53rd STREET CORRIDOR STUDY

HARRISON BLVD TO HIGHWAY 20

LOCATED IN
BENTON COUNTY, OREGON

PREPARED FOR:
BENTON COUNTY, OREGON
CITY OF CORVALLIS, OREGON

CH2M HILL

MAY 1985

Engineers
Planners
Economists
Scientists

May 31, 1985

C19337.A0

Mr. Roger M. Irvin
Benton County Public
Works Department
360 S.W. Avery Avenue
Corvallis, Oregon 97330

Mr. Scott Olson
City of Corvallis
Utility and Engineering Services
P.O. Box 1083
Corvallis, Oregon 97339

Gentlemen:

Subject: 53rd Street Corridor Study

The results of our study are enclosed in the document titled "53rd Street Corridor Study" dated May 1985.

This document consolidates existing and new information into one comprehensive plan and suggests an implementation schedule for the 53rd Street corridor between Highway 20 and Harrison Boulevard.

We greatly appreciate the cooperation we received from both City and County personnel and the unified goals toward the development of the 53rd Street corridor.

Thank you for the opportunity to serve. If we can be of further assistance in interpreting the report and in your review, please contact us.

Very truly yours,

R. Gordon Elliott

R. Gordon Elliott
Project Manager

jy/CVR9/047
Enclosure

53rd STREET CORRIDOR STUDY
LOCATED IN
BENTON COUNTY, OREGON

CH2M HILL
May 1985

C19337.A0

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SUMMARY

Section 1
SUMMARY

53rd Street is a major north-south route connecting northwest Corvallis with U.S. Highway 20 along the western edge of the city and Oregon State University (see Figure 1).

Benton County and the City of Corvallis are desirous of improving the 53rd Street corridor between Harrison Boulevard and U.S. Highway 20 into a high-capacity four-lane arterial. A primary element of these improvements is the replacement of the Southern Pacific Transportation Company's (SPTC) substandard underpass structure.

Past studies, designs, and concepts have been developed for all or part of the 53rd Street corridor. This report consolidates all past information and develops alternatives with comparable costs and adds additional information so that County and City officials can make viable decisions on the course of action in development of the corridor.

During the course of the study, the following four alternatives were either expanded from past studies or newly developed.

ALTERNATIVE AG-1

This alternative presents an at-grade crossing of the railroad. The roadway is improved on the existing alignment for the entire length between Harrison Boulevard and U.S. Highway 20 (see Figure 2).

ALTERNATIVE OP-2

This alternative develops an overpass structure over the railroad with the roadway swinging to the east of the present alignment onto Oregon State and State Federal property and tying into the existing alignment as soon as geometrically possible. The remainder of route, both north and south, is on the existing alignment (see Figure 3).

ALTERNATIVE OP-3

In this alternative the roadway is approximately the same as in OP-2 to a point where it crosses the SPTC railroad tracks. Then the alignment stays on private property to the south of the railroad crossing until it crosses the existing roadway and then traverses private property on the west side of the existing alignment to an intersection with U.S. 20. The proposed alignment would be developed as a limited access route for most of its length (see Figure 4).

ALTERNATIVE UP-4

This alternative uses an underpass structure with improved standards over the existing underpass. Roadway improvement is on the existing alignment with widening to conform with the four-lane standard (see Figure 5).

Costs were developed for all the alternatives and the costs were partitioned into specific section along the route so that comparison of alternatives could be better evaluated. See Table 1, for cost summary.

RECOMMENDATION

It is our recommendation to implement the concept depicted in Alternative OP-2 for the following reasons:

- For the projected traffic increase, it is desirable to have an uninterrupted flow facility.
- The corridor will develop into a major route connecting residential centers with employment centers (high-technology research parks).
- The corridor will provide an important segment of an effective transportation system.
- The alternative will provide a safe route for the highway user as well as for railroad traffic.
- The alternative supports the concept and investment already expended on Walnut Avenue and 53rd Street, south of U.S. 20.
- Southern Pacific Transportation Company is in favor of this alternative.
- Oregon Public Utilities Commission (PUC) is also in favor of this alternative.
- The alternative is a positive approach to the solution of highway and street traffic problems.

The least-cost alternative AG-1, the at-grade alternative, was not chosen because of objections from SPTC and to some extent the PUC. PUC representatives do feel that the risk of an at-grade crossing could be justified because of the low volume of train traffic. However, maintaining the crossing as a separation is desirable.

Alternative OP-3 was not chosen since this was the highest-priced alternative and traffic conditions do not warrant a limited- or partially-controlled access facility. If and

when all of the five proposed research technical parks and other planned developments are built and fully populated, then a limited access route would be justified since 53rd Street would develop into the most-traveled arterial in the area.

The underpass alternative, UP-4, was the next highest-priced alternative and therefore was ruled out. Also, construction problems, disruptions, drainage problems, and future maintenance made this alternative less attractive.

COST OF ALTERNATIVES

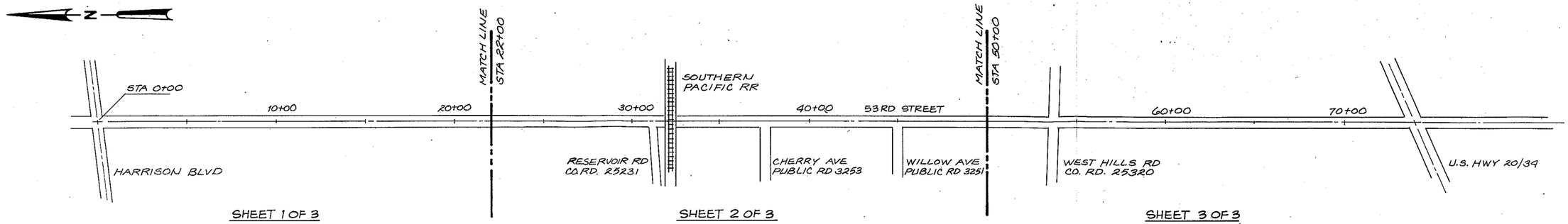
The costs shown in Table 1 were developed using projected 1988 prices. A 25 percent amount was added to each alternative to cover engineering costs and contingencies. Because this is a preliminary study, the estimates are to be considered order of magnitude (±25 percent). Relative costs between alternatives should hold true because the same basis was used for all alternatives.

