Texas Department of Transportation

DEWITT C. GREER STATE HIGHWAY BLDG. • 125 E. 11TH STREET • AUSTIN, TEXAS 78701-2483 • (512) 463-8585

August 28, 1992

San Antonio/Monterrey Rail Corridor

Mr. Gilbert E. Carmichael
Administrator, Federal
Railroad Administration
U.S. Department of Transportation
400 Seventh Street, S.W.
Washington, D.C. 20590

Dear Mr. Carmichael:

On behalf of Governor Ann Richards, I am pleased to submit this application for financial assistance to eliminate railroad/highway crossing hazards in order to facilitate high speed rail service between San Antonio and Laredo.

As the application indicates, the corridor between San Antonio, Texas and Monterrey, Mexico via Laredo, Texas has the potential to provide an alternative to highway or air travel, namely high speed passenger rail service. In order to make such service feasible, however, numerous at-grade railroad/highway crossings need to be improved through the elimination of hazards. The use of federal funds available in Section 1010, High Speed Rail Corridors, of the Intermodal Surface Transportation Efficiency Act of 1991, which amends Title 23, U.S. Code, Section 104(d), would assist in this project.

Your consideration of this application is appreciated. If you have any questions, please contact Mr. Alvin R. Luedecke, Jr., P.E., Director of Division of Transportation Planning at (512) 465-7346.

Sincerely,

Arnold W. Oliver, P.E.
Executive Director

Enclosure
cc: James McQueen, Associate Administrator for
Railroad Development, Federal Railroad
Administration (7 copies)
Honorable Ann Richards, Governor, State of Texas

DESIGNATION OF

THE SAN ANTONIO - LAREDO - MONTERREY, MEXICO

HIGH SPEED RAIL CORRIDOR

AN APPLICATION TO THE

U.S. DEPARTMENT OF TRANSPORTATION

PREPARED BY

TEXAS DEPARTMENT OF TRANSPORTATION

AUGUST 27, 1992

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I. EXECUTIVE SUMMARY

Selection of this international corridor will enable the U.S. Department of Transportation to proceed simultaneously on a variety of high priority issues currently on the public agenda. As the details within this application show, designation of the San Antonio-Laredo-Monterrey High Speed Rail Corridor will promote a transportation project that contains these highly desirable characteristics:

Support for NAFTA and US international economic policy

- promotes increased freight and passenger movements between US and Mexico
- encourages additional joint US and Mexico transportation agreements and coordinated intermodal transportation projects

Improvement of public safety

- controls the establishment of additional highway-rail intersections in this corridor
- eliminates eighty-two highway-rail crossings
- provides for eight grade separations and upgrades for forty-two warning devices

Enhancement of intermodalism efficiencies

- facilitates better intermodal investment decisions for capital improvements, including highway construction/re-construction, border crossings, intermodal terminals
- provides for linkage with Texas Triangle High Speed Rail (TGV) connections in San Antonio
- promotes increased freight and passenger movements in San Antonio-Laredo corridor

Production of significant economic benefits and opportunities

- creates an opportunity for a new, domestic manufacturing enterprise to produce rail passenger coaches in San Antonio
- creates a new, dynamic private-public venture to implement and operate the San Antonio-Laredo-Monterrey passenger service
- yields both user and non-user benefits
- induces employment and income increases
- reduces overall operating costs for freight and passenger service in the corridor.

II. THE INTERNATIONAL HIGH SPEED RAIL CORRIDOR

Introduction and Summary

The U.S. Department of Transportation's designation of the San Antonio-Laredo rail infrastructure as an international high speed rail corridor will provide the needed rail link to fulfill many of the objectives of the North America Free Trade Agreement. The removal of barriers, to both people and goods movements between Mexico and the United States, will exert considerable pressure upon existing rail, highway and air facilities.

Laredo and San Antonio are expected to serve as entry and distribution points for both people and goods moving to and from Mexico. The metropolitan areas of both cities will be called upon to provide the transportation infrastructure to support the projected economic activity resulting from the NAFTA.

The Texas Department of Transportation recognizes that the surface transportation infrastructure between San Antonio and Laredo will require extensive modification and restructuring to meet future traffic demands. The Union Pacific Railroad is already experiencing increased rail activity in this corridor. NAFTA provides an opportunity for trucks from Mexico to deliver goods directly to Texas distribution centers. Improved rail operating times and aggressive marketing of TOFC and Container services will induce a significant portion of the NAFTA traffic to the rail mode. Improved economic conditions in Mexico and South Texas will increase business travel and tourism between Mexico and the United States. A two-hour high speed rail passenger trip between San Antonio and Laredo will encourage a switch from private auto to rail.

Data presented in this application documents the significance of the designation of the San Antonio-Laredo international high speed rail corridor as a means to reduce future high-cost highway construction projects that will be required if the corridor is not designated. For example, the limiting factor in Amtrak's ability to operate passenger service in excess of 90 mph is the high incidence of at-grade highway-rail intersections in the service area. The cost of eliminating these intersections in most corridors is greater than the cost of upgrading the rail infrastructure to 90 mph in the corridor.

The San Antonio-Laredo international corridor presents the U.S. Department of Transportation with an unique opportunity to prevent the proliferation of highway-rail hazards. This approximately 150 mile corridor has less than one at-grade roadway intersection per mile of track. Texas has an extensive highway-rail hazard elimination program. Several of the intersections in this corridor are included in TxDOT current programs. The major benefit of the U.S. DOT corridor designation would be the ability of TxDOT to establish a program with local roadway authorities that would prevent the opening of additional highway-rail intersections. In addition the Union Pacific would have a stronger position to close, or to prevent the opening, of private grade crossings.

Based upon an application of the U.S. DOT accident prediction model, programmed warning device improvements, crossing closures and grade separation construction will reduce potential motor vehicle/train accidents to less than three per year in the corridor. The analysis further documents that a $30 million highway-rail crossing hazard elimination program will result in an annual savings of some $6 million in accident reduction cost alone. The $1 million requested for the first fiscal year of the program can be put to use immediately. TxDOT's current highway-rail safety program includes a least 9 projects on the corridor. These corridor funds will be used to provide incentives for local roadway jurisdictions to close crossings nearby these improvements.

Track infrastructure improvement cost provided by the proposed rail passenger operator is estimated at $7,500,000. The rail passenger operator suggests that private funds derived from additional passenger and freight operating revenue can pay for the infrastructure improvements.

Amtrak has stated that it will not provide rail passenger service in this corridor. In fact Amtrak has authorized a private rail operator to negotiate with Union Pacific for this right. This provides the U.S. DOT with an additional unique opportunity, i.e., to have a segment of the national rail passenger corridor system operated by the private sector at minimal public cost.

The proposed high speed rail corridor non-user benefits exceed several million dollars annually. For example, the Texas Department of Commerce estimates that daily passenger trains in the corridor will account for some $20 million in annual passenger expenditures. The agency estimates that more than 1,000 new jobs will be created, and the total wages for corridor related jobs will

mean an additional $20 million to the Texas economy. The shift in passengers from automobiles to train will save IH-35 users several million dollars annually. The shift of both LTL and truck load traffic to freight rail operations will not only save several million dollars in highway construction and rehabilitation but will also reduce highway user costs.

By designating a portion of the San Antonio-Laredo-Monterrey, Mexico international rail corridor as a high speed rail facility, the U.S. Department of Transportation will set in motion a public private investment partnership that reaches across the border of two nations. The economy of both U.S. and Mexico will be improved by the free flow of goods and people in the important international transportation corridor. From the numerous letters of support and commitments, accompanying this application, from both the U.S. and Mexico it is apparent that the project is feasible. The U.S. DOT is encouraged to join this international "team" effort to realize the unique opportunity that is presented by this essential transportation safety and efficiency project.

Background:
Rail Passenger Service San Antonio-Monterrey

The San Antonio-Bexar County Metropolitan Planning Organization (MPO) Railroad Task Force (RRTF), at the request of their Steering Committee, began pursuing the establishment of first class rail passenger service between Mexico City and San Antonio in 1981. In 1982 with the facilitation of the Railroad Task Force (RRTF), Amtrak and National Railways of Mexico (NdeM) began discussions on the potential initiation of rail passenger service between Mexico City and San Antonio. NdeM officials noted the following obstacles existing at that time to carrying out the proposed rail passenger service: 1) NdeM had an insufficient amount of modern equipment; 2) sleepers, diners and observation cars were not owned by NdeM and Amtrak would have to make arrangements for possible rental or purchase of this equipment; and 3) the trains which ran from Mexico City to Laredo were slow and travel time was long. In response, Amtrak performed internal studies and identified several options to propose to NdeM. In June of 1982, a meeting was held between officials from NdeM and Amtrak to consider Amtrak's proposal. Because of economic conditions in both countries, NdeM could not respond to Amtrak's proposal and the project was put on hold.

In early 1987, NdeM revived its interest in establishing rail passenger service between Mexico City and San Antonio. See Figure 1 for a map of the proposed service. It was believed at the time that motivation for this renewed interest in the first class rail passenger service between Mexico City and San Antonio was trade and the fact that there was a plan for a new train service between Monterrey and Mexico City making connections with El Regiomontano. Unfortunately, many of the elements of Amtrak's 1982 proposal were no longer feasible.

By May 1987, the principal parties, Amtrak, Union Pacific, Texas-Mexican Railway Company and NdeM had indicated positive responses to initiating the service with reservations expressed by the Texas-Mexican Railways Company about crossings on the bridge. Their concern revolved around the fact that there was only one railroad bridge which handles a lot of freight to and from Mexico. They felt they did not have room for any other trains to use this bridge. Alternative suggestions were made such as transferring passengers by bus across the border.

Again to facilitate discussions on establishing the service, the RRTF hosted a workshop in September of 1987 in San Antonio. That meeting further identified implementation problems and set a strategy for discussions with Amtrak. In late 1987 and early 1988, a proposed schedule for daily service for a rail passenger train from San Antonio to Mexico was sent to Amtrak, NdeM, and Union Pacific to develop preliminary cost estimates for the necessary improvements to be able to initiate the service. During the same time frame the RRTF made numerous contacts with U.S. officials concerning the border crossing.

In November of 1988, Amtrak indicated overall support for initiating the rail service but they were unable at that time to contribute financial resources to the project. So, once again implementation of rail passenger service between Mexico City and San Antonio was delayed. In June 1990, in response to renewed interest from both Mexico and the United States, the RRTF again hosted a workshop in San Antonio to discuss the unresolved issues toward establishing a first class rail passenger service. As a result of this meeting several issues were identified for further study. They included: 1. Private sector involvement; 2. Cost of repairing or upgrading of facilities; 3. Preparation of working agreements; 4. Looking at

Proposed Passenger Rail Service
between
San Antonio, Texas and Monterrey, Nuevo Leon

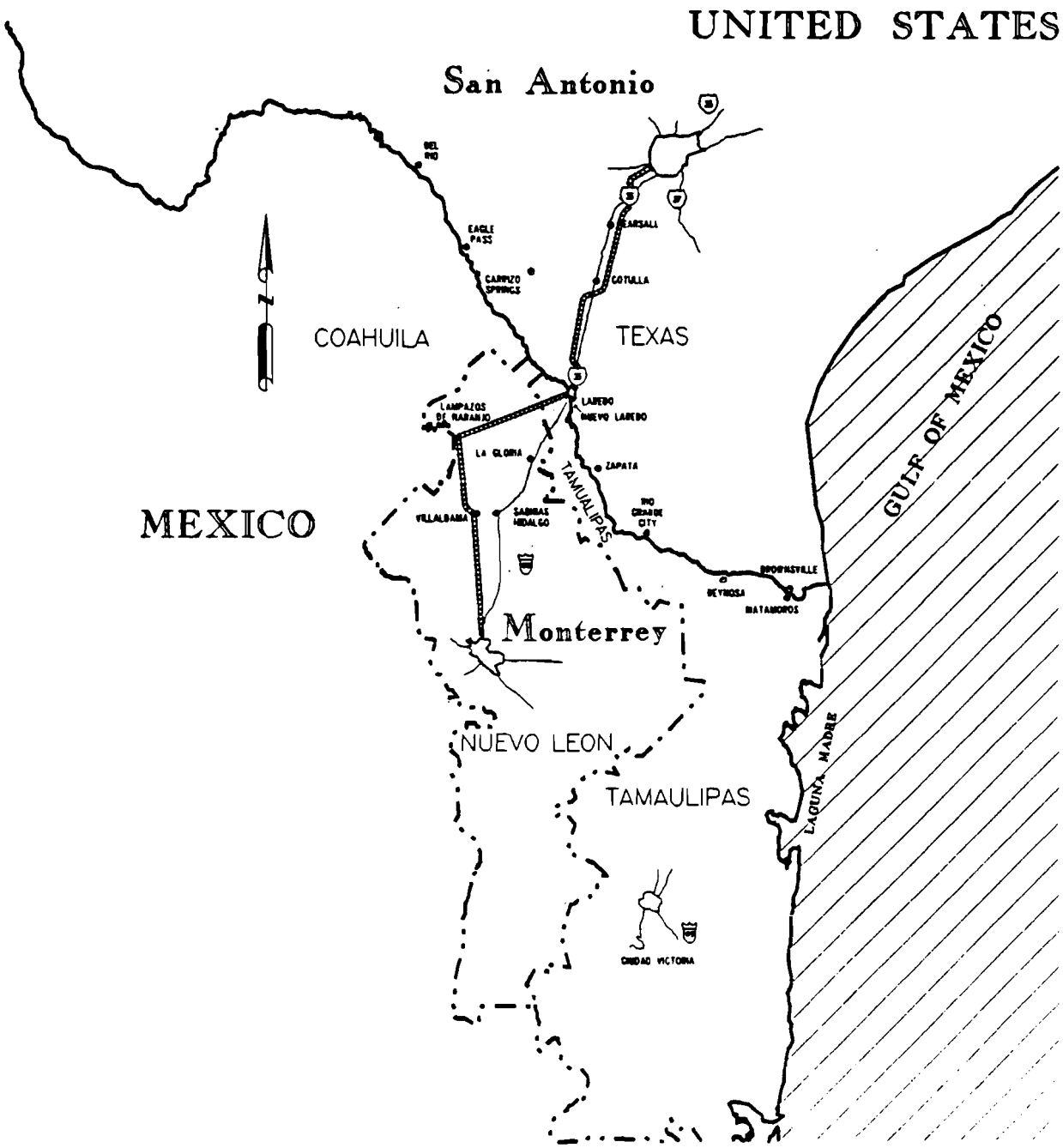


Figure 1

crossing at borders in other parts of the country and how it is being done; and, 5. Looking at Amtrak going into Canada. At the close of the Workshop a Letter of Intent was signed by the principals indicating their interest in working together to initiate the rail service.

An extensive ridership study, supported by resources of the Departments of Tourism, in both Mexico and Texas, and National Railways of Mexico was completed in 1991. The study revealed that there were in excess of 23 million potential travellers in the market area. Following the completion of this study North American Carriage Company developed a business plan to provide train equipment and crews to operate passenger trains on the corridor. The company also proposes to construct rail cars in the San Antonio area.

On August 5, 1992 a meeting of state agencies and private concerns interested in establishing rail passenger service between San Antonio and Monterrey, Mexico was hosted by the Mayor of San Antonio. Federal and state officials from Mexico attended and participated in the discussions. Following a presentation of the requirements for submitting an application to the U.S. DOT to have the San Antonio-Laredo international corridor designated as a high speed rail corridor staff members of the Texas Department of Transportation were given responsibility for the preparation of the application.

Description of Proposed Service

The purpose of this section of the application is to describe intercity rail passenger service between San Antonio and Laredo, Texas with continuing services to Monterrey, Mexico. The proposed approach institutes daily service in the corridor with only minor modifications in the rail infrastructure. As highway-rail intersection, signalization, track and facility improvements are made, scheduled service will be increased.

Specifically, this section of the application responds to part IV, paragraph (i) of the U. S. Department of Transportation's High Speed Rail Corridor application requirements.

Service Level

The Royal Eagle High Speed Passenger Train will have the following services: Custom (1st Class) seating, Excursion Class seating, food and beverage service, business conferencing and express package service.

Schedule

Train 101 will depart San Antonio at 8:30 am daily and arrive at Laredo 2 hrs and 45 mins later at 11:15 am CST. Subsequently, Train 101 will depart Laredo at 11:30 am CST cross the bridge and arrive in Monterrey, Mexico at 3:00 pm CST. Train 102 (separate train from 101) will depart Monterrey, Mexico (daily) at 4:00 pm arrive in Laredo, Texas at 7:30 pm arrive in San Antonio, Texas at 10:30 pm CST.

Capacity per train can increase ridership to five hundred passengers per train. Additional trains will be added as improved speeds make train travel more attractive. An existing ridership study and its analysis show a demand that will eventually require four trips daily each way.

Service Speeds

Initial service maximum speed is 59 mph, average speed is 53 mph: minimum trip time (SAT-LAR) is 2:37 hrs. and average trip time is 2:51 hrs. The previous Amtrak schedule was 3:45 hrs.

The following is a computation of the route time:

(The minimum describes current conditions. The maximum, is a result of the city of San Antonio raising the speed limit within city jurisdiction. City crossings all have active warning devices.

Track Segment	Miles	Min mph	Max mph
SP Depot to tower 105	3.5	8.5 @ 25 mph	5 @ 45 mph
SP tower 105 to UP 265.2	6	8 @ 40 mph	8 @ 45 mph
UP 265.2 to UP 268	2	6 @ 20 mph	6 @ 20 mph
UP 268 to Lytle, TX	13	15 @ 60 mph	13 @ 60 mph
Lytle, TX	2	3 @ 40 mph	3 @ 45 mph
Lytle, TX to Devine, TX	7	8 @ 60 mph	7 @ 60 mph

Devine, TX	2	3 @ 40 mph	3 @ 45 mph
Devine, TX to Pearsall, TX	20	21 @ 60 mph	20 @ 60 mph
Pearsall, TX	2	4 @ 40 mph	3 @ 45 mph
Pearsall, TX to Cotulla, TX	31	32 @ 60 mph	31 @ 60 mph
Cotulla, TX	1	2 @ 40 mph	2 @ 45 mph
Cotulla, TX to UP 405	40	40 @ 60 mph	40 @ 60 mph
UP 405 to UP Depot	7	21 @ 20 mph	16 @ 30 mph
Totals		171.5 min/60 = 2.51 hrs	157 min/60 = 2.37 hrs
		137 miles/2.51 = 48 mph avg	137 miles/2.37 = 53 mph avg

Multimodal Terminals

San Antonio, Texas

The San Antonio Regional Intermodal Transportation Plan developed by the Bexar County Metropolitan Planning Organization considers use of the Southern Pacific RR Depot, now owned by VIA Metropolitan Transit. This terminal will function on an interim basis (10 years) as the intermodal terminal. The terminal will engage existing rail, proposed rail (Royal Eagle), VIA, taxi, and private vehicles. The terminal situated adjacent to the dome stadium will allow for intermodal interface of all transportation systems in San Antonio to include the 8.65 mile trolley system currently being proposed as well as a seven minute transfer from the intermodal facility to the international airport.

Laredo, Texas

The existing Union Pacific Depot will be restored and will serve as the intermodal facility for Laredo. The Laredo Metropolitan Transit Authority will operate this facility, which will include services to the Laredo International Airport, as well as taxi and bus service to Nuevo Laredo, Mexico.

Monterrey, Mexico

The passenger terminal in Monterrey Mexico is 1.5 kilometers east of Gran Plaza in the zona Centro. The station will be adjacent to the Monterrey metro line station stop Parque Fundidora. Parque Fundidora station is a multimodal terminal located on Mexico Highway 6 which is the highway to the International Airport. Also located adjacent to the parque Fundidora station is the new International Business Center. "Cintermex" contains 690,000 square feed of space for trade shows, exhibitions and conventions.

Capital Cost - Rolling Stock

North American Carriages Company, Inc. will supply locomotives and passenger cars and will begin service with two trains between San Antonio, Texas, U.S.A. and Monterrey, Nuevo Leon, Mexico. The value of the rolling stock, passenger cars only, is $10,500,000.00. This equipment will be built in the U.S. and sold to the Mexico corporation Lineas Del Aguliar Real de S.A. de C.V. which will long term lease the equipment to the Royal Eagle Lines in the U.S. to operate. The following represents the roster of the proposed passenger equipment:

Car Number	Car Type
Rel 00001 & Rel 00002	Custom Club (60 passengers)
Rel 00003 & Rel 00004	Dining Car (40 seats)
Rel 00005 & Rel 00006	Excursion Coach (74 passengers)
Rel 00007 & Rel 00008	Observation Lounge (48 passengers)
Rel 00009 & Rel 00010	Business/Conf/Express (32 passengers)

NOTE: See Attachment 1 for illustrations of this equipment.

The passenger cars Royal Eagle Lines will be using on the intercity corridor were originally constructed through the "water test" shell stage by the Budd Company in Red Lion, Pennsylvania in the 1980's. These all stainless steel Amfleet passenger cars will be completed to North American Carriages Company, Inc.'s specifications in the North American Carriages Company, Inc.'s shops in San Antonio, Texas and are equipped with horizon trucks capable of speeds up to 125 mph.

Motive power provided by North American Carriages Company, Inc. will be three Bombardier LRC locomotives with a net horsepower for traction of 2738 cv (3725 Hp) engine gross power horsepower of 3777 cv (3725 Hp) with a maximum operating speed of 200 kmh (125 mph). A fully loaded weight of 225,000 lbs, brakes are pneumatic electropneumatic, dynamic and blended. Locomotives are equipped with head end power 500 kw, 480 vac, 3 phase, 60 Hz; air compressor capacity of 6.707 M^3/min (237 cf/m) and fuel capacity of 1800 gals (U.S.) which will allow for round trip from San Antonio to Monterrey without refueling. These locomotives are to be leased from VIA Rail Canada and have been through 170 modifications. They are presently in use in Canada.

Additional trains will be added as passenger traffic develops supported by the ridership volume developed in the following ridership study. Demand for service will establish an ongoing financing base.

Capital Cost Support Facilities

North American Carriages Company, Inc. Maintenance Facilities: formally Southern Pacific Locomotive Facility. Leased by Southern Pacific to North American Carriages Company, Inc.

San Antonio Depot: Depot cost $2,160,000, facility track development $460,000, parking facility development for 1200 cars $4,080,000. Funding source: Transportation Bonds, City of San Antonio.

Laredo Depot: Depot restoration $216,000, parking development for 200 cars parked $87,800. Funding source: City redevelopment, streets and bridge bonds.

Monterrey, Nuevo Leon, Mexico, Parque Fundidora Station: Installation of arrival/departure track $217,000. Associated station expansion cost $473,000. parking on site 300 cars for $124,500, special servicing retail shops and hospitality functions $6,780,000. Until this intermodal station can be funded, the present FNdeM station is in full use and can accommodate the San Antonio train without significant changes. Funding for this is available from the City of Monterrey.

Letters of commitment from the Mayors of San Antonio, Laredo, Nuevo Laredo, and Monterrey were secured at a meeting held August 5, 1992 in San Antonio.

Estimates of Ridership Revenues and Operating Cost

Ridership

A summary of the ridership survey follows. The complete study is a part of the Business and Operational Plan which is available upon request.

North American Carriages, Inc. developed a typical rider profile which allowed the identification of the number of people who are potential passengers. Based on the rider profile, the following market forecast is projected in concert with several Target Markets. They are:

a. 11 million visitors annually to San Antonio minus 550,000 San Antonio visitors which also go to Mexico = 10,450,000 minus the 440,000 visitors who also visit Corpus Christi, Texas, 10,450.00 minus 440,000 = 10,010,000 visitors. With a base of 10,010,000 visitors: Project a capture rate of 5% which would want to take a trip beyond San Antonio for one to three days which equals to 500,500 persons.

b. Of the 4.5 million Texans who visit Mexico: Project that the Royal Eagle can capture on the average about 3% of this business or 4.5 million x 3% or 135,000 passengers per year.

c. Monterrey, Mexico has 2,100,000 visitors to San Antonio on an annual basis, based upon that figure: Project a capture rate of 25% = 52,500 passengers per year.

d. Presently, there are 38,598 Amtrak passengers off in San Antonio with San Antonio being their designation: Project to capture 10% of these riders or 3,859.

e. 179,010 passengers of Amtrak pass through San Antonio on an annual basis: Project that 10% of these passengers can be induced to ride the Royal Eagle or 17,901 annually.

f. In San Antonio there are 290,250 persons who would take the train to Mexico: Project that 10% of these San Antonians will go to the border each year = 29,025 annually.

g. 550,000 visitors to San Antonio also visit Mexico: Project that 10% of them will do so in conjunction with their to trip to San Antonio or 55,000.

h. 3,758,000 auto passengers between San Antonio and Laredo annually plan for 10% of this traffic or 375,800 passengers.

i. 32,970 Dos Laredos residents plan to capture 10% or 3,297 annually.

j. 440,000 visitors to Corpus Christi from San Antonio capture 10% of this traffic or 44,000.

k. 130,739 rail passengers into Nuevo Laredo annually capture 50% = 65,370.

l. 390,100 rail passengers into Monterrey annually capture 15% = 58,515.

m. 197,830 autobus passengers between San Antonio and Laredo capture 5% = 9,892.

n. 45,000 airline passengers into Nuevo Laredo capture 5% = 2,250.

o. 562,000 airline passengers (domestic) through Monterrey capture 2.5% = 14,050.

