and out the attic vents. The air may be brought from the outside through an open window in the side of each unit which faces away from the street. Alternatively, the air may be ducted into the house through ten (10) feet of flexible fiberglass ducting with one sharp 90° bend. If ducting is used, the intake opening should be in the side of each affected dwelling unit which faces away from the street. As required by the Uniform Building Code, the system must provide two (2) air changes per hour for each habitable room and at least twenty percent (20%) fresh air taken directly from outside.