CVR9/048

Table 1
SUMMARY OF COSTS

	ALTERNATIVES			
	AG-1 AT-GRADE	OP-2 OVERPASS	OP-3 OVERPASS	UP-4 UNDERPASS
Section A	Sta 0+00 to Sta 26+00	Sta 0+00 to Sta 21+00	Sta 0+00 to Sta 19+00	Sta 0+00 to Sta 26+00
Harrison to Railroad Section				
Construction	523,100	457,000	413,400	523,100
Right of Way	55,240	57,150	43,850	59,000
Subtotal	578,340	514,150	457,250	582,100
Section B	Sta 26+00 to Sta 40+00	Sta 21+00 to Sta 43+00	Sta 19+00 to Sta 50+00	Sta 26+00 to Sta 40+00
Railroad Section				
Construction	705,100	1,638,400	1,843,000	2,008,800
Right of Way	40,030	188,600	296,370	53,170
Subtotal	745,130	1,827,000	2,139,370	2,061,970
Section C	Sta 40+00 to Sta 73+35	Sta 43+00 to Sta 73+70	Sta 50+00 to Sta 74+35	Sta 40+00 to Sta 73+35
Railroad Section to Highway U.S. 20				
Construction	659,000	606,700	611,700	659,000
Right of Way	66,970	84,850	592,680	76,330
Subtotal	725,970	691,550	1,204,380	735,330
Total Construction	1,887,200	2,702,100	2,868,100	3,190,900
25% Engr. & Cont.	471,800	675,500	717,000	797,700
Subtotal	2,359,000	3,377,600	3,585,100	3,988,600
Total Right of Way	162,200	330,600	932,900	188,500
Total Project Cost	2,521,240	3,708,200	4,518,000	4,177,100

CVR9/003



SHEET INDEX FOR FIGURES 2, 3, 4, AND 5

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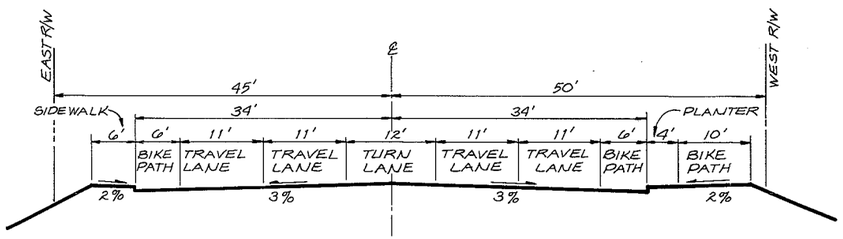

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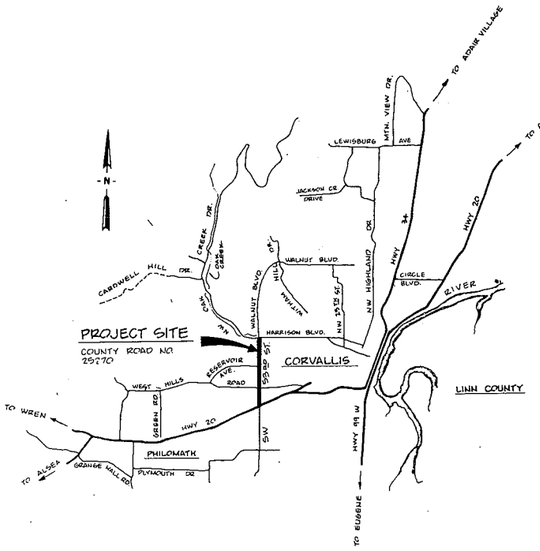
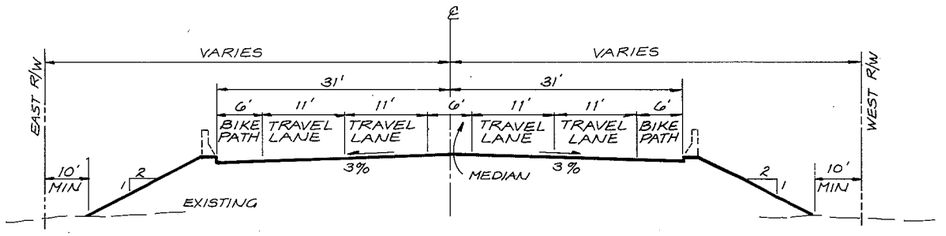