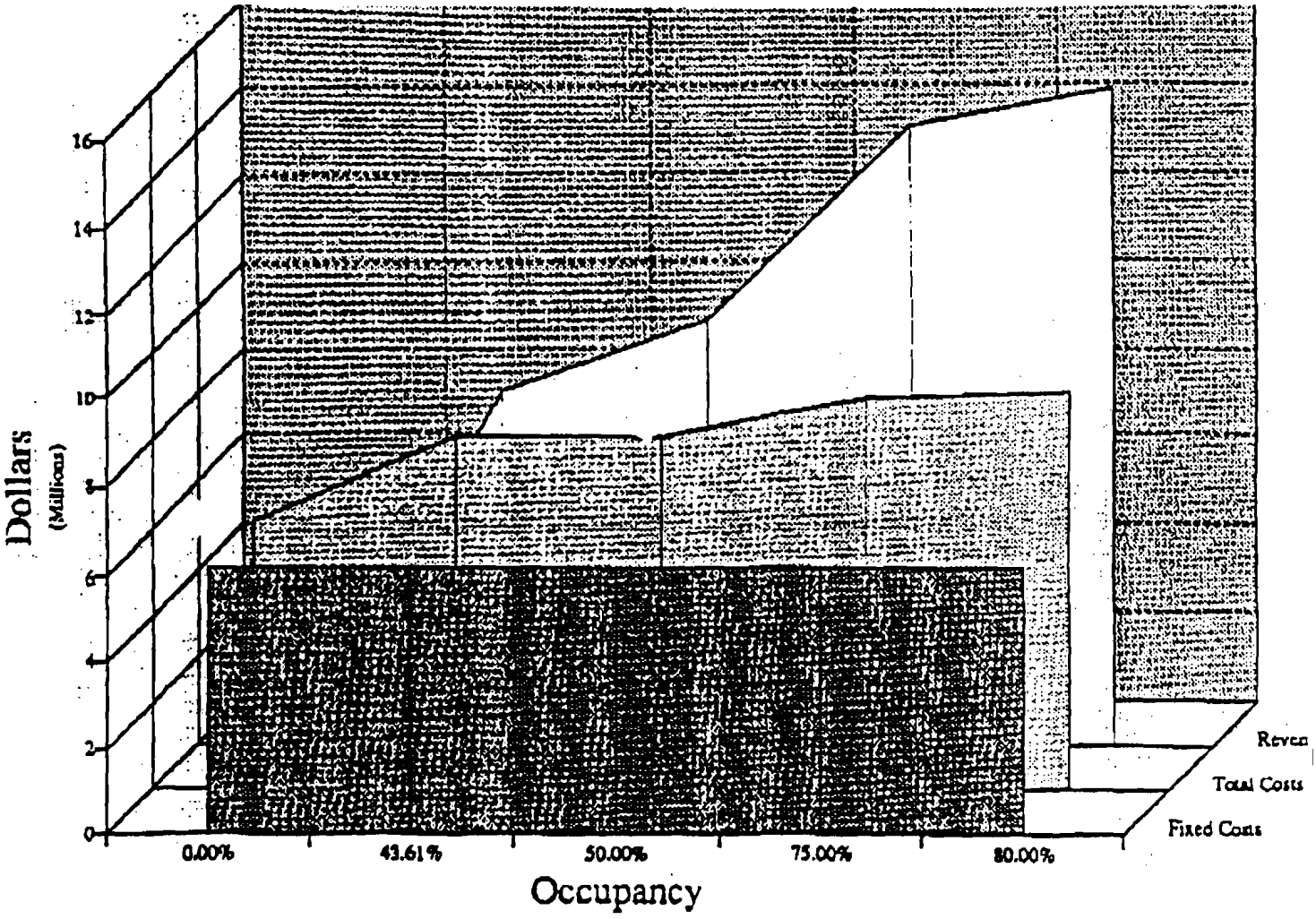
p. 76,000 international passengers capture 5% = 3,800.

The total visitors to the three key cities of Monterrey, San Antonio and Laredo on an annual basis arriving by all transportation modes is 24,290,497 persons. The annual prime ridership is based on a low trip demand of 2.5% of potential travelers to industry standard high trip demand of 10% of potential travelers projected through competing modes. This prime ridership calculates to be 1,370,759 passengers, or one out of eighteen persons, which equates to 5.64% of the total regional market. The initial start up capacity at a 50% occupancy load factor for one round trip train daily, would yield 35,770 passengers annually. At 50% occupancy the Royal Eagle would transport 2.6% of the annual prime rail passenger market between San Antonio and Monterrey. Percent of Market capture based on an 80% load factor equals 57,232 passengers or 4.2% of the prime rail passenger market in the region corridor.

Revenues

The revenues and operating cost data for a daily two train operation are depicted in the following figure. These calculations were based on a fifty percent (50%) occupancy on one round trip daily.

FIGURE 2


Dollars
(Millions)
16
14
12
10
8
6
4
2
0
0.00%
43.61%
50.00%
75.00%
80.00%
Occupancy
Reven
Total Costs
Fixed Costs

III. SOME ECONOMIC CONSIDERATIONS

Impact of the North American Free Trade Agreement

As the year 2000 approaches, two developments are creating expanded possibilities for the 21st century Texas economy: the growth and maturation of the maquiladora industry complex along the Texas-Mexico border, and the probability that a Free Trade Agreement will soon be ratified between the United States and Mexico.

Including Ciudad Juarez (opposite El Paso in far west Texas), as of August 1992 almost 225,000 workers were employed in 494 manufacturing plants in the Mexican cities with a Texas sister on the other side of the Rio Grande: Ojinaga-Presidio, Ciudad Acuna-Del Rio, Piedras Negras-Eagle Pass, Nuevo Laredo-Laredo, Reynosa-McAllen, and Matamoros-Brownsville. It has now become clear that the maquiladoras are one of the most strategically important manufacturing complexes on the North American continent. The Texas Department of Commerce estimates that almost 15% of all the producers goods used by the maquiladoras are purchased in Texas. This means that Texas supplied $1.5 billion in materials to maquiladoras in 1990, or over 12% of all Texas' exports to Mexico. Obviously, their direct adjacency to South and West Texas population centers has profoundly improved the prospects for long-term advances in the economic welfare of border counties and the state as a whole.

This effect will almost certainly be complemented by the proposed North American Free Trade Agreement (NAFTA). Even without NAFTA, the tempo of international commercial activity at the Texas border is already accelerating. From 1986 to 1990, U.S. imports from Mexico increased by 73%, and exports to Mexico by 137%. Texas's share of these exports more than doubled during this period, from $5.6 billion in 1987 to over $12 billion in 1990. The total volume of Texas economic activity supported by exports to Mexico represents an estimated 2.3% of the Gross State Product or GSP ($6.9 billion in 1986), 2.6% of the state total personal income ($5.4 billion in 1987), and 4.2% of total employment (284,000 jobs as of 1988). While not all Texas industries will grow, the consensus view among economists is that Texas exports to Mexico will increase (by as much as 74 percent between 1990 and 2000), and Texas employment will rise (a net increase of as many as 112,000 jobs during the same period).

Many barriers, remain, however, before the flows of income and wealth resulting from expanded international trade can be fully realized and captured by communities throughout Texas. The most formidable of these is the inadequacy of the transportation infrastructure linking Mexican industries and markets with their Texas counterparts, especially at existing crossing points in the border region. Nowhere is this more vividly seen than at Laredo-Nuevo Laredo border crossings.

Laredo lies astride the Pan-American highway, 150 miles south of San Antonio and an equal distance north of Monterrey, one of Mexico's largest cities and its second-largest manufacturing center. As much as one-half of the U.S.-Mexican land trade is handled through Laredo bridges and ports of entry, making it the largest land port along the 2,000 mile U.S.-Mexico border. As of 1990, 1,500 trucks were crossing daily between Laredo and its sister city, for an annual total of 460,000 cross- border truck shipments. Even without a free trade agreement, these totals are expected to swell to 750,000 by 1995 and 1 million by 2000. With NAFTA in place, truck crossings in the year 2000 will surpass 1.6 million. Many of these trucks, of course, will make their way through Laredo and up I-35 to San Antonio, from whence on I-10 they can link with manufacturers, suppliers, and retail markets in Houston, El Paso, and all points east or west; or they can continue to Austin, Dallas-Ft.Worth, and north to Canada.

Clearly, in the context of vastly increased trade between Texas and Mexico, the status of the Laredo-Nuevo Laredo crossings and the condition and capacity of its transportation infrastructure are critical for the Texas economy.

Since as much as 80% of the freight between the U.S. and Mexico moves by truck, it is clear that large and continuous increases in truck traffic moving within and through the border region will be the norm for the foreseeable future. If timely investments are not made in the transportation infrastructure around Laredo and along the I-35 corridor north to San Antonio, including provisions to divert a significant share of that traffic to other transportation modes, the Laredo crossing will be a choke point, resulting in congestion on both sides of the border that will cost manufacturers, shippers, retailers and tourists hundreds of millions of dollars annually. As these losses become translated into lost profits and lost tax revenues, the citizens of Texas will also be losers as international truck traffic pours over increasingly congested and damaged roads and bridges, causing more frequent and severe traffic accidents, more rapid pavement deterioration, and incurring larger highway maintenance, rehabilitation, and construction

expenditures. The alternative, however, is much brighter. If these investments are made, the "spread effects" of economic growth can catalyse economic development in other border cities and counties and in communities throughout Texas.

Impact of the High Speed Rail Corridor on the Texas Economy

The purpose of this section of the application is to identify some impacts of high speed rail passenger service between San Antonio and Laredo, and continuing service to Monterrey, Mexico on the Texas economy. This section also includes a summary of the possible impact of the North American Free Trade Agreement on the corridor.

Unique Characteristics of the Corridor

The Interstate Highway 35/Union Pacific Railroad transportation corridor extends from San Antonio to the U.S./Mexico border at Laredo. This 150 mile multimodal system provides for the movement of passengers and goods, both by highway and rail. Except at either end of the corridor there is little congestion, and/or conflict, between the two surface modes. In contrast to most U.S. rail corridors, the number of at- grade public highway-rail intersections is less than one per mile of track. The geography of south central Texas provides for a relatively flat and straight alignment for the construction and operation of both highway and railroad facilities.

Laredo is the largest export/import terminal along the entire U.S./Mexico border. San Antonio is a major distribution center for Southwestern United States. Much of the goods moving between the U.S. and Mexico flow through one or both of these Texas cities. With the implementation of the North American Free Trade Agreement, it is expected that San Antonio will become a major distribution point for goods and a hub terminal for air and rail travelers.

Virtually all studies agree that the NAFTA will have a positive impact on the Texas economy. According to the Texas Comptroller of Public Accounts, NAFTA could increase Texas exports to Mexico by 74% by the year 2000 (1990-$16.8 billion; 2000 - $29.2 billion). NAFTA will also lead to a net increase of 112,700 jobs by the year 2000.

According to the official Texas Input-Output model the Monterrey - San

Antonio rail corridor will have the following economic impact in Texas in the first year of operation. (Note: Mexican economic impact is not included.)

The following estimates reflect the annual Texas statewide employment and wage impact of each of the four components of railroad operations. The first three components of the railroad operation are not ongoing, so it is important to remember that the figures shown refer to annual impacts. The fourth, operation/maintenance, is continuous.

Impact on Jobs and Personal Income (Estimated)

Project Component	Jobs	Total Wages
Track Construction	237	$ 2.6 million
Construction of two Intermodal Facilities	233	$ 5.1 million
Rail Car Manufacture	496	$11.6 million
Operations/Maintenance	38	$ 1.3 million
Total (year 1)	1,004	$20.6 million

Prepared by Texas Department of Commerce

When the economy-wide impact, both direct and indirect, is considered the Texas Department of Commerce research staff estimates the following dollar values for the rail components: a) Track construction - $9.7 million; b) Construction of terminals - $20.0 million; c) Rail car manufacture - $50.0 million; and d) Operations/Maintenance - $4.4 million.

According to North American Carriages Company ridership estimates, train passengers will provide between $4.9 and $7.8 million in direct spending. The traveler spending will increase as additional trains increase the number of passengers. With four trains running, annual traveler spending could reach between $20 and $30 million. **(see following table)**

Estimated Annual Expenditures From
Monterrey - Laredo - San Antonio Passengers

	Ridership Capacity	Number of Train passengers	Estimated Train Passenger Expenditures Over Corridor (millions $)
Start Up (one train)	50%	35,770	$4.9
	80%	57,232	$7.8
Development (four trains)	50%	143,080	$19.5
	80%	228,928	$31.1

Prepared by Texas Department of Commerce

Estimates of Benefits

Economic Impact

- Railcar construction 8.25 million in San Antonio first year, roll over benefit = $20 million.
- Associated construction projects in San Antonio of $7.2 million.
- Similar construction projects in Laredo and Monterrey associated with passenger station development.
- Annual payroll in San Antonio during first year operations approaches $1.4 million.
- Similar payrolls though not as large will exist in Laredo and Monterrey.
- Construction on the right of way between San Antonio and Laredo associated with improved safety and efficiencies of operation are anticipated

to be in the order of $2.5 to $3 million per year over the next 6 years affecting employment in all the smaller cities along the route.

- Local transit companies in each city will benefit from increased intermodal ridership.

- The delivery of additional overnight guests in the three online cities will mean a combine economic boost of $21 million plus.

- The Royal Eagle will reduce automobile and truck congestion at the international bridges in Laredo.

- The Royal Eagle will create in Laredo a direct delivery access system for both passenger and freight services which will result in significant operating efficiencies at the bridge.

- Reduced automobile traffic on Interstate 35 will result in an annual savings of 438,000 gallons of gasoline a year.

- The Royal Eagle will become a feeder to all parties involved in NAFTA stimulating international trade and tourism.

- With the reestablishment and extension of this transportation mode, San Antonio, Laredo and Monterrey are placed even closer to the cutting edge of trade between Mexico and the United States.

- Increased freight train operating efficiencies would allow a single freight train of 100 cars and 3 - 3000 Hp locomotives a daily fuel savings of 4012 gallons of fuel or $1,274,000 a year in fuel cost savings.

- As a result of increased speeds for TOFC freight trains and the direct delivery access of in and out of Mexico would remove 520 tractor trailer rigs from Interstate 35 and reduce bridge traffic by 8%.

- The reduced tractor trailer traffic would provide a net energy savings of 3,132,000 gallons of fuel.

- Combined locomotive, tractor trailer and automobile fuel savings would

result in over 5 million gallons of fuel saved per year.

- Establish and enterprise zone in conjunction with the Royal Eagle Express package service facility and "in bond" warehouse.

- Institute a job training program in association with the Job Training Partnership Act.

Calculation of User Benefits

There are potentially substantial benefits to motorists along the I-35 corridor from introduction of a high-speed rail service between San Antonio and Laredo. Rail passenger service and goods hauling would reduce both passenger and truck traffic along I-35. This reduction in vehicle volumes would reduce traffic congestion in the urban areas, reduce accidents, and reduce vehicle operating costs. The rail passengers would also benefit by traveling at a higher speed, reducing the total travel time. These benefits would be partially offset by the operating costs incurred to operate the rail service.

To obtain a rough estimate of the magnitude of these potential benefits, the HEEM-III computer program is used to calculate the user benefits. Three scenarios were examined, conforming to those given in the traffic projections. The first is a continuation of current traffic volume trends, the second assumes a NAFTA agreement generated 25 percent increase in truck volume, and the third assumes the truck increase will be 100 percent.

The high-speed rail service is assumed to have a maximum yearly passenger load of 114,464 per train. That number translates roughly to a reduction of 140 vehicles per day from I-35, assuming a 2.2 occupancy rate. The increased speeds and reduced delay at the border is assumed to reduce truck traffic by 520 vehicles a day. If the 25 percent increase in truck traffic is assumed, that number increases to 650, and a 100 percent increase would give 1,040 trucks. It is assumed that the passenger vehicle and truck reductions are achieved in twenty years, with a constant growth rate for intermediate years. A 20 year analysis period is used, along with an 8 percent discount rate. For purposes of the analysis, the nine I-35 sections described in the traffic volume section were classified into urban and rural sections. The urban sections consist of Section 1 in Laredo and Sections 6 to 9

in San Antonio, a total of 24 miles. The other sections, Sections 2 to 5, are assumed to be rural areas, a total of 140 miles. The passenger car occupancy rate in urban areas is assumed to be 1.3, and rural areas is 2.2. The assumed value of time for passenger cars is $9.52 per person per hour, and for trucks the value is $22.63 per hour.

A summary of the reduction in user costs on I-35 are given in Table 1 for several numbers of daily round trips of passenger high-speed rail service. The numbers in the table represent the estimated total discounted reduction in user costs resulting from the high-speed rail service over the twenty year analysis period.

This reduction in motorist and truck user costs will be partially offset by the time and operating costs for passengers and freight on the rail system. Assuming a round-trip operating cost of $49/passenger and an average operating speed of 75 mph, the total discounted passenger cost per train is $31.1 million. The freight costs are calculated assuming an average of 30,000 pounds of freight per truck and a cost of 2.6 cents per ton mile. The discounted rail freight cost is calculated to be $69.9 million for current traffic projections, $87.4 million for an increase of 25% in truck traffic, and $139.8 million for a 100% increase. The net benefits are then the difference between the reduced motorist user costs and the sum of the rail passenger costs and freight costs. Those estimates are given in Table 2.

Table 1. Reduction in User Costs along I-35 (Millions $)

No. of Pass. Trains	Current Trends			25% Increase Trucks			100% Increase Trucks		
	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total
1	39.4	272.1	311.4	43.1	291.1	334.2	61.3	353.8	415.1
2	43.6	300.5	344.1	47.5	319.7	367.2	66.3	384.8	451.1
3	47.9	329.7	377.6	51.9	349.1	401.0	71.3	416.3	487.6
4	52.3	359.6	411.9	56.3	379.3	435.6	76.3	447.9	524.2
5	56.6	389.9	446.5	60.8	409.7	470.4	81.2	479.6	560.9

Table 2. Net Benefits to Motorists, Freight Movement and Passengers of High Speed Rail (Millions $)

Number of Passenger Trains	Traffic Projection Scenarios		
	Current Trends	25% Increase Trucks	100% Increase Trucks
1	210.4	215.7	244.2
2	212.0	217.6	249.1
3	214.3	220.2	254.4
4	217.5	223.7	259.9
5	220.9	227.4	265.4

Conclusions From the Benefit Calculations

The reduction in motorist and truck traffic along I-35 produces a substantial net benefit, even though the numbers in Table 10 are calculated over a 20 year analysis period. The benefits of one round-trip passenger train, combined with the benefits of the increased rail freight, vary from 210.4 million dollars for current trends in projected traffic volume to 215.7 million for a 25 percent increase in truck traffic and 244.2 million for a 100 percent increase in truck traffic. The benefit of the high-speed rail service increases to between 220.9 and 265.4 million dollars for 5 round-trip passenger trains each day. The estimated benefits are significantly influenced by the assumed truck diversion to freight rail service. This can be seen in the relatively small incremental increase in benefits as the number of passenger trains increase.

While the numbers in Table 10 are large, they probably understate the total benefits because of the potential for greatly reduced waiting time to pass the border for rail as compared to trucks. The reduced time for border crossing is not included in the benefits given in Table 10.

IV. THE INTERNATIONAL CORRIDOR AND ITS CROSSINGS

Description of the Rail Corridor

The purpose of this section of the application is to describe the San Antonio-Laredo rail corridor as it exists today. The line segment description is in the same format as the section where requirements for upgrade are presented. Track charts and operating time tables, furnished by the Union Pacific Railroad, along with the grade crossing inventory data base, were used to compile the line segment description. These documents are included in the attachments to this application.

The International & Great Northern Railroad Company constructed the rail line between San Antonio and Laredo in the early 1880's. The Union Pacific obtained the line in 1980 when it merged with the Missouri & Pacific Railroad. The line is approximately 148 miles in length. It begins at the passenger terminal in San Antonio and terminates at the International Rail Bridge in Laredo.

The first 20 miles of track, out of San Antonio, are 115 pound continuous welded rail (CWR) placed in service in 1963. With the exception of a 20 mile segment, the remainder of the track is 112 CWR placed in service between 1965 and 1978. The 20 miles of 119 CWR, near Cotulla, Texas, was laid in 1988. The elevation of the track at San Antonio is approximately 650 feet above sea level. The highest elevation on the route is approximately 786 feet about 25 miles south of San Antonio. The lowest elevations, 411 feet, are recorded near the center of the route and at Laredo. The maximum grade on the entire route exceeds 1.0% at less than 25 locations. The highest is a 2.0% grade. There are relatively few curves on the corridor with the maximum curve just over three degrees.

Segment Analysis

The following is a brief summary of the twelve segments that have been identified for the purpose of this application. The segments are shown on the Track Chart included in the appendix of this document.

Segment 1: (Owning Railroad; Southern Pacific)

This is the only segment involving the Southern Pacific. It is 9.5 miles in length with some 8.3 miles equipped with automatic block signals. All highway-rail intersections in this segment are equipped with active traffic control devices.

Segment 2. (Note: For the following segments the Owning Railroad is the Union Pacific)

Mile post 268.8 - 281.4

Length: 12.6 Miles

Public Crossings: 14
Private crossings: 9

Maximum elevation: 718 ft.
Minimum elevation: 586 ft.

Speed Range: 20 - 35 mph
Maximum curvature: 2:20

Rail weight: 115 CWR
Date Installed: 1963

Segment 3.

Mile post 281.4 - 282.7

Length: 1.3 Miles

Public Crossings: 7
Private crossings: 1

Maximum elevation: 725 ft.
Minimum elevation: 707 ft.

Speed Range: 49 mph
Maximum Curvature: 0:0

Rail weight: 112 CWR
Date Installed: 1965

Segment 4.

Mile post 282.7 - 290.7

Length: 8 Miles

Public Crossings: 9
Private crossings: 7

Maximum elevation: 786 ft.
Minimum elevation: 669 ft.

Speed Range: 49 mph
Maximum Curvature: 1:23

Rail weight: 112 CWR
Date Installed: 1965

Segment 5.

Mile post 290.7 - 291.5

Length: O.8 Miles

Public Crossings: 9
Private crossings: 7

Maximum elevation: 689 ft.
Minimum elevation: 663 ft.

Speed Range: 40 mph
Maximum curvature: 0:0

Rail weight: 112 CWR
Date Installed: 1965

Segment 6.

Mile post 291.5 - 312.6

Length: 21.1 Miles

Public Crossings: 11
Private crossings: 13

Maximum elevation: 773 ft.
Minimum elevation: 621 ft.

Speed Range: 49 mph
Maximum curvature: 3:12

Rail weight: 112 CWR
Date Installed: 1965

Segment 7.

Mile post 312.6 - 313.3

Length: 0.7 Miles

Public Crossings: 4
Private crossings: 0

Maximum elevation: 621 ft.
Minimum elevation: 620 ft.

Speed Range: 30 mph
Maximum curvature: 0:00

Rail weight: 112 CWR
Date Installed: 1965

Segment 8.

Mile post 313.3 - 345.0

Length: 31.7 Miles

Public Crossings: 21
Private crossings: 21

Maximum elevation: 599 ft.
Minimum elevation: 411 ft.

Speed Range: 49 mph
To Mile Post 339.3

Rail weight: 112 CWR

Maximum curvature: 2:20
From 339.3 to 345.0

Date Installed: 1963
119 CWR installed 1988

Segment 9.

Mile post 345.0 - 346.0

Length: 1 Mile

Public Crossings: 5
Private crossings: 0

Maximum elevation: 424 ft.
Minimum elevation: 411 ft.

Speed Range: 40 mph
Maximum curvature: 1:30

Rail weight: 119 CWR
Date Installed: 1988

Segment 10.

Mile post 346.0 - 408.3

Length: 62.3 Miles

Public Crossings: 18
Private crossings: 37

Maximum elevation: 710 ft.
Minimum elevation: 395 ft.

Speed Range: 49 mph
To mile post 363
Date Installed: 1988
Installed: 1978

Rail weight: 119 CWR
Maximum curvature: 3:20
From 363: 112 CWR

Segment 11.

Mile post 408.3 - 411.5

Length: 3.2 Miles

Public Crossings: 31
Private crossings: 2

Maximum elevation: 423 ft.
Minimum elevation: 419 ft.

Speed Range: 49 mph
Maximum curvature: 1:00

Rail weight: 112 CWR
Date Installed: 1978

Segment 12.

From 411.5 to Texas Mexican Railway

Length: Less than 1 mile

Public Crossings: 10
Private Crossings: 0

Maximum Elevation: 418 ft.
Minimum Elevation: 411 ft.

Speed Range: 30 mph
Maximum Curvature: 0.00

Rail Weight: 112 CWR
Installed: 1978

The final segment of the corridor is the Texas Mexican Railway track at the Laredo rail bridge to Mexico.

Improvements Required for a Minimum of 90 mph Speeds

As required in the U. S. DOT High Speed Rail Corridor Application procedures, a segment-by-segment analysis of the improvements that are necessary to reach a minimum of 90 mph in the corridor is outlined below.

Segment 1: Station to main track to Withers MP 219 (Southern Pacific Segment):

- Upgrade East & West main track to operate at 60 mph, ballast, alignment and gauging.
- Adjust crossing gate times to 60 mph at all crossings equipped with flashing signals, gates and other active warning devices.
- Cyclone fencing from MP 209.5 to MP 212.7 on each side of track. Rebuild and lengthen crossover at tower 112 for trains at 50 mph.
- Construct 200 feet of connecting track for the Southern Pacific track at S.P. MP 219.2 to Union Pacific track at U.P. (Austin subdivision) MP 268.
- Lengthen S.P. interlocking at Withers to include this crossover.

This segment is the only one involving the Southern Pacific Railroad. It is 9.5 miles long and 8.3 miles of this segment are ABS. Southern Pacific is CTC west of this segment and east of San Antonio. CTC signalization of this section would allow East and West mains to be used in either direction. However, ABS

signalization is adequate for the use of this segment as part of the ninety mile plus passenger operation. All crossings in this segment have active warning devices presently.