VICINITY MAP

NTS



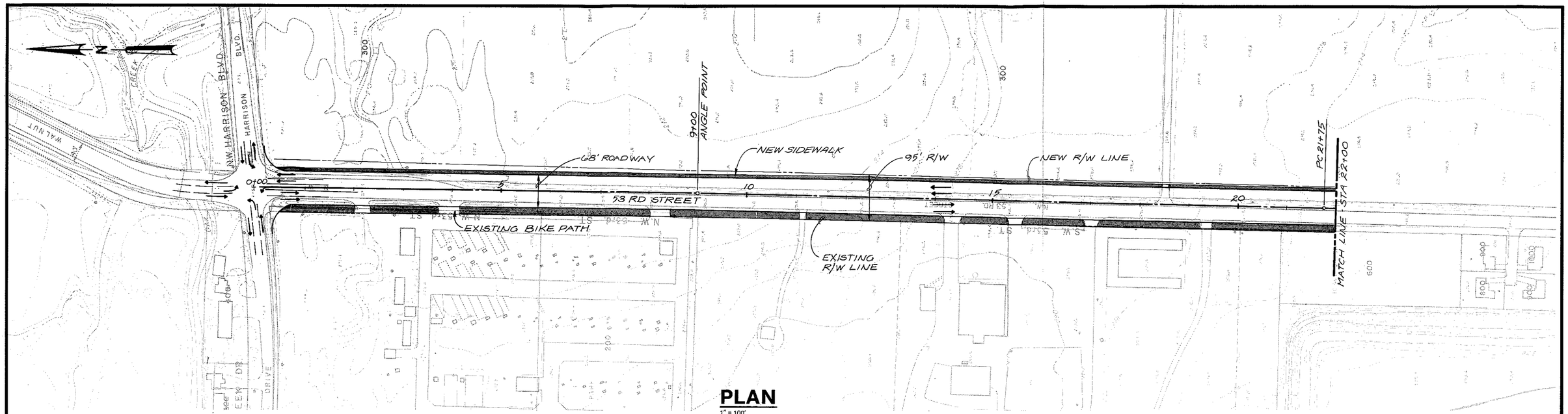
NARROWED ROADBED FOR OVERPASS

TYPICAL ROAD SECTION

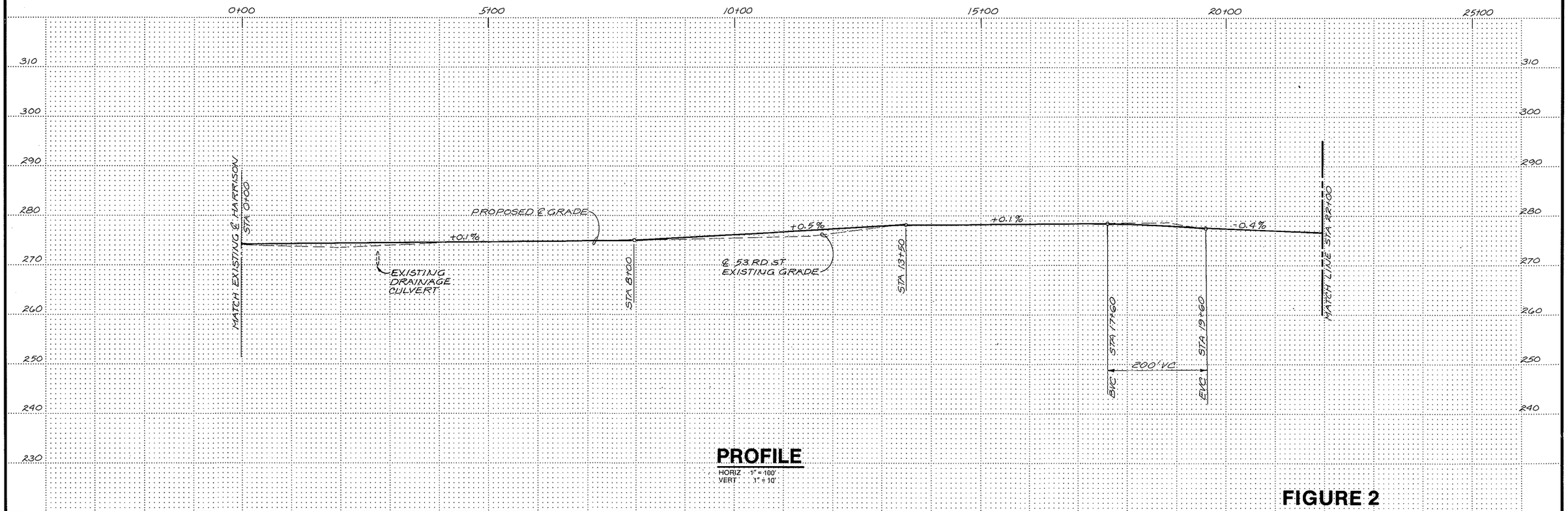
1" = 10'

FIGURE 1

CH2M HILL	DSGN SAE DR JMK CHK RGE APVD RGE	NO.	DATE	REVISION	BY	APVD	**REUSE OF DOCUMENTS** THIS DOCUMENT, AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF CH2M HILL AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CH2M HILL. ©CH2M HILL	VERIFY SCALES BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1" IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.	BENTON COUNTY PUBLIC WORKS DEPARTMENT CORVALLIS, OREGON	53RD STREET CORRIDOR STUDY SHEET INDEX VICINITY MAP TYPICAL ROAD SECTIONS	SHEET 1 of 1 DWG NO. DATE PROJ NO. C19337.A0



PLAN
1" = 100'



PROFILE
HORIZ : 1" = 100'
VERT : 1" = 10'

FIGURE 2

DSGN SAE						
DR JMK						
CHK RGE						
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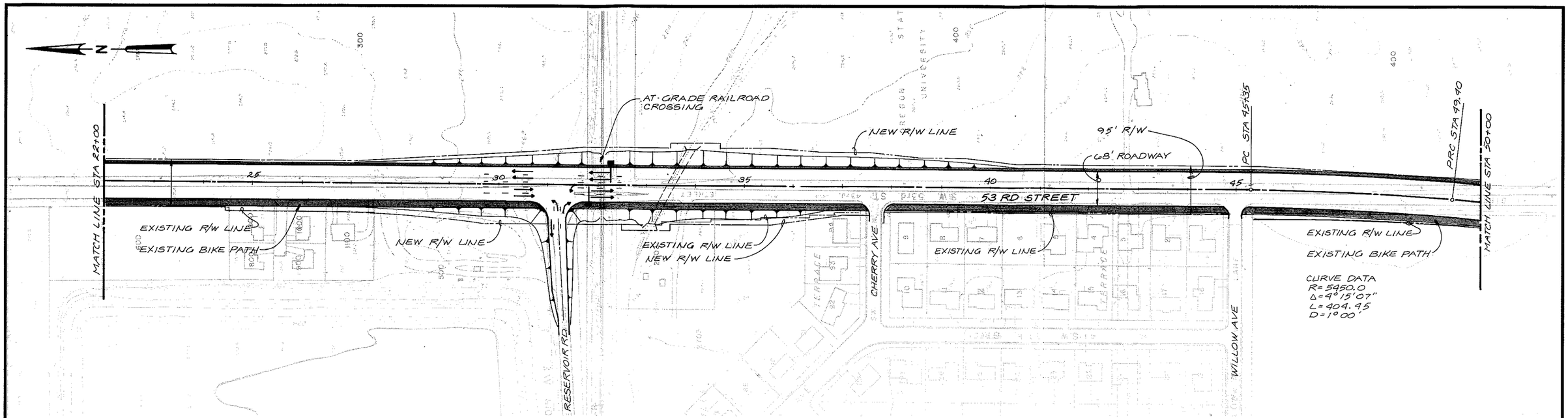
53RD STREET CORRIDOR STUDY
ALTERNATE AG-1
AT GRADE CROSSING AT S.P.T.C.
STA 0+00 TO STA 22+00

SHEET 1 OF 3
DATE
PROJ NO. C19337.A0



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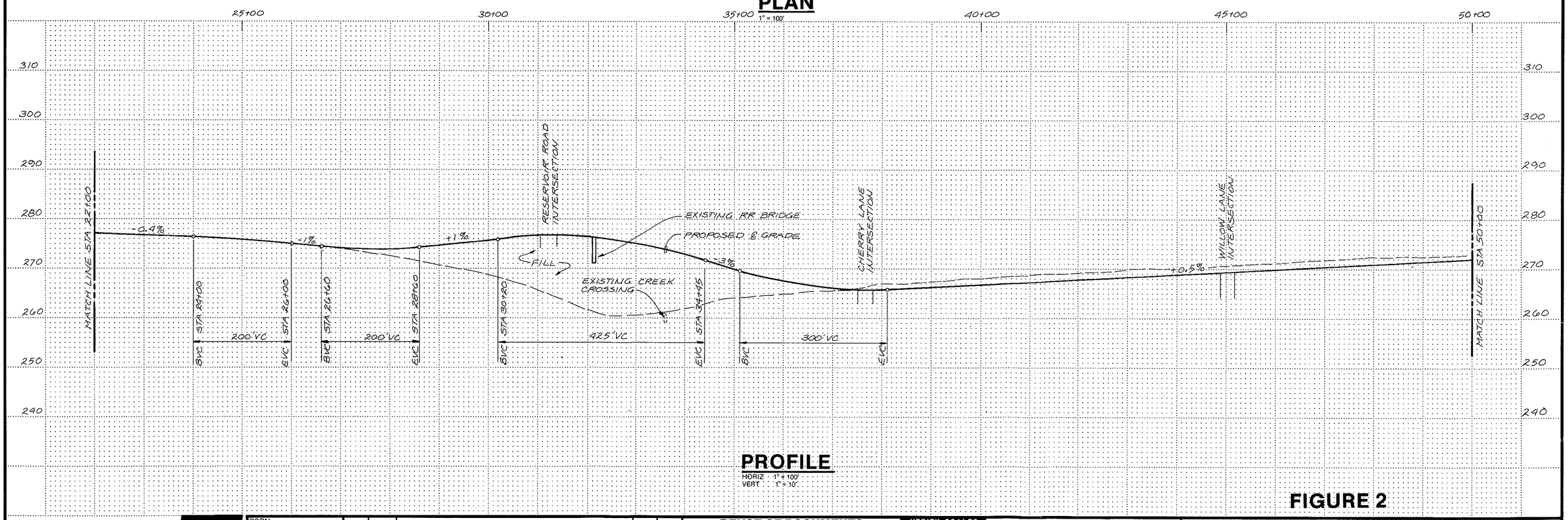

PROFILE

HORIZ · 1" = 100'
VERT · 1" = 10'

FIGURE 2

CH2M HILL	DSGN SAE DR JMK CHK RGE APVD RGE	NO.	DATE	REVISION	BY	APVD

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53RD STREET CORRIDOR STUDY
ALTERNATE AG-1
AT GRADE CROSSING AT S.P.T.C.
STA 22+00 TO STA 50+00

SHEET 2 OF 3
DATE
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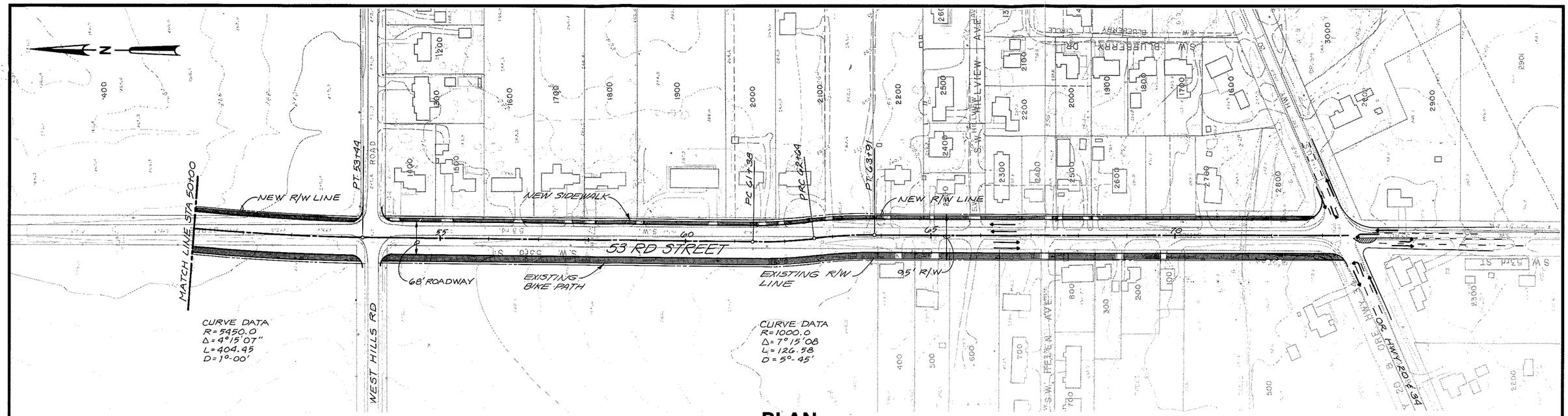