All remaining segments to U.P. MP 411.5 (terminal point of U.P. Laredo yard "run around tracks" with Texas Mexican Railways track) require upgrading from present "dark territory" condition to a traffic control system. As a demonstration corridor, this could be an automatic train control system (ATCS). ATCS employs cab signals. Many U.P. locomotives are already equipped with this system's cab signal equipment. Passenger trains will exceed 79 miles, and therefore will be equipped with cab signals plus speed control. Upgrade of this Class 4 track to Class 5 varies but many areas could be considered to be of Class 5 quality at present, except for the automatic train control.

Segment 2: U.P. Austin Subdivision MP 268.8 - 281.4

- Upgrade highway crossings to gated and/or strobe-lighted for state highways and selected public and private crossings not closed permanently.

- Crossings are either private or 2 lane public country roads.

Segment 3: U.P. Austin Subdivision MP 281.4 - 282.7 Lytle, Tx.

- With track access limitations, speed limits can be lifted.

- Power switches on both ends of Gessner siding and establish a Gessner interlocking.

- Upgrade highway crossings to gated and/or strobe-lighted for state highways and selected public and private crossings not closed permanently.

- Crossings are either private or 2 lane public country roads.

Segment 4: U.P. Austin Subdivision MP 282.7 - 290.7

- Equip switch at Natalia with electric lock in series with ATCS.

- Upgrade highway crossings to gated and/or strobe-lighted for state highways

and selected public and private crossings not closed permanently.

- Crossings are either private or 2 lane public country roads.

Segment 5: U. P. Austin Subdivision MP 290.7 - 291.5

- With track access limitations, speed limits can be lifted.
- Install cyclone fence MP 290.2 to 291.5 on both sides.
- Replace electronic lock switch in series with ATCS.
- Upgrade highway crossings to gated and/or strobe-lighted for state highways and selected public and private crossings not closed permanently.
- Crossings are either private or 2 lane public country roads.

Segment 6: U.P. Austin Subdivision MP 291.5 - 312.6

- Upgrade highway crossings to gated and/or strobe-lighted for state highways and selected public and private crossings not closed permanently.
- Install electronic lock switch in series with ATCS.
- Crossings are either private or 2 lane public country roads.

Segment 7: U.P. Austin Subdivision MP 312.6 - 313.3 Pearsall

- With track access limitations, speed limits can be lifted.
- Upgrade highway crossings to gated and/or strobe-lighted for state highways and selected public and private crossings not closed permanently.
- Install electronic lock switch in series with ATCS.
- Crossings are either private or 2 lane public country roads.

Segment 8: U.P. Austin Subdivision MP 313.3 - 345.0

- Install power switches both ends of Melon and establish Melon interlocking power switches.

- Install power switches both ends of Gardendale and create Gardendale interlocking.

- Upgrade highway crossings to gated and/or strobe-lighted for state highways and selected public and private crossings not closed permanently.

- Crossings are either private or 2 lane public country roads.

- Install electronic lock switch in series with ATCS.

Segment 9: U.P. Austin Subdivision MP 345.0 - 346.0 Cotulla, Tx.

- Install power switches both ends of Cotulla siding, create Cotulla interlocking power switches at both ends.

- With track access limitations, speed limits can be lifted.

- Upgrade highway crossings to gated and/or strobe-lighted for state highways and selected public and private crossings not closed permanently.

- Crossings are either private or 2 lane public country roads.

- Install electronic lock switch in series with ATCS.

Segment 10: U.P. Austin Subdivision MP 346.0 - 408.28

- Install power switches both ends of Finley and establish interlocking.

- Install power switches both ends of Callaghan and create interlocking.

- Upgrade highway crossings to gated and/or strobe-lighted for state highways and selected public and private crossings not closed permanently.

- Crossings are either private or 2 lane public country roads.
- Install electronic lock switch in series with ATCS.

Segment 11: U.P. Austin Subdivision MP 408.28 NYE to 411.5 Laredo, Tx.

- Upgrade highway crossings to gated and/or strobe-lighted for state highways and selected public and private crossings not closed permanently.
- Crossings are either private or 2 lane public country roads.

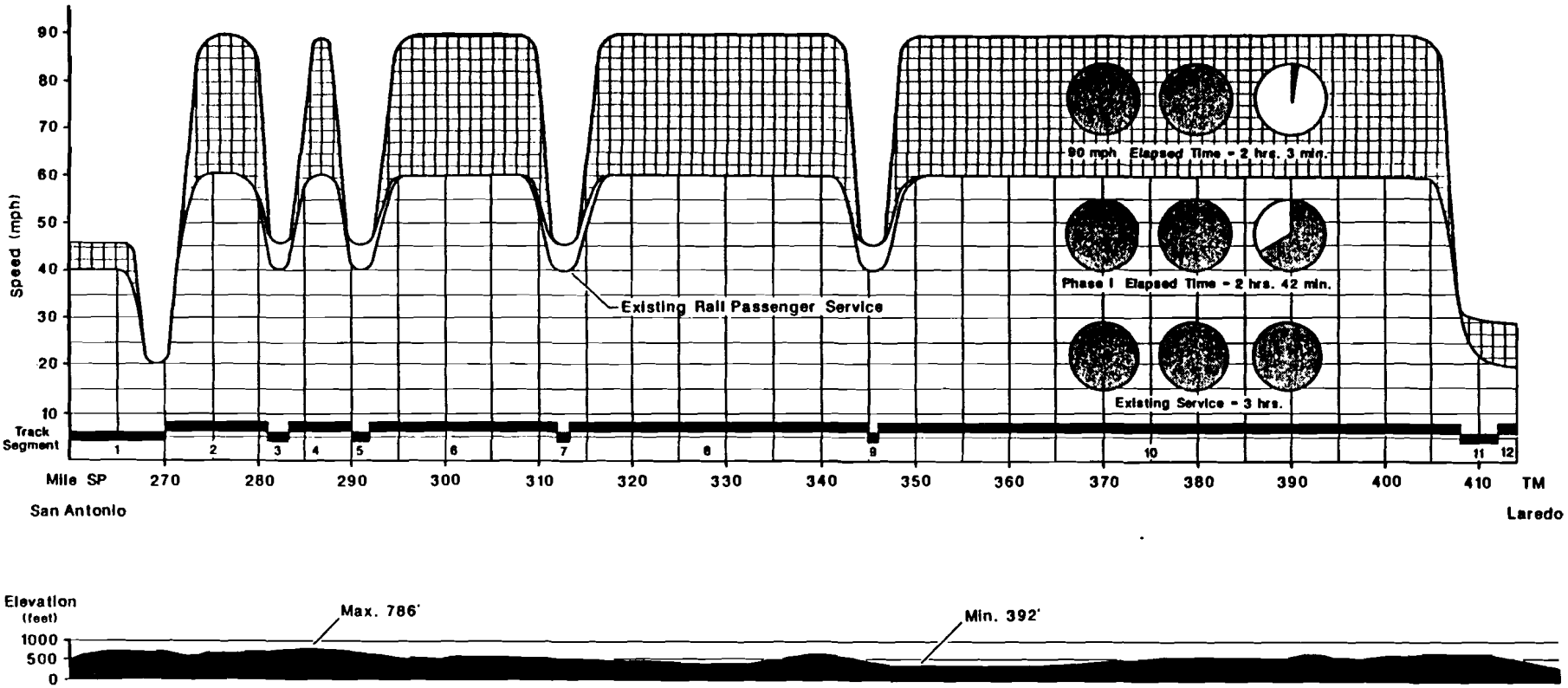
Segment 12: U.P. Austin Subdivision MP 411.5 to Texas Mexican Railway.

- Install new switch from U.P. MP 411.5 to Texas Mexican Railway with electric lock switch in series with ATCS.
- All crossings not eliminated to be gated and strobe-lighted. Build new track from U.P. MP 411.25 to MP 412 on Texas Mexican Railway.
- Designate this track as main track to Laredo Bridge.
- Funding for this Laredo work was committed to by the City of Laredo.

Figure 3 is a profile of the 148 mile San Antonio-Laredo corridor divided into 12 line segments. Three assumptions as to train speed through the corridor are shown. The bottom line assumes current operating conditions. Operating time for this assumption is 3 hours. The next line shows operating time following initial improvements. Operating time for this assumption in 2 hours and 42 minutes. The top line assumes speeds of 90 mph in some segments. The operating time for this assumption is 2 hours and 3 minutes.

FIGURE 3

SAN ANTONIO-LAREDO RAIL CORRIDOR



Rail Infrastructure Improvement Costs

The rail infrastructure improvement costs were complied by North American Carriages Company. They are based upon cost of upgrading from FRA Class 4 to FRA Class 5 track. They suggest that track geometry (gauge, alignment and elevation) maintenance and agreed to adjustments to super elevation can be accomplished within the normal track maintenance program. Cost for ATCS for segments 2 through 12 is estimated at $7,500,000. This includes power switches, locomotive cab signalling, some grade crossing activation control adjustments, creation of interlocking and electric locking switches at locations other than interlocking.

According to North American Carriages funding for this upgrade will be a function of increased track revenues from both passenger and freight operations.

See Attachment 2 for track charts and time tables used to develop Figure 3.

Crossing Hazard Elimination

The purpose of this section of the application is to provide a description of the current status of highway-rail safety improvements in the corridor, to estimate the number of accidents that will occur in the corridor in the future, and to identify funding programs and methods for eliminating, or reducing, grade crossing hazards in the corridor.

Inventory of Highway-Rail Grade Crossings

The US DOT/AAR National Inventory of Rail-Highway Grade Crossings lists a total of 235 railroad-roadway intersections in the San Antonio-Laredo rail corridor. Table 3 provides a listing of the intersections in San Antonio-Laredo rail corridor by type of crossing and county in which they are located. A relatively large percentage of the corridor grade crossings (41%) are classified as private crossings. These crossings are under the jurisdiction of the owning railroads and exist only by agreement between the railroad company and the land owner requiring access to private property. The inventory includes 13 grade separation structures where the railroad either passes under or over a public road. The remaining 128 (55%) at-grade intersections are under the jurisdiction of a public

roadway agency. Webb County alone accounts for 75 (32%) of all the corridor intersections. There are 36 (16%) grade crossings located in, or near, the city of Laredo.

Table 4 lists the corridor highway-rail intersections that are under the jurisdiction of a roadway agency (public crossings). The type of warning devices installed at the crossing and the county in which the crossing is located are shown in the table. Of the 128 at-grade public highway-rail intersections in the corridor, only 28 (22%) have active traffic control warning devices. According to the national inventory 22 of the intersections have no warning devices; while 78 (61%) have passive signs (Crossbucks) as a warning device. Again, Webb County accounts for a large portion of the public crossings (47 or 37%) in the San Antonio-Laredo rail corridor.

Highway-Rail Motor Vehicle/Train Accident History

According to grade crossing accident statistics, reported by the Federal Railroad Administration, there were 66 motor vehicle/train accidents in the corridor during the five-year period 1987-1991. Table 5 provides a listing of injuries and fatalities resulting for the accidents reported in each year. Webb County accounted for 39 (60%) of the accidents reported during the period 1987-1991. Table 6 shows that although Webb county reported almost half of all corridor grade crossing injuries (8), there were no fatalities reported at Webb County grade crossings during the five-year period.

Table 3. San Antonio to Laredo Count of All Rail-Highway Crossings by Type, Position and Railroad

COUNTY	PUBLIC AT GRADE	PUBLIC GRADE SEPARATIONS RR UNDER	PUBLIC GRADE SEPARATIONS RR OVER	PRIVATE	PEDESTRIAN	TOTAL
Atascosa	7	0	0	3	0	10
Bexar	16	3	0	11	0	30
Frio	28	1	1	21	0	51
La Salle	14	1	0	25	0	40
Medina	15	1	1	12	0	29
Webb	47	1	4	23	0	75
TOTAL	127	7	6	95	0	235

Table 4. State Public-at-Grade Rail-Highway Crossings by County and Type of Warning Device

COUNTY	GATES	FLASHING LIGHTS	HWY SIG WW-BELL	SPECIAL	CROSS BUCKS	STOP SIGN	OTHER SIGN	NONE	COUNTY TOTAL
Atascosa	0	1	0	0	5	0	0	1	7
Bexar	0	1	0	0	13	0	0	2	16
Frio	6	3	0	0	19	0	0	0	28
La Salle	2	5	0	0	7	0	0	1	15
Medina	3	3	0	0	9	0	0	0	15
Webb	1	3	0	0	25	0	0	18	47
TOTAL	12	16	0	0	78	0	0	22	128

Table 5. Highway-Rail Accident History San Antonio - Laredo Rail Corridor 1987-1991

YEAR	ACCIDENTS	INJURIES	FATALITIES
1987	14	2	1
1988	11	5	3
1989	12	3	1
1990	10	3	4
1991	19	4	3
TOTAL	66	17	12

Table 6. Highway-Rail Accident History San Antonio - Laredo Rail Corridor 1987-1991 at Webb County Crossings

YEAR	ACCIDENT	INJURIES	FATALITIES
1987	8	1	0
1988	7	4	0
1989	8	0	0
1990	7	3	0
1991	9	0	0
TOTAL	39	8	0

Accident Prediction Model

The U.S. DOT Highway-Rail Accident Prediction Model was used to estimate the number of motor vehicle/train accidents that will occur at highway-rail intersections in the corridor. To apply the model, it was first necessary to identify all grade crossings in the corridor. The Federal Railroad Administration provided the initial list of public and private crossings. The list was extracted from the National Inventory maintained by FRA. The Texas grade crossing inventory data base was used to develop a file of 128 public crossing inventory records. Each inventory record was then updated from information provided by TxDOT and the Union Pacific Railroad. Following an update of the inventory records, an analysis of potential motor vehicle/accidents for the entire corridor was initiated. The attachments contain the output from this analysis.

Using updated crossing inventory records, the model predicts that 11.29 (12) motor vehicle/train accidents will occur on the corridor each year. (See Table A3-1; Attachment 3 for this analysis.) The model understates the actual accident experience for the crossings on the corridor. For example, during the past five years the FRA has reported an average of 13 motor vehicle/train accidents at these intersections each year.

TxDOT maintains accident records for non-train accidents occurring at highway-rail intersections. Past experience suggests that for each motor vehicle/train accident approximately two non-train accidents will occur at the intersection. Therefore it is expected that 33 motor vehicle accidents will occur annually at public crossings on the corridor.

To determine the impact of increased train speeds and number of trains using the corridor on highway-rail crossing safety, the accident prediction model was once again applied. Making the following assumptions: 1) Trains per day would increase to 20 (16 freight and 4 passenger) and 2) train speed would average 62 mph at highway-rail intersections. With no change in current crossing warning systems, grade crossing accidents would increase by 30 percent. (See Table A3-2; Attachment 3 for this analysis.)

A review of the accident prediction analysis suggests that during the past 5 years just 10 intersections have accounted for 25 (41%) of the motor vehicle/train accidents reported on the corridor. When the model is applied, these same 10

intersections are predicted to account for 3.5 (32%) of annual motor vehicle/train accidents reported on the corridor. The next top 10 accident ranked crossings on the corridor accounted for 17 (28%) of the accidents that were reported during the past five years. The model suggests that these crossings will account for 1.59 (15%) of the annual accidents reported on the corridor. This analysis indicates that just 20 of the 128 corridor highway-rail intersections account for 47%-69% of total motor vehicle/train accidents on the corridor. See Attachment 4 for data supporting this analysis.

The next step in the process was to identify highway-rail safety improvements on the corridor. The methodology followed is based upon the following assumptions:

1. All highway-rail intersections having a current AADT of more than 5,000 were identified for elimination by grade separation.

2. All crossings on the corridor with less than 250 AADT, or were in a group of 4 or more crossings within a one mile rail segment, were identified for closure.

3. All crossings not identified by either of the above categories were identified for upgrading by full gates, flashing lights and constant warning time control circuits.

Segment Analysis

Based upon the results of the application of the accident prediction model to the projected increase in train frequency and speed a segment-by-segment analysis of hazard elimination projects was accomplished for the entire corridor. The results of this analysis are as follows:

Segment 1.

Two crossings would be closed, gates would be installed at 3 crossings, and one crossing would be eliminated by grade separation. The total cost of the improvement would be $3,000,000.

Segment 2.

Four crossings would be closed and gates installed at the remaining 10 grade

crossings. The total cost of these improvements is $1,600,000.

Segment 4.

Three crossings would be closed, 3 would receive gates and 2 gaited crossings would be upgraded. The cost of these improvements is $675,000.

Segment 5.

Four crossings would be closed and one grade separated for a total cost of #2,600,000.

Segment 6.

Seven crossings would be closed and gates would be installed at the 4 remaining. The cost of these improvements is $750,000.

Segment 7.

Two crossings closed, one grade separated and one gate location would be upgraded. Total cost of the improvements would be $2,550,000.

Segment 8.

Ten crossings would be closed, gates installed at 8, and one grade separated. Two gaited locations would be upgraded. Total cost of these improvements would be $3,950,000.

Segment 9.

Three crossings would be closed and two gaited crossings upgraded. Total cost of improvements $75,000.

Segment 10.

Twelve crossings would be closed and 5 would receive gates. One grade separation would be constructed. Total cost of implementation would be $3,550,000.

Segment 11

Twenty two crossings would be closed, 5 crossings would receive gates, and 3 grade separations would be constructed. The total cost of these improvements would be $8,825,000.

Segment 12

Seven crossings would be closed, 2 would receive gates and one grade separation would be constructed. The total cost of these improvements is $2,975,000.

Improvement Costs

The estimated cost of all highway-rail hazard elimination projects identified above is $31,000,000. This includes $2,050,000 for the closing of 82 highway-rail intersections, $6,450,000 for installing gates and $22,500,000 for construction of grade separations. (See Table A3-3; Attachment 3, for a complete listing of these improvements.)

Figure 4 provides a summary of the hazard elimination projects in the corridor's major line segments. For example, it can be seen from this chart that segments 6,8 and 10 have a combined mileage of approximately 115 miles. This represents almost 80% of the entire corridor. However, the total cost of highway-rail hazard elimination projects is estimated at $8,250,000; only 27% of the total estimated cost for grade crossing improvements on the corridor.

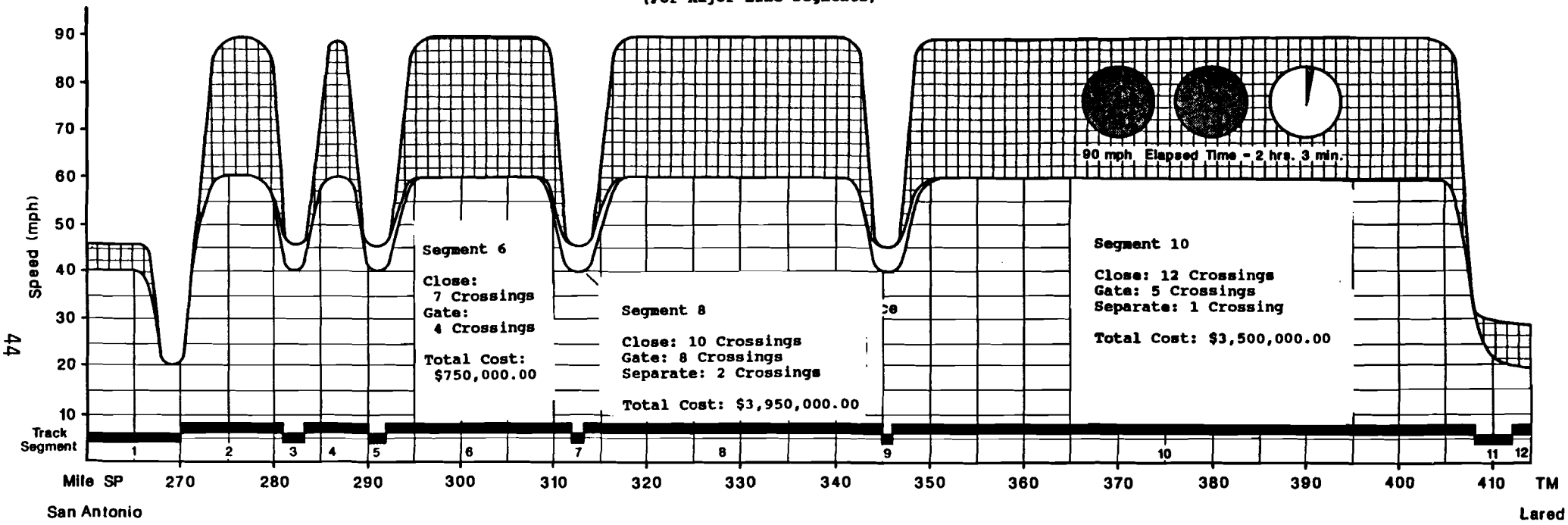
Accidents Saved

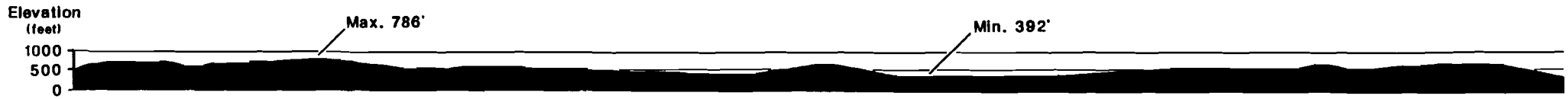
To determine the benefits to be derived from projected highway-rail hazard elimination projects requires an additional set of assumptions. The procedure followed in this analysis once again uses the U.S. DOT accident prediction model. The highway-rail corridor inventory, with projected increases in train frequency and speed (See Table A3-2; Attachment 3 for listing) is assumed to be the basic data base for this analysis. It will be recalled that given current warning devices at all corridor highway-rail intersections accidents would increase by 30% when

FIGURE 4

SAN ANTONIO-LAREDO RAIL CORRIDOR

HIGHWAY-RAIL HAZARD ELIMINATION PROJECTS
(For Major Line Segments)





train frequency and speeds are increased. This assumes no increase in AADT on the corridor intersections.

Applying the programmed improvements, discussed earlier, highway-rail motor vehicle/train accidents would be reduced to less than three per year on the entire corridor. Table A3-4; Attachment 3, provides a list of the predicted accidents for each of the 50 at-grade intersections that will remain on the corridor at the competition of the hazard elimination program. Using FHWA accident crash costs a reduction of 10 motor vehicle/train accidents per year, in this corridor, translates to an annual savings of some $6,000,000 to society. Only five years would be require to recover the $30 million hazard elimination program.

Highway-Rail Hazard Elimination Plan

The initial program calls for the closure of some 82 (64%) of the corridor's highway-rail intersections. This is almost three time the number of closures called for in the FRA initiate to close 25% of the nations grade crossing by the year 2000. It is requested that the San Antonio-Laredo corridor be authorized $1,000,000 in the first fiscal year to be used primarily for crossing closures. TxDoT has several highway-rail safety programs that can be used to match these funds. In fact 9 of the corridor grade crossings are currently on TxDOT programs for upgrading. The corridor hazard elimination funds may be used as incentives for local government jurisdictions to authorize the closing of crossings with the improvement or upgrading of nearby grade crossings. Another option for use of corridor hazard elimination funds is to focus on one or more segments each fiscal year. For example, segment 6 is approximately 21 miles in length. It is projected that $750,000 will bring that segment to an acceptable level of highway-rail safety. Segment 10 is some 60 miles in length. The estimated cost of bringing that segment to an acceptable safety level is $3,550,000.

With the designation of the corridor TxDOT will develop a more detailed implementation plan which will, among other things, establish a priority for segment improvements.

Texas Department Of Transportation Highway-Rail Safety Improvement Programs

Depending upon eligibility, the following TxDOT highway-rail safety improvement funds may be applied to corridor grade crossing improvements.

Federal Highway-Rail Safety Improvement Program

Section 130 Funds--$10.6 million - 90% federal, 10% state
Annual program for signal installation on and off State Highway System

Federal Highway Safety; School Bus Signal Program

$5.0 million - 90% federal, 10% state
Annual program to install signals on and off State Highway System.
For unsignalized crossings only

City-County Signal Program

$1.5 million - 90% state 10% railroad
Biennial program to install signals of the State Highway System only

State Replanking Program

$3.5 million - 100% state.
Annual program to resurface railroad crossings on the State Highway System only.

State Signal Maintenance Program

$1.0 million - 100% state
Annual program to contribute to signal maintenance costs for railroad crossings on the State Highway System only.

Method to Reduce Crossing Improvement Costs

There are at least two recent developments in grade crossing hazard elimination that may be applicable to the corridor. TxDOT, in cooperation with the U. S. DOT, is prepared to evaluate these and other new systems for reducing cost of grade crossing warning systems.

Low Cost Grade Separation Structures

A possible solution to the high cost of grade separation construction dilemma may be the construction and use of culvert-type grade separations that would provide for the elimination of low density roadway-rail at-grade intersections. According to a recent letter to the Federal Railroad Administrator culvert separations may be built as either total circle culverts or, more expensively, as partial culverts with the sides being mounted on cement footings. Corrugated galvanized steel approximately 1/4" thick is used. A 125-foot long grade separation of this type was recently installed in the Upper Peninsula of Michigan at the Tilden Iron Ore Mine and is utilized to transport 250 ton iron ore earth movers. The cost of this structure was less than $250,000.

The San Antonio-Laredo corridor has several low traffic density at grade intersections that must be eliminated if high- speed rail passenger service is to be economically viable. Due to land access requirements in rural areas, all of these intersections cannot be closed. The low-cost culvert design will be given consideration as an alternative to full signalization.

New Highway-Rail Signal Technology

Arrestor nets could prove successful in preventing motor vehicles from intruding onto at-grade highway-rail crossings. The Swedish Road & Traffic Research Institute, with help from Texas Transportation Institute staff, is taking a closer look at the technical and economical feasibility for the application of these systems on high-speed rail facilities in Sweden. With the construction and expansion of the high-speed passenger system, Swedish researchers are looking for a method of eliminating motor vehicle/train accidents. Where the high-speed X2000 train is being introduced, Sweden is attempting to eliminate all at-grade intersections. The process is costly and will require time. As an interim measure, automatic gates are being installed. Since motor vehicle operators may drive

through or around gates, a more restrictive system must be considered.