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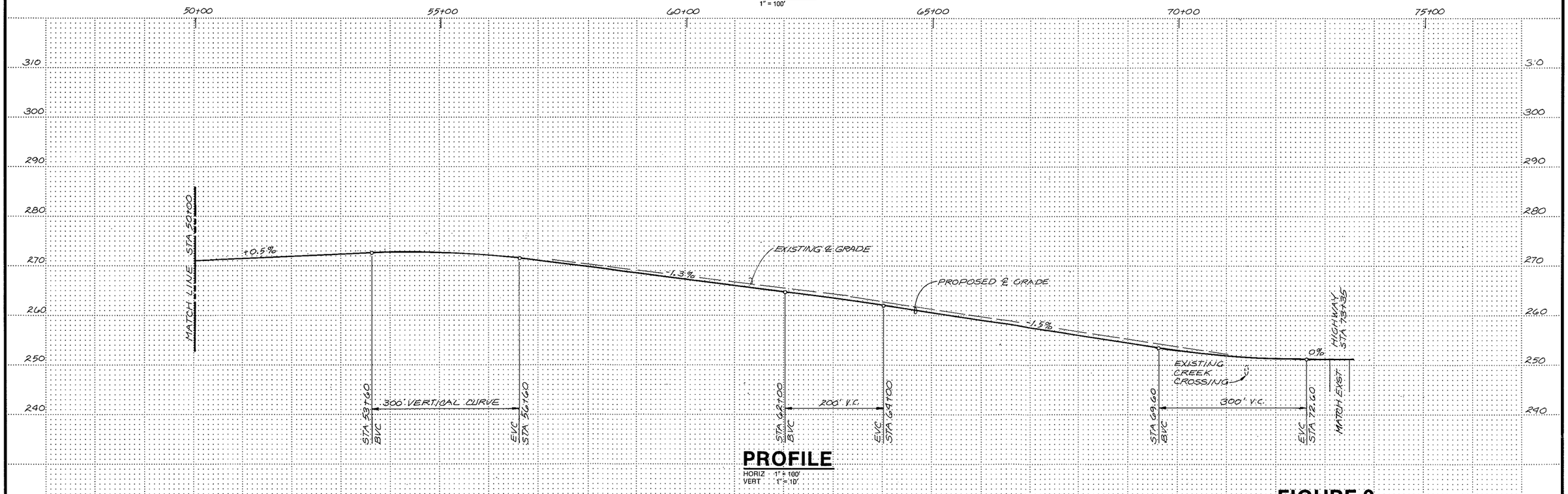
1" = 100'



PROFILE

HORIZ · 1" = 100'
VERT · 1" = 10'

FIGURE 2

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DR JMK							
CHK RGE							
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53RD STREET CORRIDOR STUDY
ALTERNATE AG-1
AT GRADE CROSSING AT S.P.T.C.
STA 50+00 TO STA 74+35

SHEET 3 OF 3
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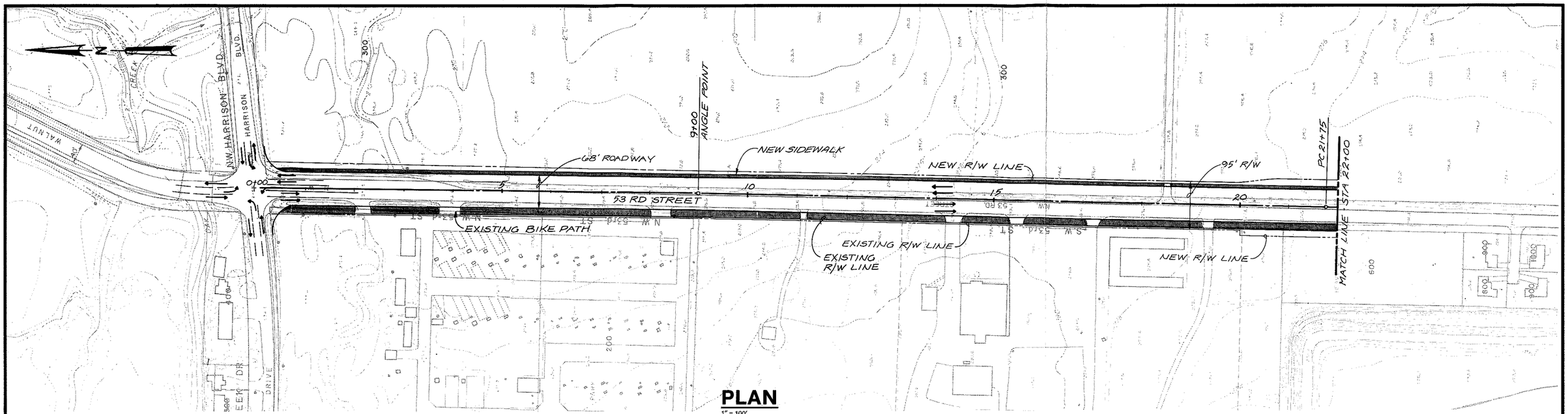