A Swedish Road & Research Institute study has reviewed several mobile barrier concepts that could physically prevent a motor vehicle from intruding onto a high-speed rail grade crossing. The acceptable design envisions the activation of conventional flashing lights and the lowering of a gate arm. Detectors would determine if the intersection was clear of vehicular traffic. If so, the mobile arrestor barrier would be activated in advance of the train. The researchers then developed five suitable designs for the mobile arrestor barrier. Three of the designs provided for a rigid "non-forgiving" system. The two other designs incorporated energy- absorbing properties to reduce the risk of serious injury to motor vehicle drivers. The design of the barrier included the use of thin metal tubs of sand which are to be swung, or wheeled, across the roadway. The researchers found that this type of barrier should be able to stop a two ton vehicle traveling at speeds up to approximately 50 miles per hour. According to this study, the arrestor net concept provides the greatest potential for the prevention of motor vehicle intrusion onto high-speed rail tracks.

The Texas Department of Transportation is prepared to evaluate, and possibly demonstrate, this system in the San Antonio-Laredo high speed rail corridor.

V. INTERESTED PARTIES

Rail Corridor Owner

All but two short segments of the corridor are operated by the Union Pacific Railroad. The first segment of the corridor, approximately eight miles, is owned by Southern Pacific. The last segment is approximately one mile of track owned by Texas Mexican Railway Company. The Southern Pacific and Texas Mexican have stated that they would cooperate with the Union Pacific in determining the use of their facilities as a part of the high- speed rail corridor.

According to a letter dated August 15, 1992 the Union Pacific has the following plans and policies regarding the proposed high- speed rail corridor:

Evaluations

The average daily through train count in the corridor for 1990 was about six trains per day. The number of daily trains increased to seven per day in 1991 and for the first six months of 1992 has increased to slightly less than eight trains each day. The Union Pacific has not made estimates of the cost to upgrade this 148 mile line to FRA Class V category. According to its letter, given current traffic projections, the UP has no plans to up grade the line in the near future.

Union Pacific current through train projections for the San Antonio-Laredo line segment are as follows:

1992 - 7.7 trains per day
1993 - 8.6 trains per day
1994 - 9.2 trains per day
1995 - 10.2 trains per day
1996 - 11.6 trains per day
1997 - 12.4 trains per day
1998 - 13.2 trains per day
1999 - 14.1 trains per day
2000 - 15.0 trains per day
2001 - 15.9 trains per day
2002 - 16.9 trains per day

Plans

The only immediate plans for the line segment are program surface and lining and tie renewal. The Union Pacific does anticipate a need for yard

expansion in the Laredo and San Antonio areas. Union Pacific also expects see a need for at least one additional siding on the corridor as traffic increases. The UP has no current plans to signalize (CTC) this line.

Union Pacific views the North American Free Trade Agreement as an enhancement to what has already begun to evolve. However, UP thinks that projected growth in traffic will occur with or without NAFTA. The traffic projections, presented above, should be viewed as the upper range of expectations without NAFTA and in the midrange of expectations with the treaty in place. Union Pacific expects that the effects of the treaty will be phased in over time, and will have little effect early in the period under consideration. This means less of a compounding effect later in the period as the treaty provisions begin to be felt.

Policy

Union Pacific concurs with the objectives of Section 1010 (High Speed Corridors) of ISTEA as it applies to crossing safety. Any such corridors that are proposed on UP properties will be reviewed and considered. However, UP believes that existing and future freight operations must not be compromised in terms of safety, service and capacity. Union Pacific has an existing agreement with Amtrak for the use of this corridor for passenger service; therefore, Amtrak would have to approve any additional passenger operations.

With regard to intermodal facilities, Union Pacific states that existing properties could possibly be considered for such use providing that alternate properties or facilities can be made available so as not to compromise the existing and possible future needs for UP freight operations.

Evidence of Agreement With Owning Railroad

The Union Pacific letter dated August 14, 1992, states that there is no agreement in place at this time (other than with Amtrak) for rail passenger service on its tracks between San Antonio and Laredo. Union Pacific states it has not received any proposals or plans as to what type of service or operation is being proposed; how the applicant intends to arrange for capital improvements or maintenance costs, etc., and accordingly, Union Pacific could not comment on any agreement that may be submitted in the future. Although it has been understood that Union Pacific will support Amtrak in their position, the UP letter states that

"this is not our position. We must reserve the right to reject any specific proposal or part thereof." (Note; The Union Pacific statements are taken from a letter signed by Mr. A.L. Shoener, Executive Vice President, Operations).

Related Agencies

Railroad Commission of Texas Position

In Texas, state rail planning is done by the Railroad Commission (RCC). In the past, state rail planning has focused on freight service; more specifically, on light density rail lines and the possible need for their preservation through the use of Local Rail Freight Assistance (LRFA) rehabilitation grants provided by the Federal Railroad Administration. However during the past two years, the rail planning staff has been called upon to provide to the Commissioners a variety of information on high-speed rail issues. This has involved a general study of high-speed rail literature, research focusing on the voluminous documents produced by the franchise award hearings of the Texas High-Speed Rail Authority, and the preparation of a number of analyses.

The RCC staff agrees that Texas will benefit from any improvements to the San Antonio-Laredo corridor because it is the primary rail freight route into Mexico from Texas, as well as the Eastern, Midwestern, and Southern areas of the U.S. Also the staff thinks that the proposed Royal Eagle service from San Antonio to Monterrey (via Laredo) would increase ridership on the proposed TGV trains in proportion to the speed, frequency, fares, and amenities of the connecting Royal Eagle trains. Also, the Texas TGV trains could feed a significant amount of traffic to the Royal Eagle trains.

The Federal Railroad Administration and Texas Railroad Commission track safety inspectors recently completed an inspection by track geometry car of the Union Pacific track between San Antonio and Laredo. The Commission's inspector characterized the track as being in "good to excellent condition" for 49 mph freight trains. According to the RCC staff, a centralized traffic control (CTC) dispatching and signal system with automatic train stop (ATS) and additional passing tracks will be needed to achieve the desired speed of 90+ miles per hour. Union Pacific Railroad Company can provide data on track improvements necessary to bring its track to Class 5 track safety standards.

The RCC staff suggests that improved rail service to Laredo and its surrounding area will help to stimulate tourism. It will also allow the local population to have better, more cost-effective transportation to major Texas cities, assuming the completion of the proposed Texas Triangle high-speed system from San Antonio to Austin, Dallas, Ft. Worth, and Houston.

The Railroad Commission of Texas has no formal policy toward the designation of the corridor at this time. However, Chairman Lena Guerrero has instructed the rail planning staff to cooperate by providing requested information for the TxDOT application.

Amtrak Position

Amtrak was requested to state the Corporation position with regard to the designation of the San Antonio-Laredo-Monterrey rail line as a high speed rail corridor. The following is a summary of Amtrak's response to this request:

With respect to Amtrak's franchise or exclusive right to operate intercity passenger trains:

> Amtrak is not interested in operating services between San Antonio and Laredo; therefore, we are agreeable to waive our exclusive rights to operate this service. Furthermore, this gives you (Amtrak operator) the right to negotiate directly with the Union Pacific Railroad over operating issues between San Antonio and Laredo.

Amtrak will not support or recommend funds for designating San Antonio-Laredo as a high speed corridor. Amtrak has recently submitted its recommended corridor list to the Federal Railroad Administrator. The San Antonio-Laredo corridor is not on the list.

In summary, Amtrak is not interested in operating the San Antonio-Laredo-Monterrey corridor. However, Amtrak states that the corporation will assist in providing passenger facilities at San Antonio to the extent that Amtrak operations will not be adversely affected. (Note: Amtrak's position taken from a letter signed by R.C. Vanderclute, Vice President, dated August 24, 1992).

Texas High-Speed Rail Authority Position

The Texas High-Speed Rail Authority supports TxDOT's application for the designation of the San Antonio-Laredo high speed rail corridor. The HSRA's jurisdiction is limited to the regulation of rail technology that permits the operation of rolling stocks between scheduled stops at speeds in excess of 150 mph. Since the service proposed in this application will not exceed 150 mph, it will not be subject to HSRA's regulatory authority.

The staff of Texas HSRA thinks that an extensive conventional rail network and service to intermodal terminals with transit connections (as proposed in this application) will improve the success of service to be provided by the Texas High-Speed Rail passenger trains. (Note: Taken from a Texas HSRA draft letter dated August 25, 1992).

Republic Locomotive Proposal

Republic Locomotive has proposed that a high speed rail demonstration program be conducted in several corridors throughout the country. According to a statement by an official of the company, before a Congressional Committee, this program would take advantage of funds made available under the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) for high speed rail technology demonstration. It was suggested in the testimony that the San Antonio-Monterrey high speed rail corridor could be one of the demonstration corridors. If the San Antonio-Monterrey project is selected for a demonstration corridor, Texas Department of Transportation, Texas Department of Commerce and other interested and involved parties would participate in studies necessary to analyze the safety, economic, environmental, and ridership impacts of improved service.

The equipment that Republic Locomotive proposes to use in the corridor demonstration project is an advanced generation twin turbine locomotive, that will allow higher speeds on existing track, without the prohibitive costs involved in electrification. Its dual mode capability allows the locomotive to be run on turbine, or electric third rail. According to a spokesman for Republic the locomotive can be powered by natural gas which is of significant interest to Texas state officials.

VI. MULTIMODAL TRAFFIC IN THE INTERNATIONAL CORRIDOR

Current Traffic Volume

Traffic volumes in the I-35 corridor in 1991 are summarized in Table 7. Sections 1 and 6 through 9 are generally within urban areas and the volumes are higher and truck percentages lower than the rural sections. The rural traffic volumes are indicative of those that are traversing the entire corridor and, thus, might be switched to high-speed rail services.

Traffic congestion is not a problem in the rural sections of the corridor. The 4-lane freeway is more than adequate for the travel volumes, as illustrated in Table 8.

Table 7. Existing (1991) Traffic Conditions

Section	Limits	Miles	No. of Lanes	Average Daily Traffic	% Trucks	Daily Truck Volume
1	From US - Mexico International Bridge to FM 1472	7	4	56,900	9.3	5,290
2	From FM 1472 to US 83	19	4	9,000	27.8	2,500
3	From US 83 to SH 97 in Cotulla	49	4	5,950	33.7	2,000
4	From SH 97 in Cotulla to US 57	43	4	8,550	28.4	2,430
5	From US 57 to Loop 1604 in San Antonio	29	4	14,500	18.3	2,650
6	From Loop 1604 in San Antonio to Loop 410	6	4	22,700	14.9	3,380
7	From Loop 410 to Loop 13	5	4	25,000	14.4	3,600
8	From Loop 13 to US 90	3	4	80,600	10.7	8,620
9	From US 90 to IH 37	3	6	81,200	10.7	8,690

Table 8. Average Daily Traffic Volume for Levels-of-Service on Freeways

Number of Lanes	Maximum Daily Traffic Volume		
	Good Flow LOS A-B	Tolerable Flow LOS C-D	Undesirable Flow LOS E
Rural Freeway			
4 Lane	20,800	31,600	42,000
6 Lane	31,200	47,400	63,000
Urban Freeway			
4 Lane	44,000	52,800	64,400
6 Lane	66,000	79,200	46,600
8 Lane	88,000	105,600	128,800

Impact of High Speed Rail Corridor on I-35 Highway Corridor

The purpose of the section of the application is to estimate the impact of a high speed rail corridor between San Antonio and Laredo on the existing I-35 highway corridor. The diversion of both people and goods movement from the highway corridor to the rail corridor is discussed, and when possible, measured in the following section.

Projected Traffic Volume

Projections were developed by TxDOT staff and the San Antonio Long Range Plan (for sections 5 to 9) for two major future scenarios. Table 9 indicates the future traffic volume and number of lanes for each of the nine corridor sections under the assumption of continuing current trends. This scenario assumed no significant impact on truck volume from the North American Free Trade Agreement (or that the NAFTA is not ratified). Traffic volume increases range from 65 to 150 percent between 1991 and 2011.

The effect of the NAFTA was modeled with the estimate that 80 percent of the truck traffic would be affected by the relaxed regulations. Two of the scenarios investigated are presented in Table 10. Increases of 25 percent and 100 percent for the truck traffic affected by the NAFTA (relative to the base case projections) are illustrated in the table. While the effect on truck volume is significant, the daily traffic volume on rural roadway sections 2, 3 and 4 is less than that associated with the upper end of Level-of-Service (LOS) C-D conditions (Table 2). Daily traffic volume on section 5 is estimated to result in conditions worse than LOS C-

D under the 100 percent increase assumption. The urban sections, except section 7, are estimated to have volumes significantly in excess of LOS C-D conditions.

Table 9. Estimated Daily Traffic Volume with Continuation of Current Trends

Section	Miles	No. of Lanes	1991	2011		
				Daily Vehicle Volume	% Increase	Daily Truck Volume
1	7	6	56,900	105,000	85	9,970
2	19	4	9,000	15,000	67	4,170
3	49	4	5,950	11,000	85	3,710
4	43	4	8,550	17,200	101	4,880
5	29	4	14,500	29,300	102	5,360
6	6	4	22,700	56,000	147	8,340
7	5	6	25,000	62,800	151	9,040
8	3	8	80,600	165,500	105	17,710
9	3	10	81,200	196,000	141	20,970

Table 10. Possible Daily Traffic Volume with Impact of the North American Free Trade Agreement

Section	Miles	No. of Lanes	1991	2011 (25% Increase)			2011 (100% Increase)		
				Daily Vehicle Volume	% Increase	Daily Truck Volume[1]	Daily Vehicle Volume	% Increase	Daily Truck Volume[1]
1	7	6	56,900	107,000	88	11,700	112,800	98	25,400
2	19	4	9,000	15,800	76	5,000	18,300	103	7,500
3	49	4	5,950	11,700	97	4,400	14,000	135	6,700
4	43	4	8,550	18,200	113	5,900	21,100	147	8,800
5	29	4	14,500	30,400	109	6,400	33,600	132	9,600
6	6	4	22,700	57,700	154	10,000	62,700	176	15,000
7	5	6	25,000	64,600	158	10,800	70,000	180	16,300
8	3	8	80,600	169,000	109	21,200	179,700	123	31,900
9	3	10	81,200	200,200	147	25,200	212,800	162	37,700

[1] Assumes 80 percent of truck traffic is related to NAFTA induced activity.

Conclusions From the Traffic Analysis

The I-35 corridor between Laredo to San Antonio is not currently congested, and for most of its length, it will not be congested 20 years from now. The 29 mile section from US 57 to Loop 1604 in San Antonio may reach congested conditions depending on the impact of the NAFTA. Most of the urban roadway segments are estimated to have congestion in 2011.

Daily traffic volume on the urban freeway sections in Laredo and San Antonio is estimated to be at least 65 percent higher than existing volume under the "current trend" scenario and 75 to 180 percent higher under the two NAFTA scenarios. If no capacity expansions are undertaken, this could result in significant levels of congestion. The urban sections where most of this congestion would exist, however, are relatively short, and congestion would not appear to represent so significant a problem as to induce diversion to another mode or route of travel **by itself.**

San Antonio and Laredo are not currently classified as air quality nonattainment areas and, thus, are not subject to some of the stringent transportation management restrictions included in the Clean Air Act Amendments of 1990. San Antonio, however, as a large metropolitan area may begin the planning and actions necessary to stay in compliance with the clean air standards. Much of the air pollution reduction activity related to transportation focuses on the reduction of vehicle-miles of travel. A rail system that removed truck and auto traffic from San Antonio area roadways would improve San Antonio's chances of retaining lower pollution levels.

Improvements to I-35 Roadway

Estimates of the amount of traffic that will be using I-35 indicate that some sections will have more than the desirable volume in 2011. Some of the sections may be so close to being over the desirable number that by diverting truck trips, a capacity expansion could be avoided or delayed. The analysis of the impact of high-speed rail improvements on congestion levels was conducted with the assumption that roadway construction that could be avoided was a benefit from the rail project.

Current Trends

Sections 1, 6, 7, 8 and 9 are forecast to be congested if no expansion is accomplished by 2011. Even with the expanded number of lanes indicated in Table 3, some congestion will exist in sections 1, 6, 8, and 9.

The 4 congested sections will have volumes substantially in excess of the volume for the next lowest number of lanes except section 6. If 2 new lanes were not needed in this section, approximately $12 million would be saved (12 lane-miles at $1 million per mile). Reducing the volume would also reduce the maintenance required for the roadway.

NAFTA Impact

The 2 conditions examined for the impact of the NAFTA, 25 and 100 percent increase in affected truck traffic volume, result in more sections of roadway that may benefit from diverted traffic. Sections 1 and 5 are projected to have volumes that, if some trucks were diverted, could remain in the Tolerable flow range (for 8 lanes in section 1 and for 4 lanes in section 5) and thus save on construction of roadway. These sections total 36 miles; the estimated total savings from construction would be $72 million.

LETTERS OF SUPPORT

STATE OF TEXAS
OFFICE OF THE GOVERNOR
AUSTIN, TEXAS 78711

ANN W. RICHARDS
GOVERNOR

August 26, 1992

The Honorable Andrew H. Card, Jr.
Secretary of Transportation
United States Department of Transportation
400 Seventh Street, S.W.
Washington, D.C. 20590

Dear Secretary Card:

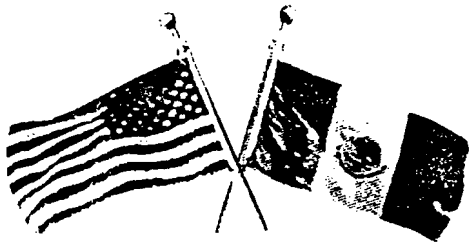
As Governor of the State of Texas, I support the development of transportation links between the Republic of Mexico and the United States.

Near high speed passenger rail service between Monterrey, Mexico and San Antonio, Texas via los Dos Laredos would strengthen the strong bonds that exist between South Texas and Northern Mexico. Therefore, I give my total support for Texas' application for federal funds to make improvements to this vital transportation corridor.

Sincerely,

Ann Richards

ANN W. RICHARDS
Governor



August 5, 1992

Concerning Application for Financial Assistance
Under Title 23, United States Code, Section 104(d)(2)

Mr. Andrew H. Card, Jr.
Secretary of Transportation
United States Department of Transportation
400 Seventh Street, S.W.
Washington, D.C. 20590

Dear Mr. Card:

The strong bond between South Texas and Northern Mexico is a result of common interests in culture, history, commerce, and trade. The cities in this region provide the focal points for the interchange of our shared heritage and commercial interests. As the mayors of Monterrey, Nuevo Laredo, Laredo, and San Antonio, we realize that the myriad ties that connect us would be enhanced by improved transportation links. One way to accomplish this would be to develop an efficient near high speed passenger rail service between our cities. An obstacle to such service is the existence of hazards at the highway/rail intersections between San Antonio and Laredo. Therefore, we fully support an application which would provide the U. S. federal funds necessary to assist in eliminating these hazards.

Sincerely,

Mr. Benjamin Clariond Reyes-Retana
Mayor of Monterrey, Nuevo León

Mr. Arturo Cortes Villada
Mayor of Nuevo Laredo, Tamaulipas

Mr. Saul Ramirez, Jr.
Mayor of Laredo, Texas

Mr. Nelson Wolff
Mayor of San Antonio, Texas

5 de agosto de 1992

Con respecto a las Solicitudes para Ayuda Financiera
Bajo el Título 23, Código de los Estados Unidos de América,
Sección 104(d)(2)

Ing. Andrew H. Card, Jr.
Secretario de Transportes
Departamento de Transportes de los Estados Unidos
400 Seventh Street, S.W.
Washington, D.C. 20590

Estimado Ing. Card:

El fuerte lazo de unión que se tiene entre el sur de Texas y el norte de la República Mexicana es el resultado de un interés común de cultura, historia, comerico y negocio. Las ciudades de esta región proveen el punto principal de intercambio en compartir nuestra herencia e interés comercial. Los presidentes municipales de Monterrey, Nuevo Laredo, Laredo y San Antonio nos damos cuenta de los lazos múltiples los cuales nos conectan y sabemos que se puede acrecentarlos con mejores conexiones de transporte. Una forma de llevarlo a cabo es por medio de desarrollar un eficiente servicio de pasajeros ferroviario por medio de un tren de alta velocidad, la cual sería una velocidad menos que un tren bala, dando servicio a nuestras ciudades. Un obstáculo a este tipo de servicio son las intersecciones o cruceros de carreteras con la vía ferroviaria que se tienen actulamente entre las ciudades de San Antonio y Laredo. Por lo consiguiente, los presidentes municipales le damos nuestro apoyo total para su petición de la cual se podría proporcionar fondos federales de los Estados Unidos de América para auxiliar en la eliminación de esta amenaza.

Sinceramente,

Lic. Benjamin Clariond Reyes-Retana
Presidente Municipal de
Monterrey, Nuevo León

Lic. Arturo Cortes Villada
Presidente Municipal de
Nuevo Laredo, Tamaulipas

Alcalde Saul Ramirez, Jr.
Presidente Municipal de
Laredo, Texas

Alcalde Nelson Wolff
Presidente Municipal de
San Antonio, Texas

GOBIERNO DEL ESTADO
DE NUEVO LEON
PODER EJECUTIVO

Oficio Núm. 109-A/92

Monterrey, N.L., Agosto 28 de 1992.

MS. ANN RICHARDS
GOBERNADORA DEL ESTADO DE TEXAS
ESTADOS UNIDOS DE AMERICA

En relación con el Proyecto que el Estado de Texas ha presentado al Departamento de Transporte de los Estados Unidos de América, esta comunicación tiene el propósito de hacer patente nuestra simpatía con las intenciones del mismo.

Un corredor ferroviario de pasajeros de carácter internacional, entre San Antonio, Texas y Monterrey, N.L., sería congruente con los propósitos de internacionalización que el Gobierno de Nuevo León ha establecido como prioridades.

Con gran espíritu de cooperación, confiamos que en el futuro la creciente comunicación entre Nuevo León y Texas nos permita hacer frente al reto que representa el Tratado de Libre Comercio que, seguramente, será una realidad el próximo año.

Esperamos que lo manifestado anteriormente le permita conocer la buena disposición de Mi Gobierno en el trámite de este Proyecto, sin que esto exprese compromiso alguno.

C. GOBERNADOR CONSTITUCIONAL
DEL ESTADO DE NUEVO LEON
LIC. SOCRATES RIZZO GARCIA

GOBIERNO DEL ESTADO
DE NUEVO LEON
EJECUTIVO

c.c.p.-LIC. CARLOTA VARGAS GARZA
Jefe del Proyecto de Comunicaciones y
Transportes para la Descentralización.
-LIC. ELMO ALANIS GOMEZ
Sub-Secretario de Comercio Exterior, Inversión y Turismo.

TEXAS HIGH-SPEED RAIL AUTHORITY

Bob Neely
Executive Director

823 Congress Avenue • Suite 1502 • Austin, Texas 78701 • 512/478-5484 • FAX 512/478-5486

August 25, 1992
REF: 92SMP804

Mr. Hoy Richards
Project Coordinator
Texas Transportation Institute
Texas A&M University System
College Station, Texas 77843-3135

Dear Mr. Richards:

It is my understanding that the Texas Department of Transportation will apply for federal funding under ISTEA Section 1010 to improve or grade-separate crossings on the Union Pacific rail line between San Antonio and Laredo, and that this application is in response to a proposal by North American Carriages Company, doing business as Royal Eagle Lines, to establish private passenger train operations between San Antonio and Monterrey.

The statute creating our agency limits our agency's jurisdiction to rail technology that permits the operation of rolling stock between scheduled stops at speeds in excess of 150 miles per hour. I understand that Royal Eagle Lines proposes to use train technology that does not exceed 150 miles per hour and therefore would not be subject to regulation by this agency, but would meet the ISTEA requirement that speeds of 90 mph can reasonably be expected to occur.

We support this application. As noted in the Transportation Research Board's report In Pursuit of Speed, part of the success of foreign high-speed rail systems is due to connection with an extensive conventional rail network and service to intermodal terminals with local transit connections. The service proposed by Royal Eagle Lines would augment any high-speed rail facility that may be established in Texas.

Sincerely,

Steven M. Polunsky
Director of Research and Planning

SMP:js

OFFICE OF
RAILROAD COMMISSION
OF TEXAS

LENA GUERRERO
CHAIRMAN

Office (512) 463-7131
FAX (512) 463-7161

1701 N. CONGRESS CAPITOL STATION — P. O. BOX 12967 AUSTIN, TEXAS 78711-2967

August 28, 1992

Mr. Gilbert E. Carmichael
Administrator, Federal Railroad Administration
U. S. Department of Transportation
400 Seventh Street, S.W.
Washington, D.C. 20590

Re: San Antonio/Laredo/Monterrey Rail Corridor

Dear Mr. Carmichael:

I wear two hats. The first is that of Chairman, Railroad Commission of Texas. Our rail safety program seeks to save lives and property. The importance of this ongoing effort was recently highlighted as a tragic grade crossing accident took three lives on this very segment of Union Pacific track south of San Antonio.

My other hat is that of Chairman, Texas High-Speed Rail Authority. In this additional role, I lead the state's efforts to find an alternate mode of high-speed ground transportation for the 21st Century. The city of San Antonio will be a key focus for the network now planned. A link to the Republic of Mexico via Laredo, Texas and Monterrey, Mexico has great appeal and value.

Your consideration of the attached application would be greatly appreciated.