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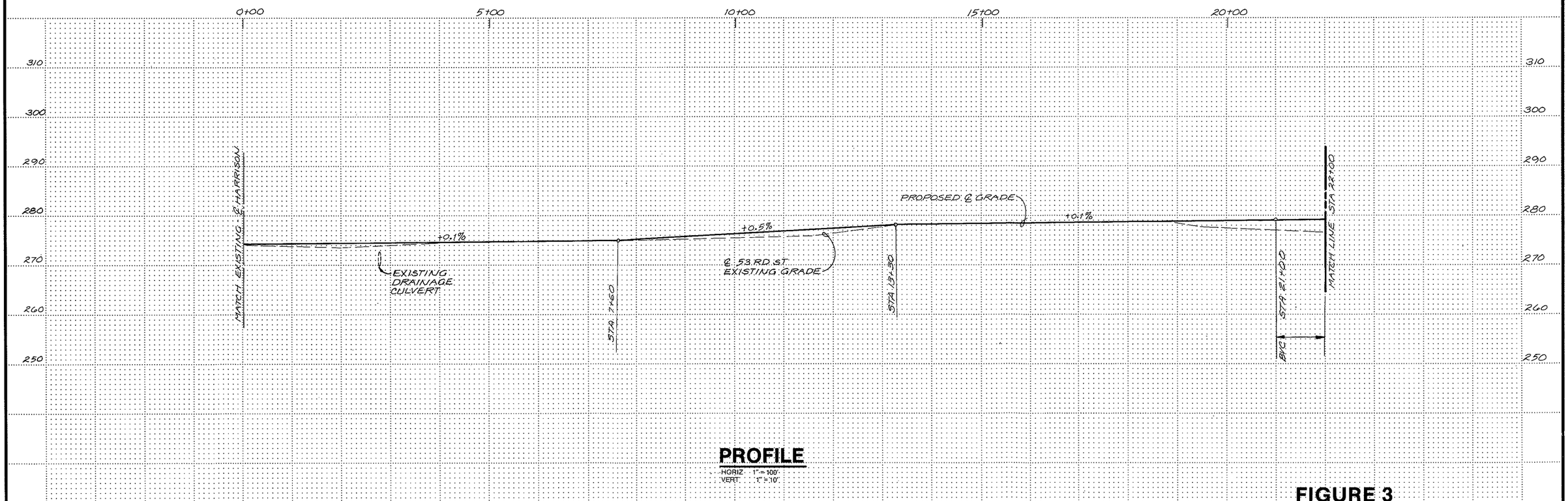

PROFILE
HORIZ. 1" = 100'
VERT. 1" = 10'

FIGURE 3

CH2M HILL

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DR	JMK
CHK	RGE
APVD	RGE

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53RD STREET CORRIDOR STUDY
ALTERNATE OP-2
OVERPASS CROSSING AT S.P.T.C.
STA 0+00 TO STA 22+00

SHEET	1 OF 3
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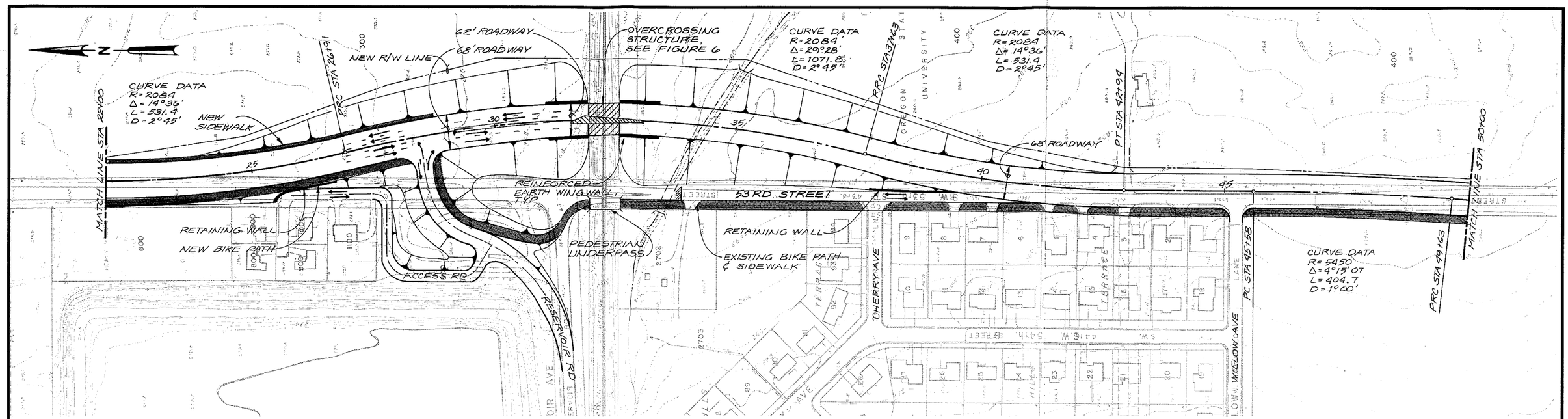