Sinceramente,

Lena Guerrero

STATE OF TEXAS
DEPARTMENT OF COMMERCE

J. Jorge Verduzco
Board Member

Chairman
Texas-Mexico Authority

July 31, 1992

Mr. Andrew H. Card, Jr.
Secretary of Transportation
United States Department of Transportation
400 7th Street SW
Washington, D. C. 20590

RE: Application for Financial Assistance
Under Title 23, United States Code,
Section 104 (D) (2)

Dear Mr. Card:

Since the Texas-Mexico Authority recognizes the need to develop transportation links of all types between the United States and Mexico, it strongly endorses the San Antonio-Laredo-Monterrey Passenger Rail Project. The Texas-Mexico Authority believes that near high speed passenger rail service between Monterrey, Mexico and San Antonio, Texas via los Dos Laredos would strengthen the already strong international commerce and tourism between South Texas and Northern Mexico.

Therefore, the members of the Texas-Mexico Authority pledge their total support for an application that would provide for needed improvements necessary to develop this vital transportation corridor. It is imperative that the common interests of culture, history, commerce and trade be maintained in this region to provide for the interchange of a shared heritage and commercial interests.

Sincerely,

Mr. J. Jorge Verduzco
Chairman
Texas-Mexico Authority

International Bank of Commerce - Laredo
P.O. Drawer 1359 • Laredo, Texas 78042 • 512/722-7611 • Fax 512/726-6637

STATE OF TEXAS
DEPARTMENT OF COMMERCE

August 26, 1992

The Honorable Andrew H. Card, Jr.
Secretary of Transportation
United States Department of Transportation
400 Seventh Street, S.W.
Washington, D.C. 20590

Dear Secretary Card:

The Texas Department of Commerce enthusiastically supports the Texas application for federal funds to eliminate hazards at highway/rail intersections between San Antonio, Texas and Monterrey, Mexico. The resulting passenger service link between our two countries will produce a variety of new commercial and cultural opportunities.

The Texas Department of Commerce stands ready to actively promote the passenger corridor through its media and marketing efforts.

We look forward to your consideration of this application. Please do not hesitate to call me at (512) 320-9602 if I can provide further information.

Sincerely,

Cathy Bonner
Executive Director

Post Office Box 12728 · Austin, Texas 78711-2728 · 512/472-5059

STATE OF TEXAS
DEPARTMENT OF COMMERCE

August 27, 1992

Hoy A. Richards
Texas Transportation Institute
Texas A&M University
College Station, Texas 77843-3135

Dear Mr. Richards:

The Texas Department of Commerce has strong ties with our federal and state counterparts in Mexico. The agencies on both sides of the border are committed to working together to improve the economic situation of both our countries.

As Director of the Tourism Division of the Texas Department of Commerce, I pledge our support to make the Monterrey to San Antonio rail corridor a successful transportation link between Mexico and the United States. At a meeting in San Antonio on August 5, representatives from several Mexican entities pledged their support for the project as well. Alejandro Peniche, Director General De Transporte Terrestre, speaking for Andres Caso Lombardo, Minister of Communications and Transportation, reported that the Ministry has been working to make the passenger rail corridor a reality for the past two years. He also noted that the Ministry has been participating in a NAFTA Transportation Working Group that has recently agreed upon customs procedures for the train's border crossings.

Also Enrique Hernandez, Sub-director of Transportation for the National Railways of Mexico (FNdeM), stated that FNdeM will give this project high consideration among the list of projects in the Mexico transportation program. FNdeM is also committed to work with the Union Pacific and Texas Mexican railroads to eliminate train bottlenecks at the Laredo Railway Bridge.

These commitments from both sides of the border will make this an exciting and successful project.

Sincerely,

Dianne Mendoza Freeman

Dianne Mendoza Freeman, Ph.D.
Director
Tourism Division

Post Office Box 12728 · Austin, Texas 78711-2728 · 512/472-5059

San Antonio – Bexar County

metropolitan planning organization

434 S. Main, Suite 205
San Antonio, Texas 78204
(512) 227-8651
(512) 227-9321 FAX

August 24, 1992

Hoy A. Richards
Project Coordinator
Texas Transportation Institute
Texas A&M University System
College Station, Texas 77843-3135

Dear Mr. Richards:

Enclosed is a resolution adopted by the Transportation Steering Committee on August 24, 1992 in support of the Texas Department of Transportation's application for the designation of a high-speed rail corridor between San Antonio-Laredo-Monterrey, Mexico.

If I can provide additional information, please let me know by calling (512) 227-8651.

Sincerely,

Janet A. Kennison
Administrator

Enclosure

A RESOLUTION

IN SUPPORT OF THE DESIGNATION OF A HIGH SPEED RAIL CORRIDOR

BETWEEN SAN ANTONIO-LAREDO-MONTERREY, MEXICO

* * * * * * * * * * *

WHEREAS, in 1981, the San Antonio-Bexar County Urban Transportation Steering Committee created a Railroad Task Force with the purpose of pursuing the establishment of first class rail passenger service between Mexico City and San Antonio; and

WHEREAS, the Railroad Task Force has hosted meetings to bring together the interested parties to discuss the opportunities and obstacles in establishing first class rail passenger service in the corridor; and

WHEREAS, the potential operating speed for a passenger train in the San Antonio-Laredo-Monterrey corridor has consistently been an issue in establishment of the service; and

WHEREAS, the San Antonio Urban Transportation Study Steering Committee, the designated Metropolitan Planning Organization for Bexar County, continues to support the establishment of first class rail passenger service between San Antonio, Texas and Mexico City, Mexico; NOW THEREFORE:

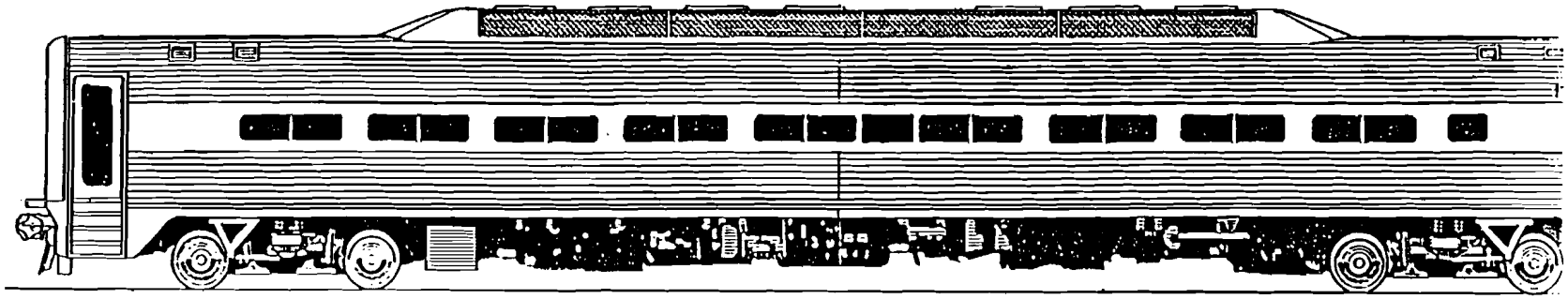
BE IT RESOLVED BY THE SAN ANTONIO URBAN TRANSPORTATION STUDY STEERING COMMITTEE:

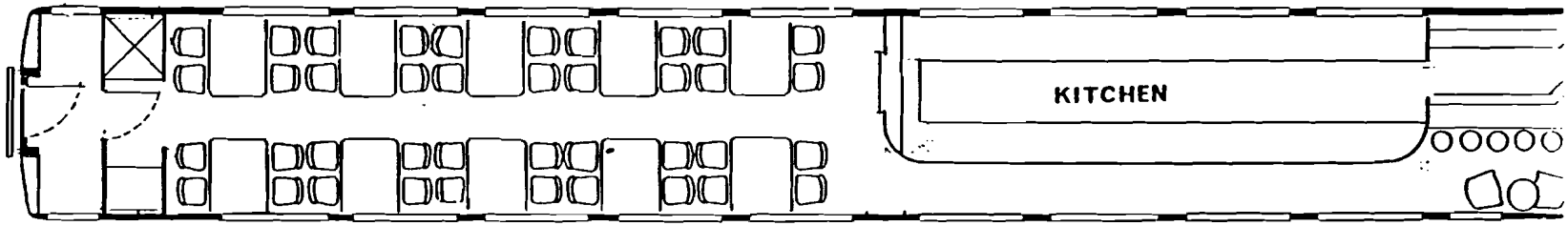
THAT the Steering Committee supports the Texas Department of Transportation's application for the designation of a high-speed rail corridor between San Antonio-Laredo-Monterrey, Mexico.

PASSED AND APPROVED this 24th day of AUGUST, 1992.

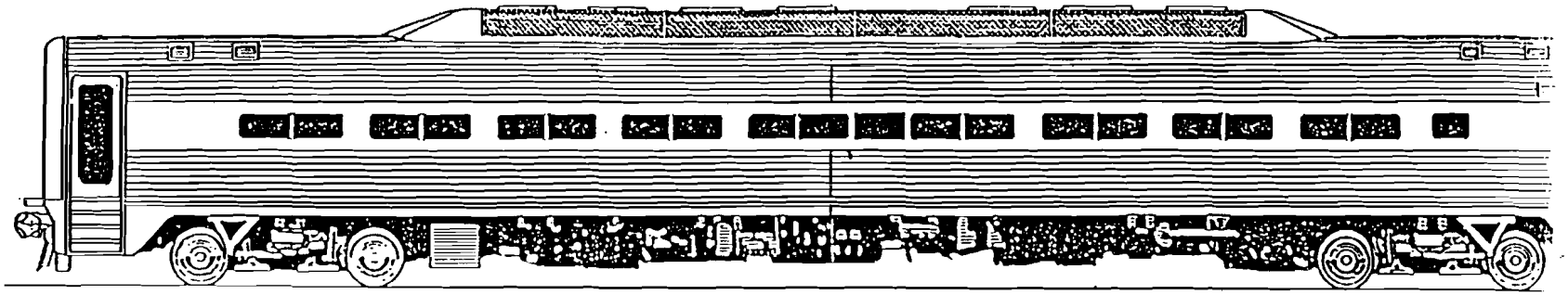
Weir Labatt
Chairman
San Antonio Urban Transportation
Study Steering Committee

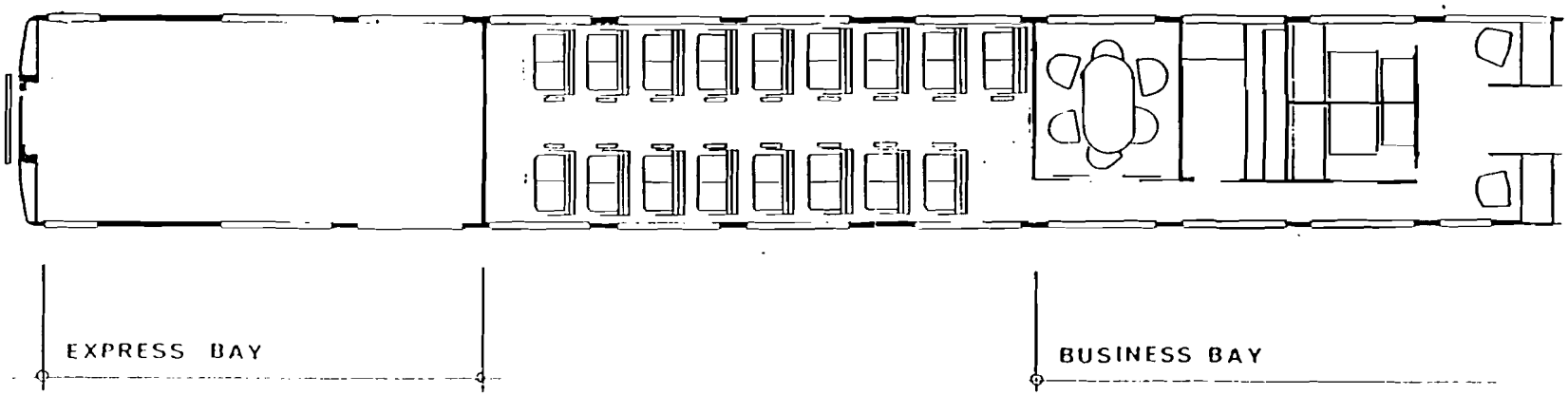
ATTACHMENT 1



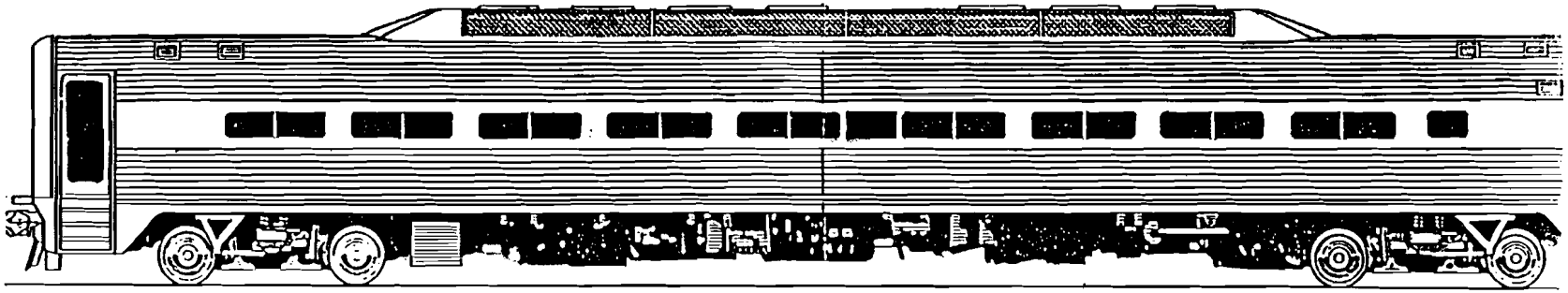


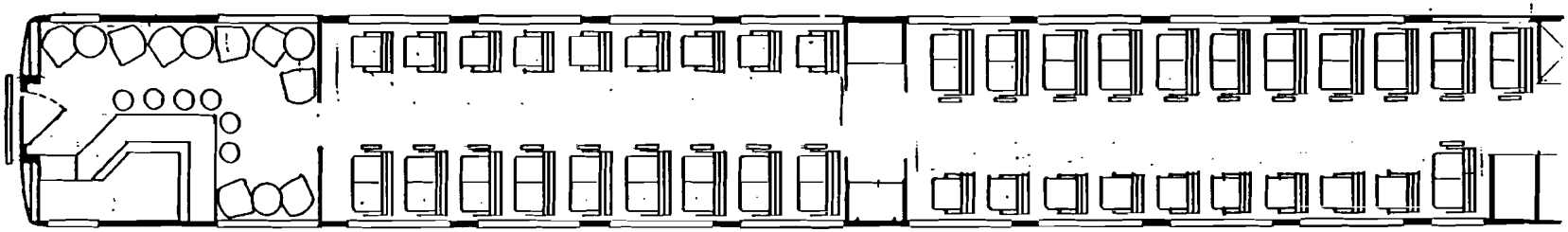
DINING CAR



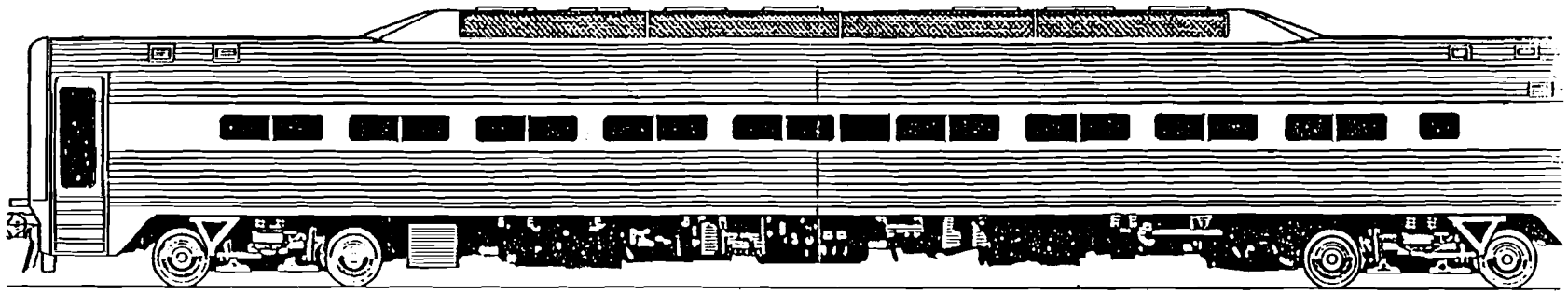


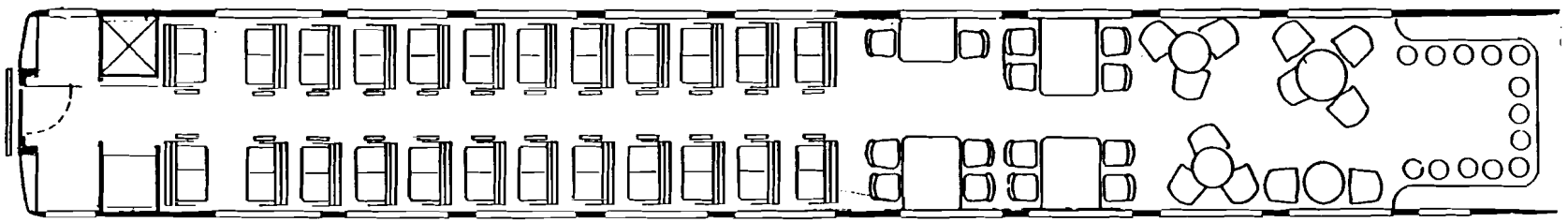
BUSINESS CAR



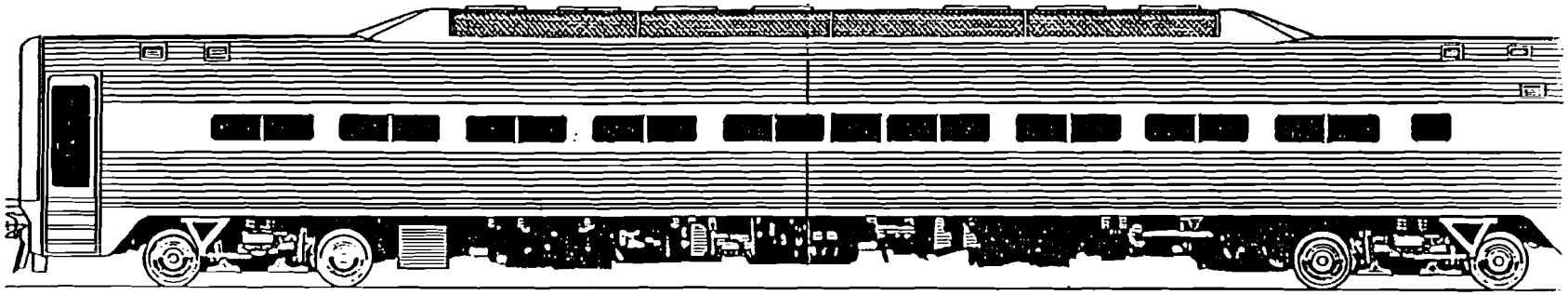


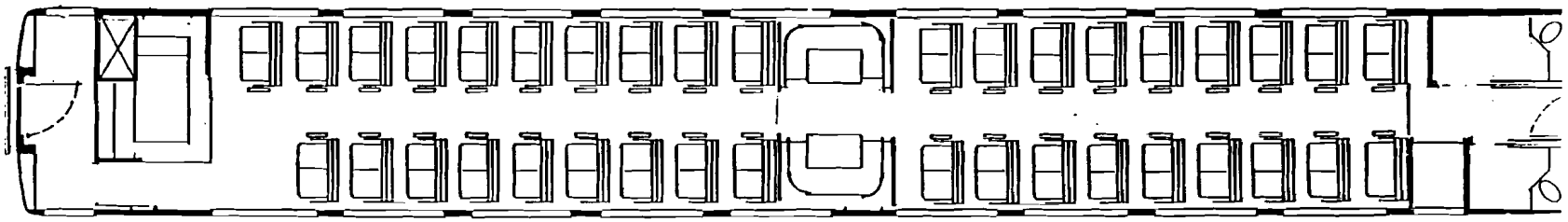
CUSTOM CLASS





OBSERVATION LOUNGE CAR





EXCURSION CAR

ATTACHMENT 2

Radio Display: 4242

Mile Post	SOUTH ▼	CP No.	STATIONS	NORTH ▲	Station Nos.	Sidings Feet
0.0		....	PALESTINE	Ⓓ T	AX-81	Yd.
			1.1			
1.1		Q000	WEST JCT.	Ⓓ	A-81	....
			7.4			
8.5		....	TUCKER		AX-90	3635
			9.5			
18.0		....	OAKWOOD		AX-99	7892
			16.7			
34.7		....	BUFFALO	Ⓓ	AX-116	3575
			9.1			
43.8		....	JEWETT		AX-125	4285
			11.0			
54.8		....	MARQUEZ	Ⓓ	AX-136	9207
			13.6			
70.4		....	EASTERLY		AX-152	3821
			6.7			
78.0		....	FRANKLIN		AX-158	9530
77.2		Q077	3.2			
80.2		....	Ⓓ SP Ⓓ		....	....
			0.4			
80.8		....	HEARNE	Ⓓ	AX-171	6218
			3.8			
83.4		....	Ⓓ UP Ⓐ		....	....
83.6		Q094	VALLEY JCT		AX-175	....
			5.6			
89.0		Q099	GAUSE	?	AX-181	8151
100.7		Q101	10.9			
109.9		Q109	MILANO	Ⓓ ATSF Ⓐ ?	AX-191	7759
111.5		Q111	12.7			
122.8		Q122	MARJORIE	Ⓓ ?	AX-205	8254
124.4		Q124	14.7			
137.3		Q136	THRALL	?	AX-220	8576
139.0		Q139	7.0			
			RED RIVER DIVISION			
142.5						
			SAN ANTONIO DIVISION			
144.3		....	Ⓓ UP Ⓐ		....	....
144.4		Q145	0.5			
		....	TAYLOR	Ⓓ	AX-226	Yd.
146.2		Q146	5.1			
149.9		Q150	HESTES	?	AX-232	7413
151.5		Q152	10.5			
160.4		Q160	ROUND ROCK	?	AX-243	7146
161.8		Q162	5.7			
166.1		....	McNEIL Ⓓ AUNW Ⓓ		AX-247	4972
			6.5			
172.6		Q173	SNEED	?	AX-253	8494
174.3		Q174	6.5			
179.1		....	AUSTIN		AX-262	1953
			7.5			
186.6		Q186	BERGSTROM	Ⓓ ?	AX-268	7543
188.1		Q188	13.6			
200.2		Q200	KYLE	?	AX-282	7524
201.8		Q202	6.5			
208.7		Q206	CENTEX	?	AX-288	8249
208.3		Q208	....		....	....
			5.3			
212.0		Q212	UP JCT.	Ⓧ	AX-294	....
			7.0			
219.0		Q219	....		....	....
			1.9			
220.9		Q221	GOODWIN	?	AX-302	9990
223.1		Q223	12.5			
233.4		Q233	CORBYN	?	AX-316	7978
235.0		Q235	0.9			
235.9		Q236	CRAIG JCT.		AX-317	....
			3.4			
239.3		Q239	BRACKEN	?	AX-322	8428
241.1		Q241	11.3			
250.6		Q250	NORTH LOOP	?	AX-333	7559
252.1		Q252	....		....	....
			8.5			
259.1		J259	SAN ANTONIO	Ⓥ	AX-340	....
			0.8			
259.9		....	APACHE JCT.	Ⓓ SP Ⓐ	AX-341	....
			0.5			
260.4		....	Ⓓ SP Ⓓ		....	....
			3.9			
264.3		....	SOSAN	Ⓓ T Ⓥ	AX-345	Yd.
265.2		....	(SPLIT DERAIL)	Ⓥ	....	....
265.7		....	HEAFER JCT.	Ⓥ	....	....
			14.2			
278.5		....	GESSNER		AX-360	8737
			39.5			
318.0		....	MELON		AX-399	7853
			21.5			
339.5		....	GARDENDALE	Ⓓ T	AX-422	7721
			6.3			
345.8		....	COTULLA		AX-427	5421
			24.2			
371.0		....	FINLEY		AX-451	8444
			14.3			
385.3		....	CALLAGHAN		AX-467	8800
			26.7			
412.0		....	Ⓓ TM Ⓓ		....	....
			0.2			
412.2		....	LAREDO	Ⓓ T Ⓥ	AX-494	Yd.
			412.5			

Maximum Speed	MPH
0.0 and 54.0	40
54.0 and 144.9	60
(Except as below)	
Between Mile Posts	
0.0 and 1.5	20
1.5 and 2.0	30†
13.0 and 14.0	30
58.7 and 61.9	50
61.9 and 62.2	40
62.2 and 63.2	50
63.2 and 67.1	40
76.5 and 77.5	40
80.1 and 80.3	55
89.0 and 91.0	25†
93.4 and 93.9	40
Valley Jct. thru No. 113 & 114 Tracks	25
94.7 and 94.9	45
Siding Milano	10
109.9 and 110.1	25
113.0 and 114.0	45
118.7 and 120.9	45†
130.1 and 130.3	30
143.9 and 144.3	35†
144.3 and 144.9	15

	MPH Pass.	Frt.
144.9 and 264.3		
(Except as below)	70	60
144.9 and 145.9	35	35†
145.9 and 146.7	40	40
146.7 and 147.7	60	45
160.0 and 161.8	60	—
165.9 and 166.0	45	45
166.9 and 171.0	60	—
171.0 and 174.3	60	35†
174.3 and 178.2	50	35†
178.2 and 179.6	40	35†
179.6 and 179.8	15	15
179.8 and 186.1	35	35†
190.5 and 192.0	60	55
192.0 and 195.0	65	—
201.6 and 203.2	55	50
205.3 and 207.6	55	50
207.6 and 211.1	30	30
219.9 and 220.0	60	—
224.5 and 229.2	30	30†
229.2 and 232.0	60	50
232.0 and 235.6	60	—
240.3 and 240.7	60	—
242.8 and 244.3	60	—
247.4 and 248.6	60	—
248.6 and 256.1	45	45
256.1 and 257.4	40	40
257.4 and 258.5	30	30
258.5 and 260.0	20	20†
260.0 and 260.9	30	30
260.9 and 263.1	35	35
263.1 and 264.3	20	20
(Except as below)	....	49
Between Mile Posts		
264.3 and 268.0		20†
281.4 and 282.7		40†
290.7 and 291.5		40†
312.6 and 313.3		30†
345.0 and 346.0		40

Between West Jct. and Valley Jct. do not exceed 40 MPH if freight train averages over 90 tons per operative brake and do not exceed 35 MPH if freight train averages over 100 tons per operative brake.

Two main tracks CPQ212 to CPQ219. CTC in effect on Both Tracks. Tracks designated No. 1 and No. 2. Most eastern track at CPQ212 is No. 1.

CTC between: MP 0.0 and MP 1.1; MP 77.2 and MP 259.1

ABS between: MP 1.1 and MP 77.2; MP 260.4 and MP 262.3

TWC between: MP 1.1 and MP 77.2; MP 264.3 and MP 412.2

See Special Instructions Item 20 for AMTK schedules.

15 MPH dual control switch turnouts: Leroy track Palestine; crossover West Jct.; switch to UP connection and crossover from freight lead to main track at Taylor.

Yard Limits: MP 259.0 to MP 268.0; MP 405.1 to end of track.

No. 22 will secure UP track warrant at SP Station San Antonio.

All trains secure track warrant at Taylor as prescribed by Rule 450.

Radio communications concerning terminal operation Palestine — Radio Display 2424; Sosan — Radio Display 8 or 2424; Laredo — Radio Display 2020.

Southward trains arriving Sosan call yardmaster from N Loop — MP 251.5. Northward trains arriving Sosan yardmaster from Von Ormy — MP 273.

Trains arriving Laredo secure instructions from Laredo before entering yard limits.

Southward trains arriving San Antonio must contact SP Rio Dispr. for permission to use SP interlocking when en passes over Martin Street.

Train defect detectors located: Ⓓ MP 26.7, Ⓓ MP 51.3, Ⓓ 73.1, Ⓓ MP 103.0, Ⓓ MP 119.7, Ⓓ MP 140.3, Ⓓ MP 168.9, Ⓓ 198.1, Ⓓ MP 227.3, Ⓓ MP 245.0, Ⓓ MP 299.3, Ⓓ MP 329.0, Ⓓ 356.0 and Ⓓ MP 378.2.

RESTRICTIONS:

Double-stack cars must not be handled on track No. 1 MKT Main) between CPQ 212 and CPQ 219.

Taylor—Do not use more than one 4-axle unit while sw ing on house track, north leg of Wye, Williamson County tracks No. 1 and No. 2 at MP 144.

Austin—Crews handling trains in excess of 30-cars mus make a backup movement at south end of Austin siding any portion of train occupies crossover and track to north en Colorado River Bridge.

Texas Cement—Do not allow locomotive to occupy s on track 706 or 707. Do not allow more than one loaded car time to occupy these scales.

Dittlinger—MP 231.1, do not exceed 10 MPH on W tracks.

Main track split — Derail located at MP 265.2, norm lined in derailing position, is a power operated, radio activ derail equipped with switch point indicators. Operating ins tion by general order.

Do not exceed 40 MPH on following trains unless othe instructed by track warrant or track bulletin; SAHO, SAH OSAHO, HOSA, HOSA-2 and OHOSA.

Business Tracks	MP	Sta. No.
Long Lake	12.3	AX-93
Koch (Conn. BN)	45.7	AX-127
Rockdale	119.1	AX-201
Majorie (Conn. RS&S)	124.4	AX-205
Thorndale	132.2	AX-214
Hutto	153.4	AX-235
Round Rock	161.6	AX-243
IBM	169.0	AX-251
Hooper	171.1	AX-254
Stripling Blake	171.9	AX-253
Sleck Paper Co.	172.1	AX-253
Vinson	183.8	AX-265
Buda	194.2	AX-276
Texas Cement	196.1	AX-278
Cedar Supply	202.3	AX-284
San Marcos	209.7	AX-29
Kroger	211.6	AX-293
Geronimo Spur	220.0	AY-010
New Braunfels	227.3	AX-308
Landas Park	227.8	AX-309
Dittlinger	231.1	AX-312

Business Tracks		MP	Sta. No.
Parker Bros.		231.2	AX
Ogden		236.7	AX
Wetmore		247.7	AX
Longhorn	T	249.2	AX
Green Light Spur		250.0	AX
Towne Spur		251.8	AX
Adams		254.0	AX
Devine		291.5	AX
Armour Chemical		310.1	AX
Medina Electric		310.5	AX
Pearsall	Ⓓ	313.0	AX
Derby		321.9	AX
Dilley		329.1	AX
Atlee		367.6	AX
Encinal	Ⓓ	373.6	AX
UNITEC		397.9	AX
Port Laredo	T	400.6	AX
Nye		408.3	AX

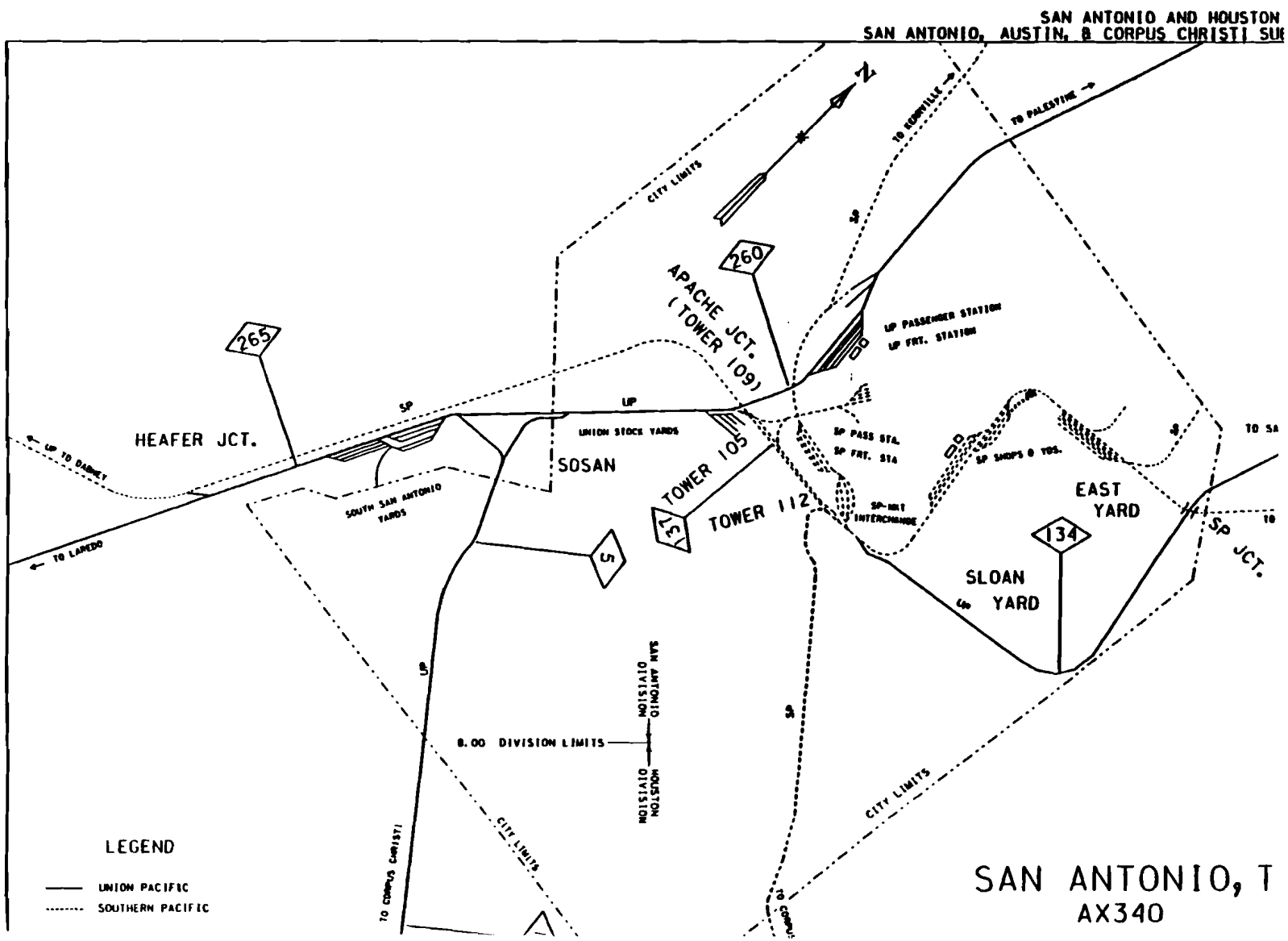
Georgetown Branch: Round Rock to Kerr DX-002 2.0 mi. Max. Speed 10 MPH.

Yard limits entire branch.

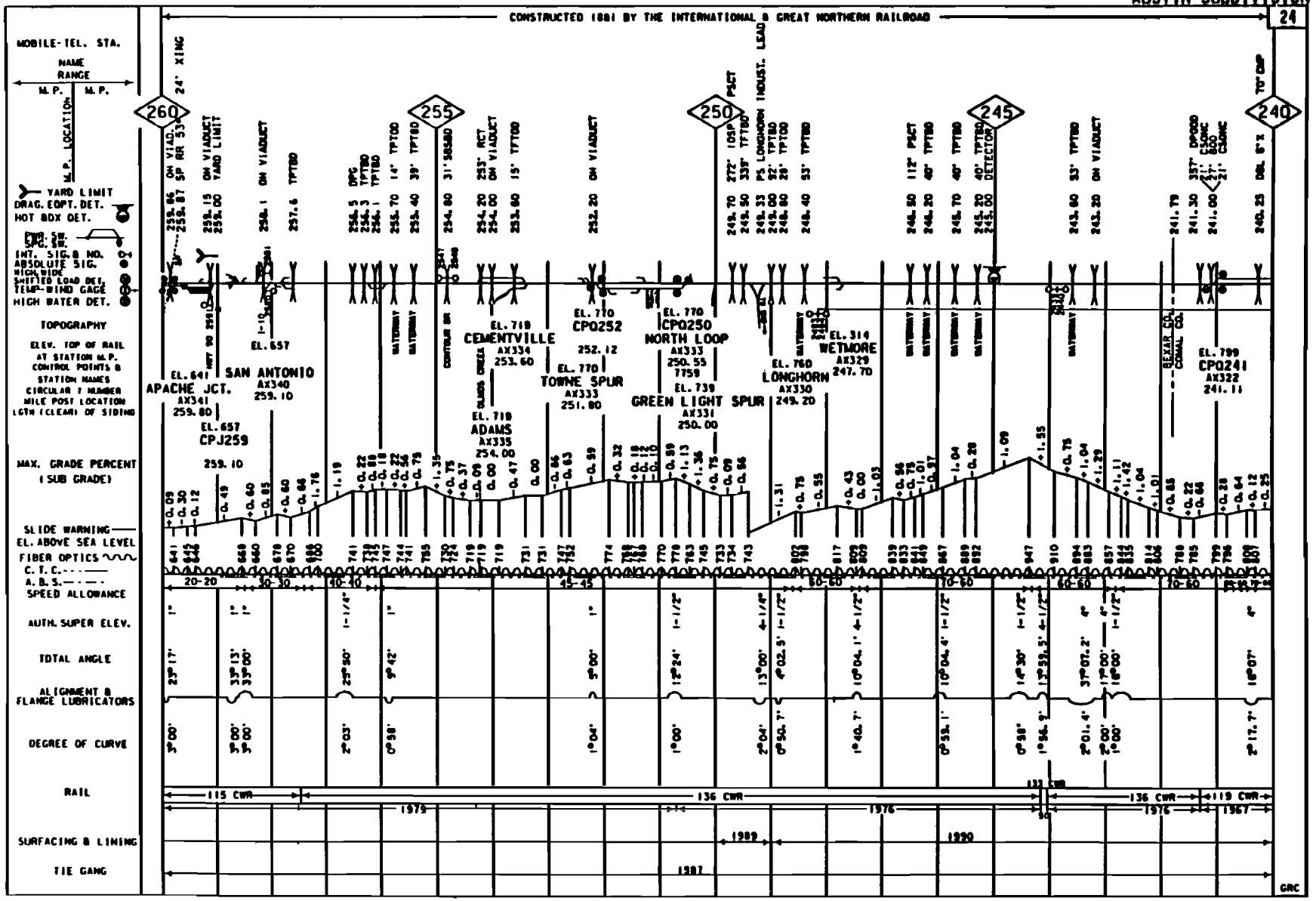
Bergstrom Ind. Lead 5.0 miles Vinson to end of track. Max. Speed 10 MPH.

Longhorn Industrial Lead 4.0 miles Max. Speed 10 MPH. (Track out of service Perrin-Bietel Road to end of track.) FRA excepted track.

Dabney Ind. Lead—3.5 miles between Dabney (HX18) and Blewett (HX14) Operated by Vulcan Materials.


SAN ANTONIO AND HOUSTON
SAN ANTONIO, AUSTIN, & CORPUS CHRISTI SUB
N
CITY LIMITS
TO KERRVILLE
TO PALESTINE
260
APACHE JCT.
(TOWER 109)
265
UP PASSENGER STATION
UP FRT. STATION
SP
UP
HEAFER JCT.
UNION STOCK YARDS
SOSAN
TOWER 105
TOWER 112
SP PASS STA.
SP FRT. STA
SP SHOPS & YDS.
EAST
YARD
134
SLOAN
YARD
SP JCT.
TO LAREDO
SOUTH SAN ANTONIO
YARDS
5
SAN ANTONIO DIVISION
8.00 DIVISION LIMITS
HOUSTON DIVISION
TO CORPUS CHRISTI
LEGEND
UNION PACIFIC
SOUTHERN PACIFIC
SAN ANTONIO, T
AX340