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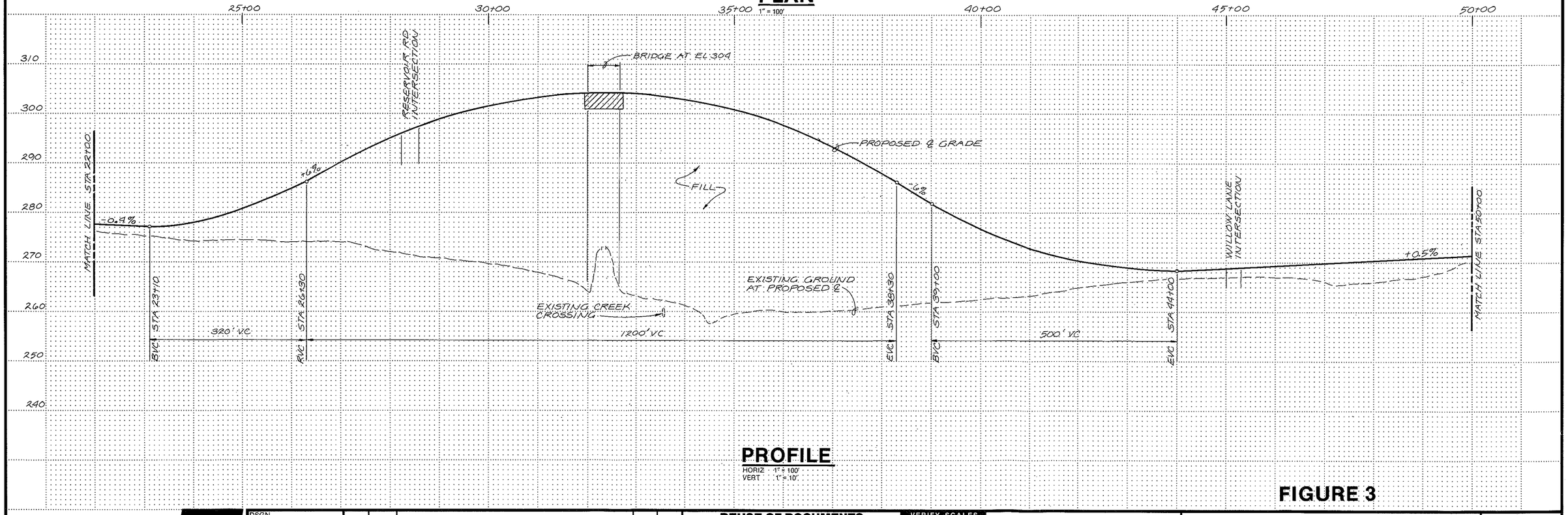

PROFILE

HORIZ 1" = 100'
VERT 1" = 10'

FIGURE 3

DSGN	SAE						
DR	JMK						
CHK	RGE						
APVD	RGE	NO.	DATE	REVISION	BY	APVD	

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53RD STREET CORRIDOR STUDY
ALTERNATE OP-2
OVERPASS CROSSING AT S.P.T.C.
STA 22+00 TO STA 50+00

SHEET 2 OF 3
DATE
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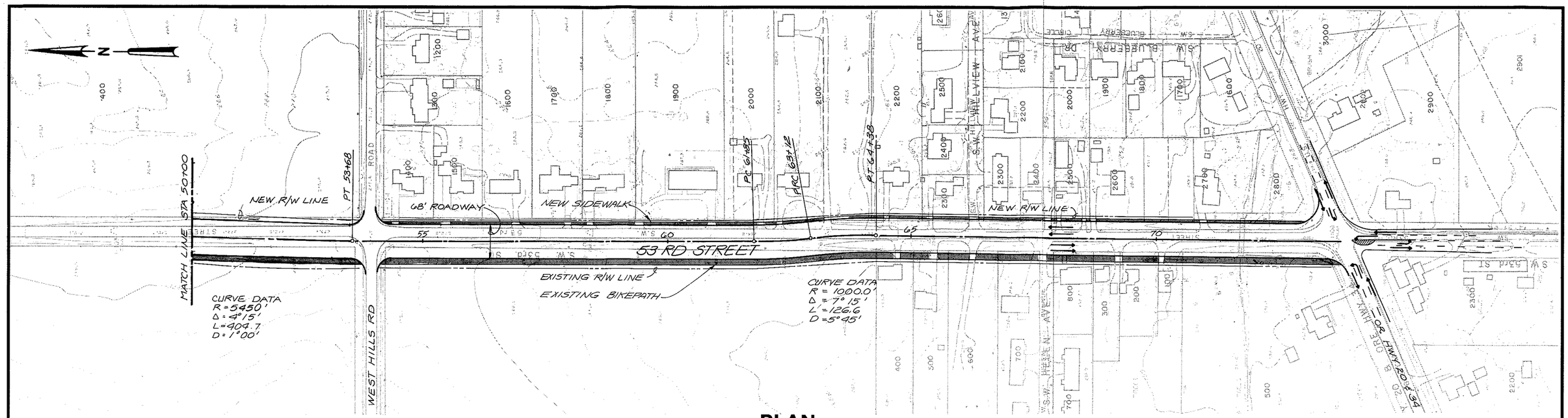

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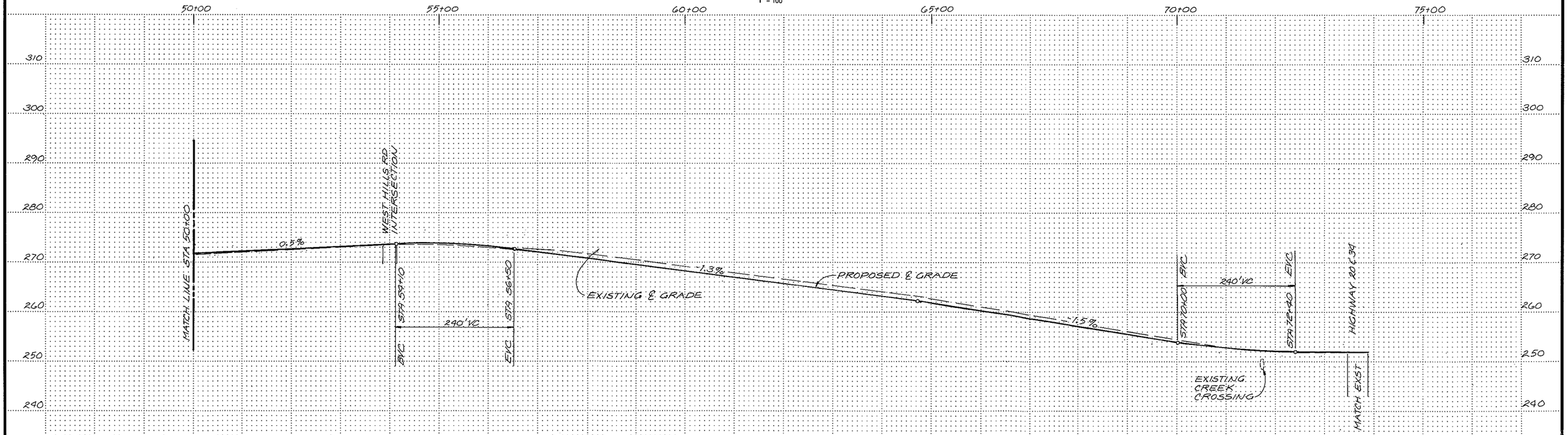