SAN ANTONIO DIVISION
AUSTIN SUBDIVISION

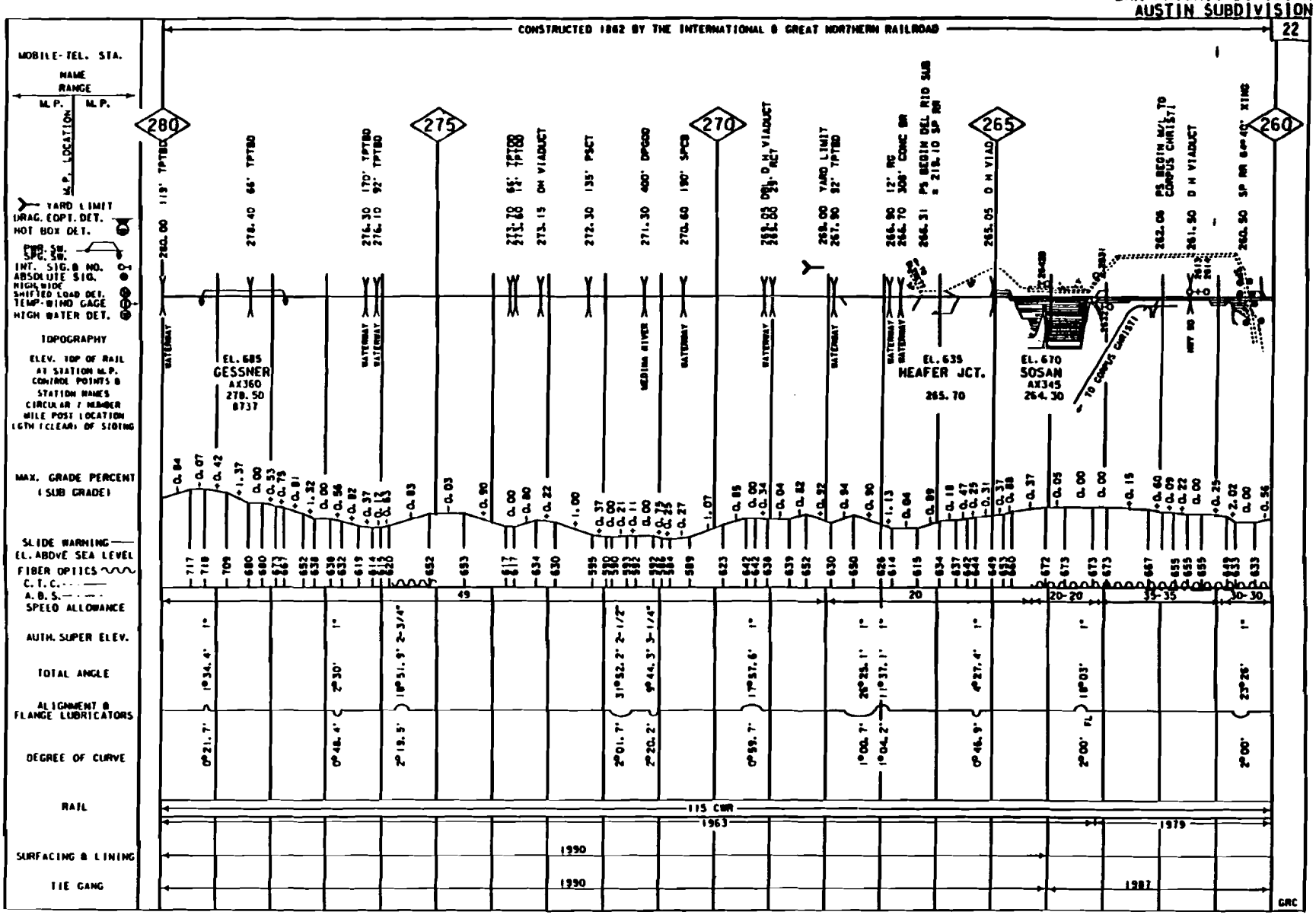


RAIL, SURFACING & LINING AND TIE GANG CORRECTED FOR DECEMBER 10, 1987

ALIGNMENT & PROFILE CORRECTED FOR FEBRUARY 13, 1991

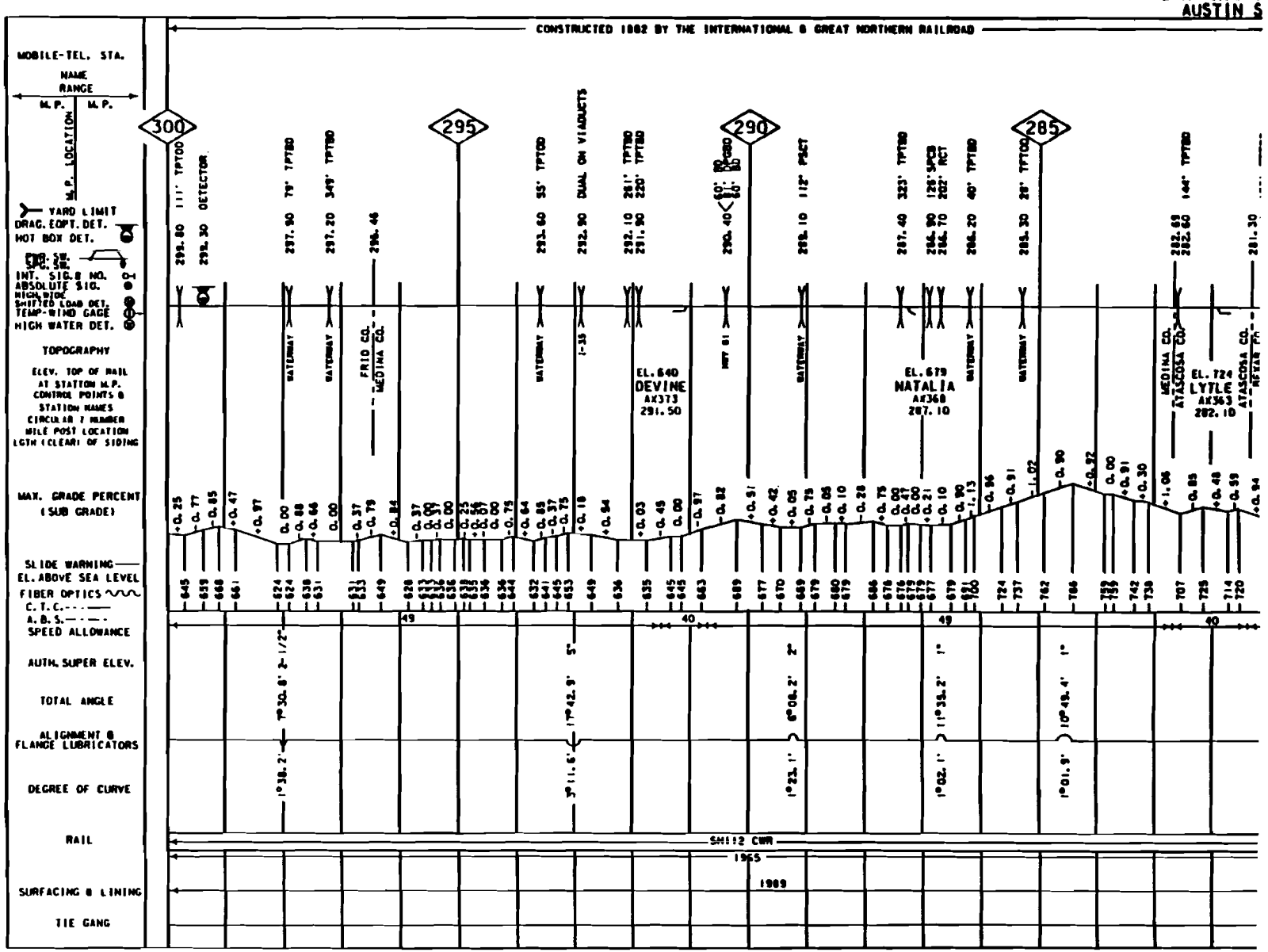
SANT

SAN ANTONIO DIVISION
AUSTIN SUBDIVISION



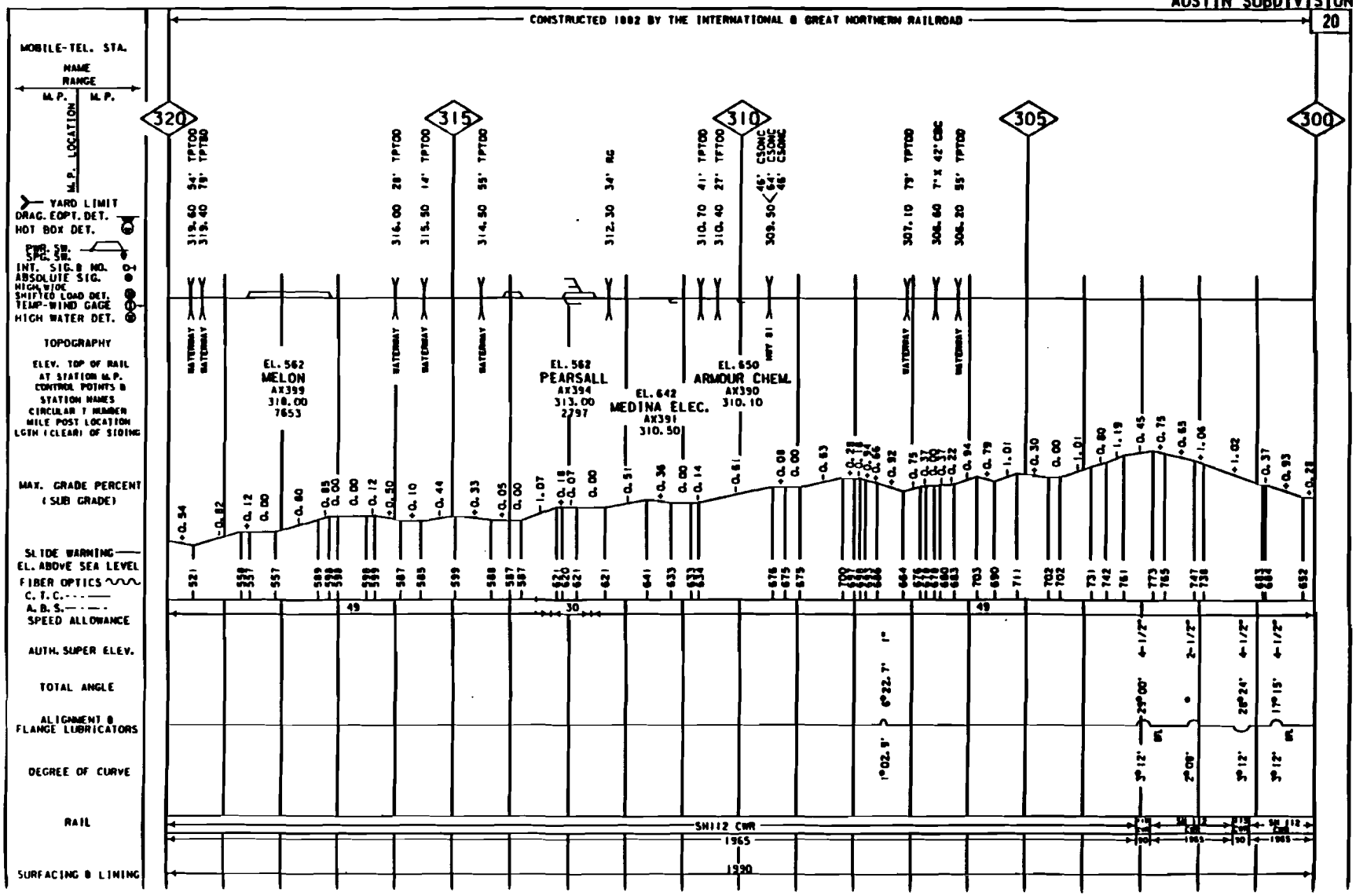
RAIL, SURFACING & LINING AND TIE GANG CORRECTED FOR FEBRUARY 17, 1988

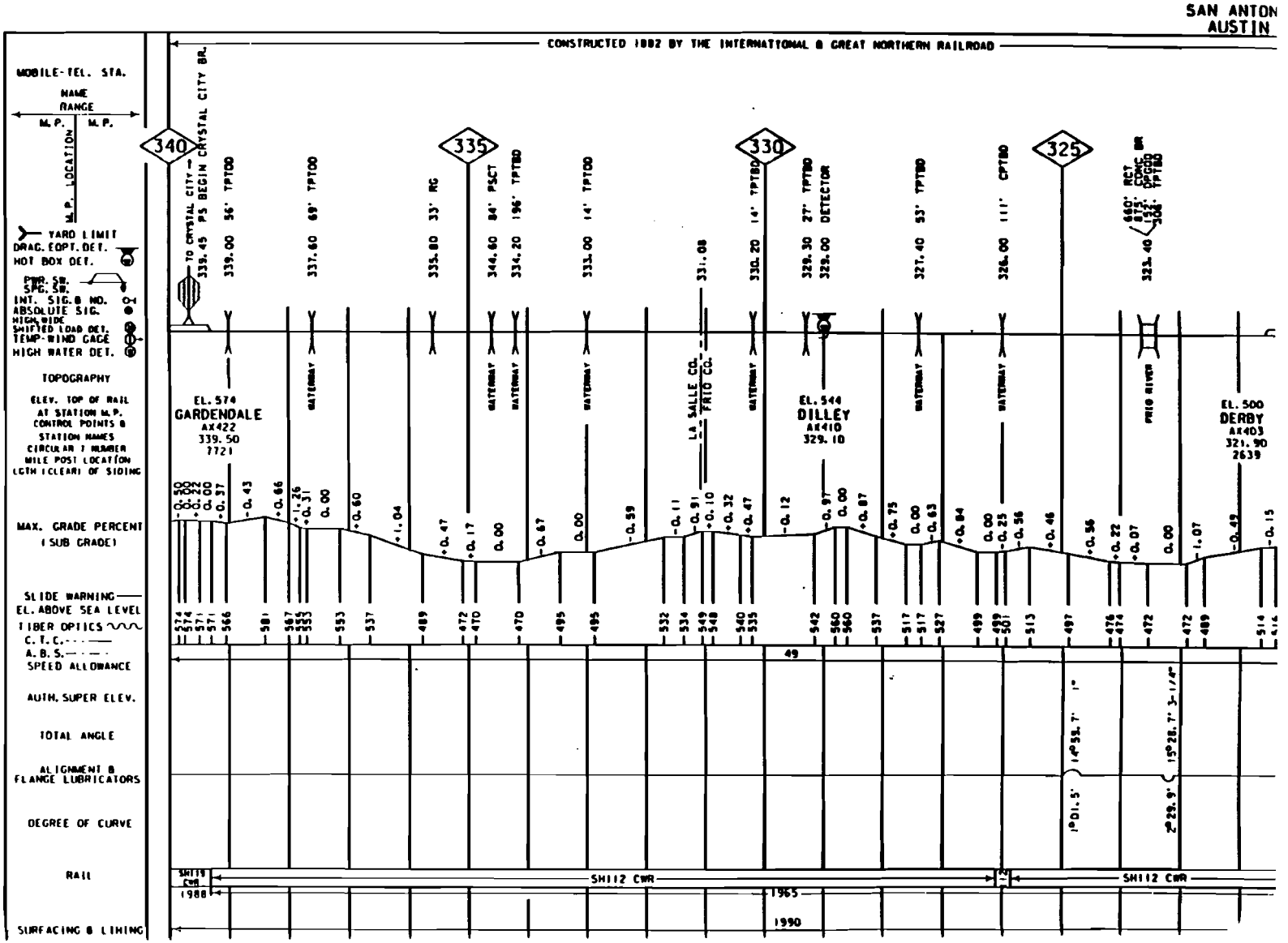
ALIGNMENT & PROFILE CORRECTED FOR FEBRUARY 13, 1991

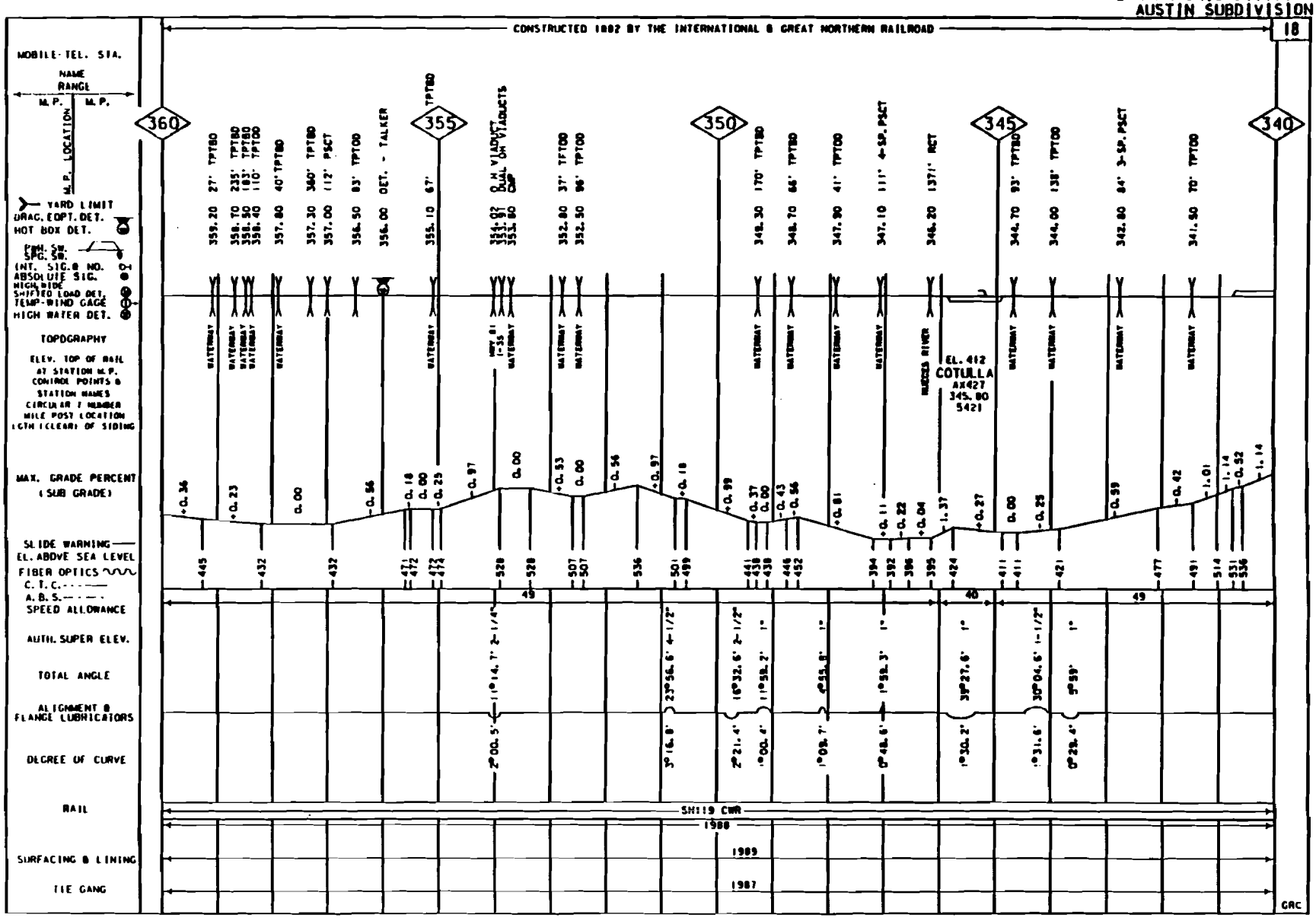


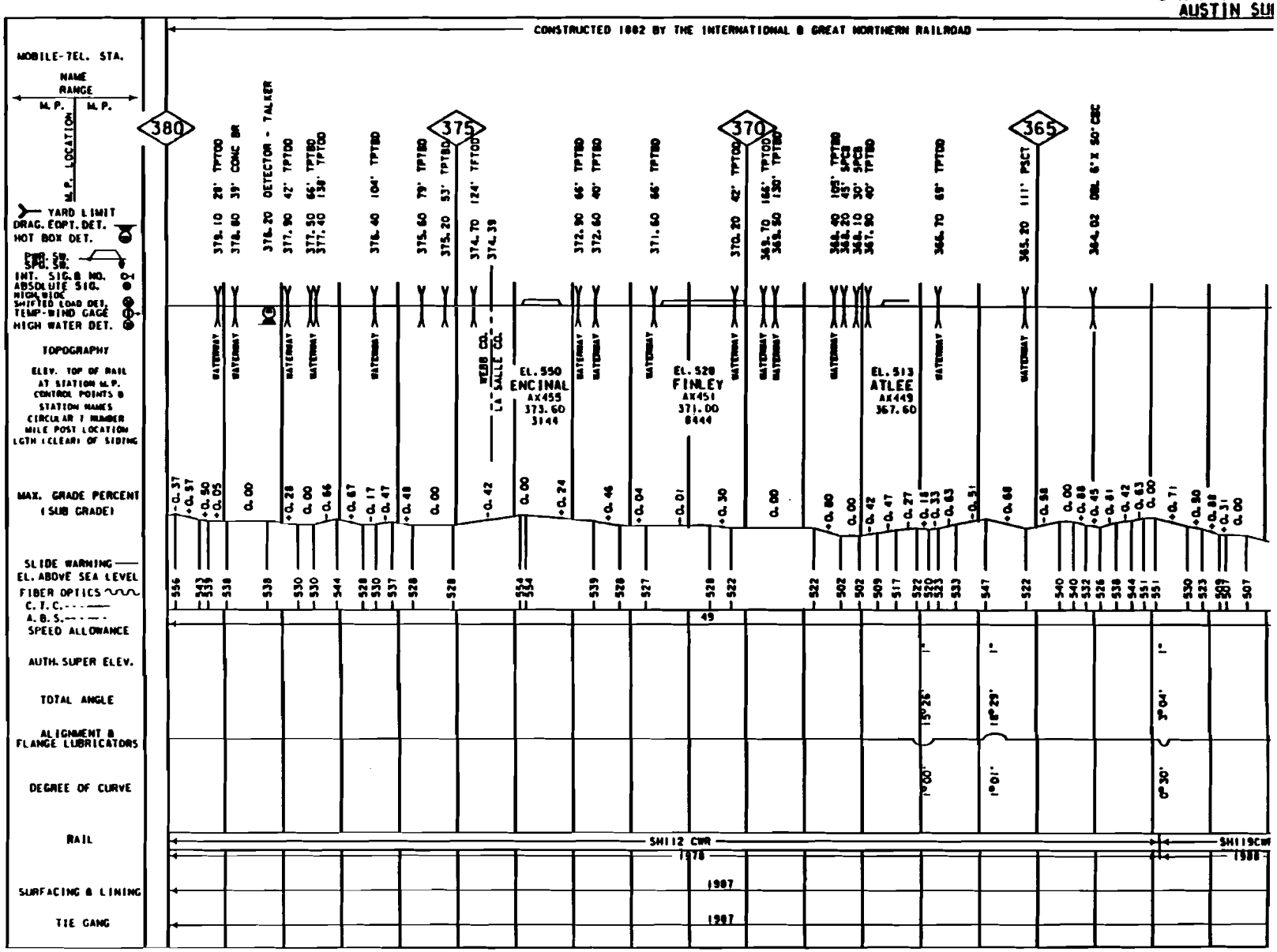
RAIL, SURFACING & LINING AND TIE GANG CORRECTED FOR FEBRUARY 17, 1988

ALIGNMENT & PROFILE CORRECTED FOR FEBRUARY 13, 1991


CONSTRUCTED 1882 BY THE INTERNATIONAL & GREAT NORTHERN RAILROAD
20
MOBILE-TEL. STA.
NAME
RANGE
M.P.
M.P.
M.P. LOCATION
YARD LIMIT
DRAG. EQPT. DET.
HOT BOX DET.
PWR. SW.
SPEC. SW.
INT. SIG. & NO.
ABSOLUTE SIG.
HIGH WIDE
SHIFTED LOAD DET.
TEMP.-WIND GAGE
HIGH WATER DET.
TOPOGRAPHY
ELEV. TOP OF RAIL AT STATION M.P.
CONTROL POINTS & STATION NAMES
CIRCULAR 7 NUMBER
MILE POST LOCATION
LGTH (CLEAR) OF SIDING
MAX. GRADE PERCENT (SUB GRADE)
SLIDE WARNING
EL. ABOVE SEA LEVEL
FIBER OPTICS
C. T. C.
A. B. S.
SPEED ALLOWANCE
AUTH. SUPER ELEV.
TOTAL ANGLE
ALIGNMENT & FLANGE LUBRICATORS
DEGREE OF CURVE
RAIL
SURFACING & LINING
320
315
310
305
300
EL. 562
MELON
AX399
318.00
7653
EL. 582
PEARSALL
AX394
313.00
2797
EL. 642
MEDINA ELEC.
AX391
310.50
EL. 650
ARMOUR CHEM.
AX390
310.10
SHIFT CWR
1965
1990


SAN ANTON
AUSTIN
CONSTRUCTED 1882 BY THE INTERNATIONAL & GREAT NORTHERN RAILROAD
MOBILE-TEL. STA.
NAME
RANGE
M. P.
M. P.
M. P. LOCATION
YARD LIMIT
DRAG. EQPT. DET.
HOT BOX DET.
PWR. SW.
SPG. SW.
INT. SIG. & NO.
ABSOLUTE SIG.
HIGH WIDE
SHIFTED LOAD DET.
TEMP-WIND GAGE
HIGH WATER DET.
TOPOGRAPHY
ELEV. TOP OF RAIL AT STATION M.P. CONTROL POINTS & STATION NAMES CIRCULAR 7 NUMBER MILE POST LOCATION LGTH (CLEAR) OF SIDING
MAX. GRADE PERCENT (SUB GRADE)
SLIDE WARNING
EL. ABOVE SEA LEVEL
FIBER OPTICS
C. T. C.
A. B. S.
SPEED ALLOWANCE
AUTH. SUPER ELEV.
TOTAL ANGLE
ALIGNMENT & FLANGE LUBRICATORS
DEGREE OF CURVE
RAIL
SURFACING & LINING
340
335
330
325
TO CRYSTAL CITY
339.45 PS BEGIN CRYSTAL CITY BR.
339.00 56' TPTOD
337.60 69' TPTOD
335.80 33' RC
344.60 84' PSCT
334.20 196' TPTBD
333.00 14' TPTOD
331.08
330.20 14' TPTBD
328.30 27' TPTBD
328.00 DETECTOR
327.40 53' TPTBD
326.00 111' CPTBD
660' REY
675' CONC BR
534' CPTBD
504' TPTBD
323.40
EL. 574
GARDENDALE
AX422
339.50
7721
WATERWAY
LA SALLE CO.
FRIO CO.
EL. 544
DILLEY
AX410
329.10
FRIO RIVER
EL. 500
DERBY
AX403
321.90
2639
49
1°01.5'
14°38.7'
15°28.7'
2°29.9'
SH119 CWR
1988
SH112 CWR
1965
1990
SH112 CWR

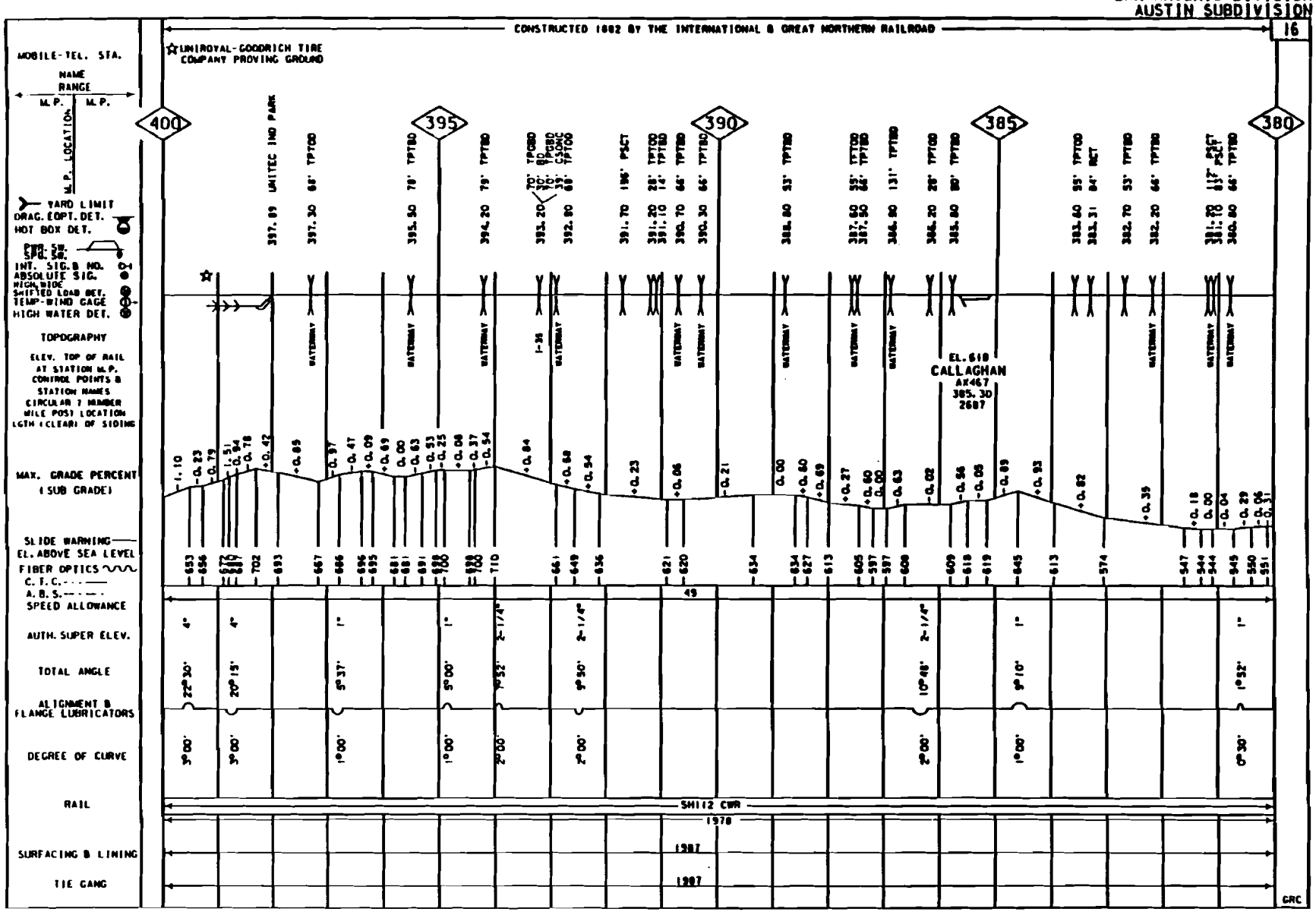

CONSTRUCTED 1882 BY THE INTERNATIONAL & GREAT NORTHERN RAILROAD
18
MOBILE-TEL. STA.
NAME
RANGE
M.P.
M.P.
M.P. LOCATION
YARD LIMIT
DRAG, EQPT. DET.
HOT BOX DET.
PWR. SW.
SPG. SW.
INT. SIG.& NO.
ABSOLUTE SIG.
HIGH SIDE
SWITCH LOAD DET.
TEMP-WIND GAGE
HIGH WATER DET.
TOPOGRAPHY
ELEV. TOP OF RAIL AT STATION M.P. CONTROL POINTS & STATION NAMES CIRCULAR / NUMBER MILE POST LOCATION LGTH (CLEAR) OF SIDING
MAX. GRADE PERCENT (SUB GRADE)
SLIDE WARNING
EL. ABOVE SEA LEVEL
FIBER OPTICS
C. T. C.
A. B. S.
SPEED ALLOWANCE
AUTH. SUPER ELEV.
TOTAL ANGLE
ALIGNMENT & FLANGE LUBRICATORS
DEGREE OF CURVE
RAIL
SURFACING & LINING
TIE GANG
360
355
350
345
340
WATERWAY
NUECES RIVER
EL. 412
COTULLA
AX427
345.80
5421
SHILO CWR
1988
1989
1987
GRC
GROD
RAIL, SURFACING & LINING AND TIE GANG CORRECTED FOR SEPTEMBER 1, 1988
ALIGNMENT & PROFILE CORRECTED FOR FEBRUARY 13, 1991



RAIL, SURFACING & LINING AND TIE GANG CORRECTED FOR FEBRUARY 17, 1988

ALIGNMENT & PROFILE CORRECTED FOR FEBRUARY 13, 1991

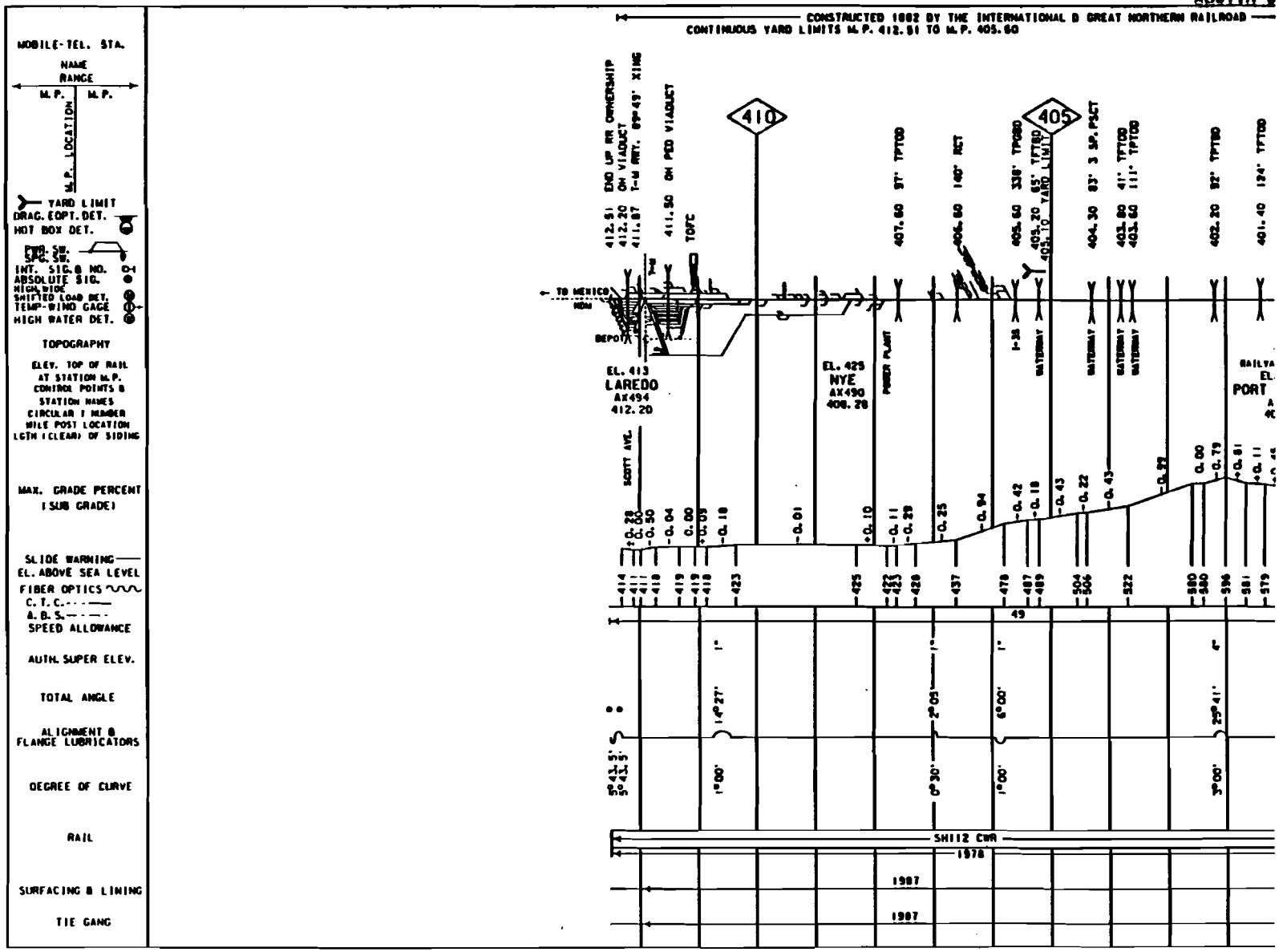
SAN ANTONIO DIVISION
AUSTIN SUBDIVISION



RAIL, SURFACING & LINING AND TIE GANG CORRECTED FOR FEBRUARY 17, 1988

ALIGNMENT & PROFILE CORRECTED FOR FEBRUARY 13, 1991

LRDO



RAIL, SURFACING & LINING AND TIE GANG CORRECTED FOR FEBRUARY 17, 1988

ALIGNMENT & PROFILE CORRECTED FOR FEBRUARY 13, 1991

ATTACHMENT 3

TABLE A3-1

CURRENT INVENTORY OF CORRIDOR CROSSINGS

PRIORITY IMPROVEMENT INDEX

RR CODE	ID NUMBER	DEVICE	TOTAL AADT	TRAINS /DAY	ACCIDENTS	ACCIDENT YEARS	CAL ACC	ACCIDENT* INDEX
UP	446802J	P	3890	58	7	5	0.38	1.07
UP	427926B	P	780	8	4	5	0.06	0.33
UP	446796H	P	2130	22	2	5	0.18	0.30
UP	446796H	P	2130	22	2	5	0.18	0.30
UP	446805E	P	1030	23	2	5	0.16	0.28
UP	448477W	P	1580	8	2	5	0.15	0.27
UP	446808A	F	640	23	2	5	0.15	0.27
UP	446806L	P	5350	23	2	5	0.14	0.26
UP	446761G	P	2560	8	2	5	0.11	0.24
UP	446697K	F	18400	8	1	5	0.29	0.23
UP	446788R	P	5290	11	1	5	0.20	0.20
UP	427940W	F	3000	8	1	5	0.17	0.19
UP	446797P	G	1570	23	2	5	0.07	0.19
UP	448500N	P	1920	8	1	5	0.16	0.18
UP	446699Y	F	1970	8	1	5	0.15	0.18
UP	427937N	P	1990	8	1	5	0.14	0.17
UP	427939C	P	1920	8	1	5	0.14	0.17
UP	446801C	P	660	8	2	5	0.04	0.15
UP	448501V	P	520	8	1	5	0.10	0.14
UP	446760A	P	20	8	2	5	0.03	0.13
UP	448480E	G	7400	8	1	5	0.08	0.13
UP	446784N	P	170	8	2	5	0.02	0.13
UP	446790S	P	4280	8	1	5	0.09	0.13
UP	446790S	P	4340	8	1	5	0.09	0.13
UP	427930R	P	1235	8	1	5	0.07	0.12
UP	448482T	P	680	9	1	5	0.07	0.12
UP	448497H	G	2060	8	1	3	0.05	0.12
UP	446794U	P	550	8	1	5	0.07	0.12
UP	446794U	P	550	8	1	5	0.07	0.12
UP	448486V	P	490	8	1	5	0.06	0.11
UP	446657M	P	90	8	1	5	0.06	0.11
UP	446708V	P	9270	8	0	5	0.21	0.09
UP	446799D	P	160	8	1	5	0.04	0.09
UP	448502C	F	6200	8	0	5	0.21	0.09
UP	448990H	P	240	8	1	5	0.04	0.09
UP	427936G	P	150	9	1	5	0.04	0.09
UP	446780L	P	4450	8	0	5	0.18	0.09
UP	446798W	P	8420	8	0	5	0.20	0.09
UP	427946M	P	136	8	1	5	0.04	0.08
UP	447960M	P	6500	10	0	5	0.17	0.08
UP	448458S	P	130	8	1	5	0.03	0.08
UP	448467R	P	135	8	1	5	0.04	0.08
UP	446781T	P	4848	8	0	5	0.15	0.08
UP	448359U	P	1080	10	0	5	0.15	0.08
UP	427927H	P	675	8	0	5	0.12	0.07
UP	427947U	F	1650	8	0	5	0.14	0.07

*Predicted accidents per year

TABLE A3-1 (continued)

PRIORITY IMPROVEMENT INDEX

RR CODE	ID NUMBER	DEVICE	TOTAL AADT	TRAINS /DAY	ACCIDENTS	ACCIDENT YEARS	CAL ACC	ACCIDENT INDEX
UP	427952R	F	1200	8	0	5	0.13	0.07
UP	447957E	P	570	18	0	5	0.12	0.07
UP	448499W	P	1360	8	0	5	0.14	0.07
UP	448975F	F	1660	8	0	5	0.14	0.07
UP	448995S	P	50	8	1	5	0.02	0.07
UP	448998M	P	1260	8	0	5	0.13	0.07
UP	446789X	P	3240	8	0	5	0.12	0.07
UP	448377S	P	760	10	0	5	0.13	0.07
UP	427959N	G	8200	8	0	5	0.10	0.06
UP	427961P	P	573	8	0	5	0.10	0.06
UP	448465C	F	530	8	0	5	0.10	0.06
UP	448481L	P	810	8	0	5	0.12	0.06
UP	448498P	P	690	8	0	5	0.11	0.06
UP	446656F	F	460	8	0	5	0.10	0.06
UP	446658U	P	800	8	0	5	0.12	0.06
UP	446659B	P	448	8	0	5	0.10	0.06
UP	446704T	P	950	8	0	5	0.10	0.06
UP	446707N	P	880	8	0	5	0.10	0.06
UP	446795B	P	2030	8	0	5	0.10	0.06
UP	446795B	P	2030	8	0	5	0.10	0.06
UP	427918J	P	210	8	0	5	0.08	0.05
UP	427943S	P	380	8	0	5	0.08	0.05
UP	427957A	P	234	8	0	5	0.07	0.05
UP	427960H	F	270	8	0	5	0.08	0.05
UP	447854E	F	210	8	0	5	0.08	0.05
UP	448479K	G	5480	8	0	5	0.07	0.05
UP	448488J	F	236	8	0	5	0.08	0.05
UP	448503J	P	343	8	0	5	0.09	0.05
UP	448979H	F	330	8	0	5	0.09	0.05
UP	446705A	P	980	8	0	5	0.08	0.05
UP	427934T	P	370	8	0	5	0.08	0.05
UP	427938V	P	340	8	0	5	0.08	0.05
UP	448987A	F	212	8	0	5	0.08	0.05
UP	427921S	F	140	8	0	5	0.07	0.04
UP	427942K	P	128	8	0	5	0.06	0.04
UP	427955L	G	2220	8	0	5	0.06	0.04
UP	447962B	P	160	8	0	5	0.06	0.04
UP	448455W	P	200	8	0	5	0.07	0.04
UP	448475H	P	265	8	0	5	0.07	0.04
UP	448476P	P	172	8	0	5	0.07	0.04
UP	448478D	G	2550	10	0	5	0.06	0.04
UP	448980C	F	60	8	0	5	0.05	0.04
UP	448996Y	G	4200	8	0	5	0.07	0.04
UP	448997F	G	2650	8	0	5	0.06	0.04
UP	446700R	P	290	8	0	5	0.07	0.04
UP	446701X	P	2330	8	0	5	0.06	0.04

TABLE A3-1 (continued)

PRIORITY IMPROVEMENT INDEX

RR CODE	ID NUMBER	DEVICE	TOTAL AADT	TRAINS /DAY	ACCIDENTS	ACCIDENT YEARS	CAL ACC	ACCIDENT INDEX
UP	448989N	F	212	8	0	5	0.07	0.04
UP	446792F	P	640	8	0	5	0.07	0.04
UP	446792F	P	640	8	0	5	0.07	0.04
UP	427916V	P	20	8	0	0	0.03	0.03
UP	427924M	P	165	8	0	5	0.05	0.03
UP	427928P	P	225	8	0	5	0.04	0.03
UP	427949H	G	777	8	0	5	0.04	0.03
UP	427958G	P	452	8	0	5	0.05	0.03
UP	446804X	P	200	23	0	5	0.04	0.03
UP	447961U	P	55	8	0	5	0.04	0.03
UP	448461A	P	170	8	0	5	0.04	0.03
UP	448483A	G	1170	8	0	5	0.05	0.03
UP	448491S	G	570	8	0	5	0.04	0.03
UP	448496B	P	210	8	0	5	0.04	0.03
UP	448504R	P	160	8	0	5	0.04	0.03
UP	446706G	P	100	8	0	5	0.04	0.03
UP	446783G	P	1210	8	0	5	0.05	0.03
UP	446791Y	P	560	9	0	5	0.04	0.03
UP	446791Y	P	560	9	0	5	0.04	0.03
UP	446800V	P	745	8	0	5	0.04	0.03
UP	427917C	P	30	8	0	5	0.02	0.02
UP	427922Y	P	140	8	0	5	0.04	0.02
UP	427929W	P	130	8	0	5	0.03	0.02
UP	446785V	P	290	8	0	5	0.03	0.02
UP	446786C	P	200	8	0	5	0.03	0.02
UP	446787J	P	110	8	0	5	0.02	0.02
UP	446793M	P	120	10	0	5	0.02	0.02
UP	446803R	P	100	17	0	5	0.03	0.02
UP	447963H	P	170	8	0	5	0.03	0.02
UP	448378Y	P	100	14	0	5	0.03	0.02
UP	448484G	P	100	8	0	5	0.03	0.02
UP	448495U	P	100	8	0	5	0.03	0.02
UP	448972K	P	51	8	0	5	0.03	0.02
UP	448974Y	P	60	8	0	5	0.03	0.02
UP	427935A	P	50	8	0	5	0.02	0.02
UP	446809G	P	80	23	0	5	0.03	0.02
UP	446810B	P	20	23	0	5	0.02	0.01
UP	448490K	P	11	8	0	5	0.02	0.01
UP	448971D	P	10	8	0	5	0.01	0.01
UP	446684J	P	20	8	0	5	0.02	0.01
UP	446782A	P	80	8	0	5	0.02	0.01
*** Total ***								11.29

TABLE A3-2

PROJECTED TRAIN MOVEMENTS
PROJECTED TRAIN SPEEDS

PRIORITY IMPROVEMENT INDEX

RR CODE	ID NUMBER	DEVICE	TOTAL AADT	TRAINS /DAY	ACCIDENTS	ACCIDENT YEARS	CAL ACC	ACCIDENT* INDEX
UP	446802J	P	3890	20	7	5	0.37	1.06
UP	427926B	P	780	20	4	5	0.09	0.39
UP	446796H	P	2540	20	2	5	0.26	0.35
UP	446761G	P	2560	20	2	5	0.21	0.32
UP	446805E	P	1030	20	2	5	0.21	0.32
UP	448477W	P	1580	20	2	5	0.22	0.32
UP	446808A	F	1240	20	2	5	0.17	0.29
UP	446697K	F	18400	20	1	5	0.38	0.26
UP	446788R	P	4970	20	1	5	0.33	0.24
UP	446797P	G	6520	20	2	5	0.10	0.23
UP	446806L	P	995	20	2	5	0.10	0.23
UP	448500N	P	1920	20	1	5	0.24	0.22
UP	427937N	P	1990	20	1	5	0.24	0.22
UP	427939C	P	1920	20	1	5	0.24	0.22
UP	427940W	F	3000	20	1	5	0.22	0.21
UP	446801C	P	780	20	2	5	0.08	0.20
UP	446699Y	F	1970	20	1	5	0.20	0.20
UP	446790S	P	4260	20	1	5	0.17	0.18
UP	448501V	P	520	20	1	5	0.15	0.18
UP	446760A	P	20	20	2	5	0.05	0.17
UP	446784N	P	200	20	2	5	0.05	0.17
UP	448482T	P	680	20	1	5	0.14	0.17
UP	427930R	P	1235	20	1	5	0.11	0.15
UP	448480E	G	7400	20	1	5	0.11	0.15
UP	448486V	P	490	20	1	5	0.09	0.14
UP	448497H	G	2060	20	1	3	0.07	0.14
UP	446794U	P	140	20	1	5	0.08	0.13
UP	446799D	P	160	20	1	5	0.08	0.13
UP	446657M	P	90	20	1	5	0.09	0.13
UP	427936G	P	150	20	1	5	0.08	0.13
UP	446708V	P	9270	20	0	5	0.40	0.12
UP	446780L	P	4200	20	0	5	0.34	0.12
UP	446798W	P	6520	20	0	5	0.35	0.12
UP	447960M	P	6500	20	0	5	0.32	0.11
UP	448502C	F	6200	20	0	5	0.28	0.11
UP	448990H	P	240	20	1	5	0.06	0.11
UP	427946M	P	136	20	1	5	0.05	0.10
UP	446781T	P	4070	20	0	5	0.27	0.10
UP	446789X	P	3590	20	0	5	0.24	0.10
UP	448458S	P	130	20	1	5	0.05	0.10
UP	448467R	P	135	20	1	5	0.05	0.10
UP	427927H	P	675	20	0	5	0.18	0.09
UP	427947U	F	1650	20	0	5	0.19	0.09
UP	446795B	P	2540	20	0	5	0.21	0.09
UP	448359U	P	1070	20	0	5	0.20	0.09
UP	448499W	P	1360	20	0	5	0.21	0.09

*Predicted accidents per year

TABLE A3-2 (continued)

PRIORITY IMPROVEMENT INDEX

RR CODE	ID NUMBER	DEVICE	TOTAL AADT	TRAINS /DAY	ACCIDENTS	ACCIDENT YEARS	CAL ACC	ACCIDENT INDEX
UP	448975F	F	1660	20	0	5	0.19	0.09
UP	448995S	P	50	20	1	5	0.04	0.09
UP	448998M	P	1260	20	0	5	0.21	0.09
UP	446704T	P	950	20	0	5	0.19	0.09
UP	427952R	F	1200	20	0	5	0.17	0.08
UP	427961P	P	573	20	0	5	0.16	0.08
UP	447957E	P	570	20	0	5	0.16	0.08
UP	448377S	P	600	20	0	5	0.16	0.08
UP	448481L	P	810	20	0	5	0.18	0.08
UP	448498P	P	690	20	0	5	0.17	0.08
UP	446658U	P	800	20	0	5	0.18	0.08
UP	446705A	P	980	20	0	5	0.15	0.08
UP	446707N	P	880	20	0	5	0.18	0.08
UP	427943S	P	380	20	0	5	0.14	0.07
UP	427959N	G	8200	20	0	5	0.14	0.07
UP	448465C	F	530	20	0	5	0.13	0.07
UP	448503J	P	343	20	0	5	0.13	0.07
UP	446656F	F	460	20	0	5	0.13	0.07
UP	446659B	P	448	20	0	5	0.15	0.07
UP	446700R	P	290	20	0	5	0.13	0.07
UP	427934T	P	370	20	0	5	0.14	0.07
UP	427938V	P	340	20	0	5	0.13	0.07
UP	427918J	P	210	20	0	5	0.11	0.06
UP	427942K	P	128	20	0	5	0.10	0.06
UP	427957A	P	234	20	0	5	0.12	0.06
UP	427960H	F	270	20	0	5	0.11	0.06
UP	446792F	P	350	20	0	5	0.11	0.06
UP	446809G	P	1400	20	0	5	0.12	0.06
UP	447854E	F	210	20	0	5	0.10	0.06
UP	447962B	P	160	20	0	5	0.10	0.06
UP	448455W	P	200	20	0	5	0.11	0.06
UP	448475H	P	265	20	0	5	0.10	0.06
UP	448476P	P	172	20	0	5	0.11	0.06
UP	448479K	G	5480	20	0	5	0.10	0.06
UP	448488J	F	236	20	0	5	0.11	0.06
UP	448979H	F	330	20	0	5	0.12	0.06
UP	446701X	P	2330	20	0	5	0.11	0.06
UP	448987A	F	212	20	0	5	0.10	0.06
UP	427916V	P	20	20	0	0	0.05	0.05
UP	427921S	F	140	20	0	5	0.09	0.05
UP	427955L	G	2220	20	0	5	0.07	0.05
UP	427958G	P	452	20	0	5	0.08	0.05
UP	446800V	P	745	20	0	5	0.08	0.05
UP	448478D	G	2550	20	0	5	0.08	0.05
UP	448996Y	G	4200	20	0	5	0.09	0.05
UP	448997F	G	2650	20	0	5	0.08	0.05

TABLE A3-2 (continued)
PRIORITY IMPROVEMENT INDEX

RR CODE	ID NUMBER	DEVICE	TOTAL AADT	TRAINS /DAY	ACCIDENTS	ACCIDENT YEARS	CAL ACC	ACCIDENT INDEX
UP	448989N	F	212	20	0	5	0.09	0.05
UP	427922Y	P	140	20	0	5	0.05	0.04
UP	427924M	P	165	20	0	5	0.07	0.04
UP	427928P	P	225	20	0	5	0.06	0.04
UP	427949H	G	777	20	0	5	0.05	0.04
UP	446785V	P	290	20	0	5	0.06	0.04
UP	446791Y	P	350	20	0	5	0.06	0.04
UP	447961U	P	55	20	0	5	0.07	0.04
UP	447963H	P	170	20	0	5	0.06	0.04
UP	448461A	P	170	20	0	5	0.06	0.04
UP	448483A	G	1170	20	0	5	0.06	0.04
UP	448496B	P	210	20	0	5	0.06	0.04
UP	448504R	P	160	20	0	5	0.06	0.04
UP	448980C	F	60	20	0	5	0.07	0.04
UP	446706G	P	100	20	0	5	0.07	0.04
UP	427929W	P	130	20	0	5	0.05	0.03
UP	446782A	P	110	20	0	5	0.04	0.03
UP	446783G	P	100	20	0	5	0.04	0.03
UP	446786C	P	200	20	0	5	0.05	0.03
UP	446787J	P	110	20	0	5	0.04	0.03
UP	446793M	P	120	20	0	5	0.04	0.03
UP	446803R	P	100	20	0	5	0.05	0.03
UP	446804X	P	200	20	0	5	0.05	0.03
UP	448378Y	P	100	20	0	5	0.05	0.03
UP	448484G	P	100	20	0	5	0.05	0.03
UP	448491S	G	570	20	0	5	0.05	0.03
UP	448495U	P	100	20	0	5	0.05	0.03
UP	448972K	P	51	20	0	5	0.04	0.03
UP	448974Y	P	60	20	0	5	0.04	0.03
UP	427935A	P	50	20	0	5	0.04	0.03
UP	427917C	P	30	20	0	5	0.03	0.02
UP	446810B	P	20	20	0	5	0.02	0.02
UP	448490K	P	11	20	0	5	0.02	0.02
UP	448971D	P	10	20	0	5	0.02	0.02
UP	446684J	P	20	20	0	5	0.03	0.02
*** Total ***							*.**	13.12

TABLE A3-3

CORRIDOR HAZARD ELIMINATION FOR
90 MPH RAIL PASSENGER SERVICE

G= Gates
C= Closure
S= Grade Separation
OK= Gates Currently

ID Number	Segment	Mile	Warning Device	Cost (000)	Segment Cost (000)
447957E	1	264.50	G	150	
447959T	1	265.03	C	25	
447960M	1	265.43	S	2500	
447961U	1	265.63	C	25	
447962B	1	266.03	G	150	
447963H	1	266.59	G	150	
					3000
447967K	2	269.03	C	25	
427916V	2	271.62	G	150	
427917C	2	271.76	C	25	
427918J	2	271.86	G	150	
427920K	2	273.17	C	25	
427921S	2	273.23	G	150	
427922Y	2	274.00	G	150	
427923F	2	274.59	C	25	
427924M	2	274.89	G	150	
427926B	2	276.53	G	150	
427927H	2	277.56	G	150	
427928P	2	278.03	G	150	
427929W	2	278.99	G	150	
427930R	2	279.46	G	150	
					1600
427934T	3	281.50	G	150	
427935A	3	281.90	C	25	
427936G	3	281.90	C	25	
427937N	3	282.00	G	150	
427938V	3	282.10	C	25	
427939C	3	282.20	C	25	
427940W	3	282.40	C	25	
					425
427943S	4	282.90	G	150	
427942K	4	283.80	C	25	
427946M	4	285.60	G	150	
427947U	4	287.00	G	150	
427947H	4	287.90	OK	0	
427952R	4	289.00	G	150	
427955L	4	290.20	OK	0	
427956T	4	290.40	C	25	
427957A	4	290.70	C	25	
					675
427958G	5	290.90	C	25	
427959N	5	291.20	S	2500	
427960H	5	291.30	C	25	
427961P	5	291.40	C	25	
448455W	5	291.40	C	25	
					2600
448457K	6	292.90	C	25	
448458S	6	293.30	C	25	

TABLE A3-3 (continued)

448461A	6	295.20	C	25	
448465C	6	299.40	G	150	
448467R	6	300.20	C	25	
448474B	6	309.50	C	25	
448475H	6	310.40	G	150	
448476P	6	310.40	C	25	
448477W	6	311.60	G	150	
448478D	6	312.20	C	25	
448479K	6	312.60	G	150	
					775
448480E	7	312.90	S	2500	
448481L	7	313.00	C	25	
448482T	7	313.00	C	25	
448483A	7	313.10	OK	0	
					2550
448484G	8	313.40	C	25	
448486V	8	314.00	G	150	
448488J	8	316.30	G	150	
448489R	8	320.70	C	25	
448490K	8	321.30	C	25	
448491S	8	321.60	OK	0	
448495U	8	326.80	G	150	
448496B	8	327.90	G	150	
448498P	8	328.40	OK	0	
448499W	8	328.70	C	25	
448500N	8	328.80	C	25	
448501V	8	328.80	C	25	
448502C	8	328.90	S	2500	
448503J	8	329.00	C	25	
448504R	8	329.20	C	25	
448497H	8	329.40	C	25	
448971D	8	330.50	G	150	
448972K	8	331.00	C	25	
448974Y	8	332.00	G	150	
448979H	8	335.26	G	150	
448990H	8	339.70	G	150	
					3950
448995S	9	345.10	C	25	
448996Y	9	345.26	OK	0	
448997F	9	345.50	OK	0	
448998M	9	345.56	C	25	
448975F	9	345.73	C	25	
					75
448980C	10	347.50	G	150	
447852R	10	354.00	C	25	
447854E	10	356.70	G	150	
446656F	10	373.33	C	25	
446657M	10	373.60	G	150	
446658U	10	373.76	C	25	
446659B	10	373.83	C	25	
446676S	10	381.00	C	25	
446682V	10	385.80	C	25	
446684J	10	392.10	G	150	
446686X	10	393.30	C	25	
446693H	10	405.70	C	25	
448359U	10	406.03	G	150	
448377S	10	406.04	C	25	
446679K	10	407.40	S	2500	
446699Y	10	408.10	C	25	
446704T	10	408.10	C	25	

TABLE A3-3 (continued)

446705A	10	408.10	C	25	
					3550
446700R	11	408.80	G	150	
446701X	11	408.80	C	25	
448378Y	11	409.07	G	150	
446782A	11	409.10	C	25	
446783G	11	409.10	C	25	
446706G	11	409.30	C	25	
446707N	11	409.30	C	25	
446708V	11	409.30	S	2500	
446709C	11	409.30	C	25	
446760A	11	409.70	C	25	
446761G	11	409.70	C	25	
446780L	11	409.90	G	150	
446781T	11	409.90	C	25	
446784N	11	410.00	C	25	
446786C	11	410.10	C	25	
446787J	11	410.30	C	25	
446788R	11	410.30	S	2500	
446789X	11	410.30	C	25	
446785V	11	410.40	C	25	
446790S	11	410.50	C	25	
446791Y	11	410.60	C	25	
446792F	11	410.70	C	25	
446793M	11	410.70	C	25	
446794U	11	410.80	G	150	
446795B	11	410.90	C	25	
446796H	11	410.90	C	25	
446807T	11	411.10	C	25	
446797P	11	411.20	G	150	
446800V	11	411.40	C	25	
446798W	11	411.50	S	2500	
446799D	11	411.50	C	25	
					8825
446801C	12	411.60	C	25	
446802J	12	411.60	C	25	
446803R	12	411.70	C	25	
446804X	12	411.80	C	25	
446805E	12	411.90	C	25	
446806L	12	411.90	S	2500	
446808A	12	412.70	G	150	
446809G	12	412.70	C	25	
446810B	12	412.80	G	150	
447866Y	12	412.80	C	25	
					2975
				31000	31000

TABLE A3-4

ACCIDENT PREDICTION FOR REMAINING
50 AT-GRADE CORRIDOR INTERSECTIONS

RR CODE	ID NUMBER	DEVICE	TOTAL AADT	TRAINS /DAY	ACCIDENTS	ACCIDENT YEARS	CAL ACC	ACCIDENT* INDEX
UP	447957E	G	570	30	0	5	0.06	0.04
UP	447962B	G	160	20	0	5	0.03	0.02
UP	447963H	G	170	20	0	5	0.03	0.02
UP	427916V	G	20	20	0	0	0.02	0.02
UP	427918J	G	210	20	0	5	0.03	0.02
UP	427921S	G	140	20	0	5	0.03	0.02
UP	427922Y	G	140	20	0	5	0.03	0.02
UP	427924M	G	165	20	0	5	0.03	0.02
UP	427926B	G	780	20	4	5	0.05	0.31
UP	427927H	G	675	20	0	5	0.05	0.03
UP	427928P	G	225	20	0	5	0.04	0.03
UP	427929W	G	130	20	0	5	0.03	0.02
UP	427930R	G	1235	20	1	5	0.06	0.11
UP	427934T	G	370	20	0	5	0.04	0.03
UP	427937N	G	1990	20	1	5	0.07	0.12
UP	427943S	G	380	20	0	5	0.04	0.03
UP	427946M	G	136	20	1	5	0.03	0.08
UP	427947U	G	1650	20	0	5	0.07	0.04
UP	427952R	G	1200	20	0	5	0.06	0.04
UP	448465C	G	530	20	0	5	0.05	0.03
UP	448475H	G	265	20	0	5	0.03	0.02
UP	448477W	G	1580	20	2	5	0.07	0.19
UP	448486V	G	490	20	1	5	0.05	0.10
UP	448488J	G	236	20	0	5	0.04	0.03
UP	448495U	G	100	20	0	5	0.03	0.02
UP	448496B	G	210	20	0	5	0.04	0.03
UP	448971D	G	10	20	0	5	0.01	0.01
UP	448974Y	G	60	20	0	5	0.02	0.02
UP	448979H	G	330	20	0	5	0.04	0.03
UP	448990H	G	240	20	1	5	0.04	0.09
UP	448980C	G	60	20	0	5	0.02	0.02
UP	447854E	G	210	20	0	5	0.04	0.03
UP	446657M	G	90	20	1	5	0.03	0.08
UP	446684J	G	20	20	0	5	0.02	0.01
UP	448359U	G	1080	22	0	5	0.06	0.04
UP	446700R	G	290	20	0	5	0.04	0.03
UP	448378Y	G	100	26	0	5	0.03	0.02
UP	446780L	G	4450	20	0	5	0.09	0.05
UP	446794U	G	550	20	1	5	0.04	0.09
UP	446797P	G	1570	35	2	5	0.08	0.21
UP	446808A	G	640	35	2	5	0.06	0.18
UP	446810B	G	20	35	0	5	0.02	0.01
UP	427949H	G	777	20	0	5	0.05	0.04
UP	427955L	G	2220	20	0	5	0.07	0.05
UP	448478D	G	2550	22	0	5	0.08	0.05
UP	448483A	G	1170	20	0	5	0.06	0.04
UP	448491S	G	570	20	0	5	0.05	0.03
UP	448497H	G	2060	20	1	3	0.07	0.14
UP	448996Y	G	4200	20	0	5	0.09	0.05
4484	448997F	G	2650	20	0	5	0.08	0.05
					TOTAL			2.30

*Predicted accidents per year