PROFILE

HORIZ · 1" = 100'
VERT · 1" = 10'

FIGURE 3

CH2MHILL

DSGN	SAE
DR	JMK
CHK	RGE
APVD	RGE

NO.	DATE	REVISION	BY	APVD

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ALTERNATE OP-2
OVERPASS CROSSING AT S.P.T.C.
STA 50+00 TO STA 73+70

SHEET	3 OF 3
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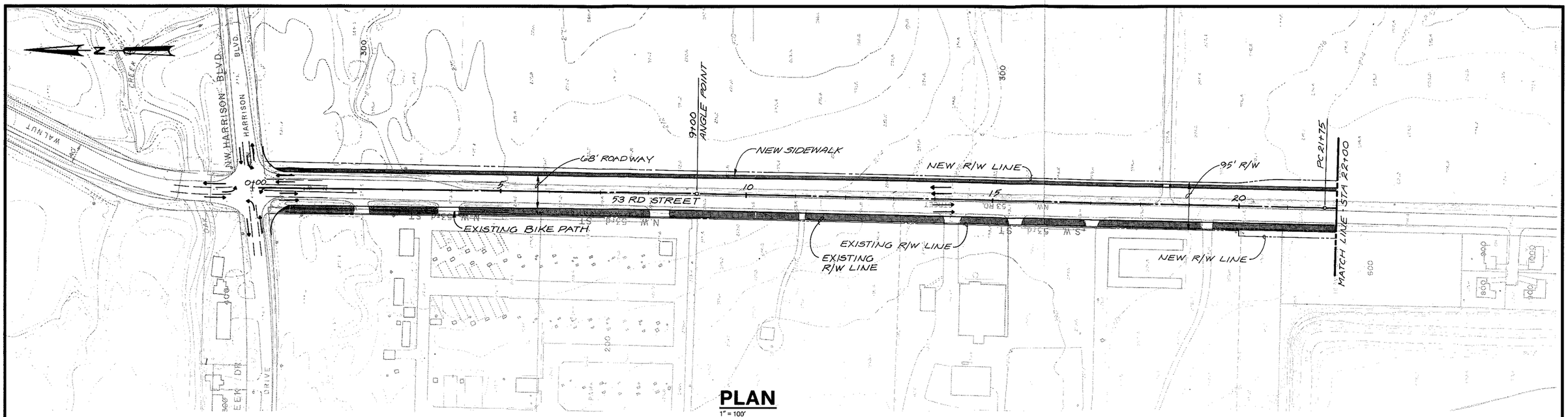

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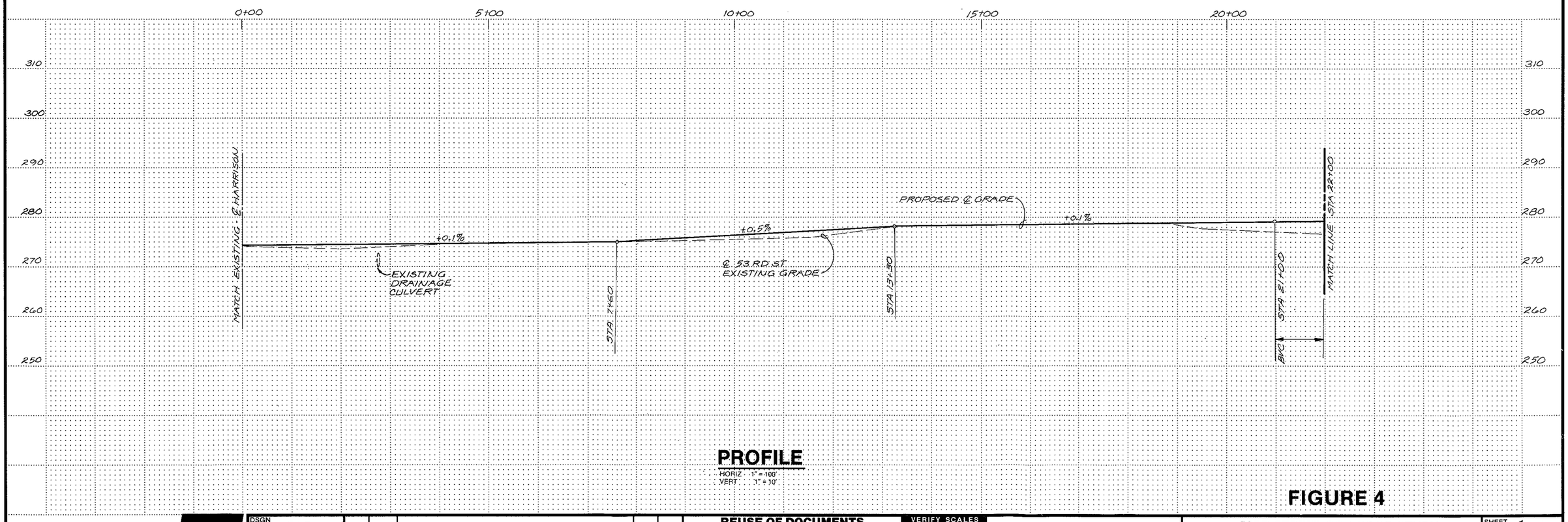

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VERT 1" = 10'

FIGURE 4

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53RD STREET CORRIDOR STUDY
ALTERNATE OP-3
OVERPASS CROSSING AT S.P.T.C.
STA 0+00 TO STA 22+00

SHEET 1 OF 3
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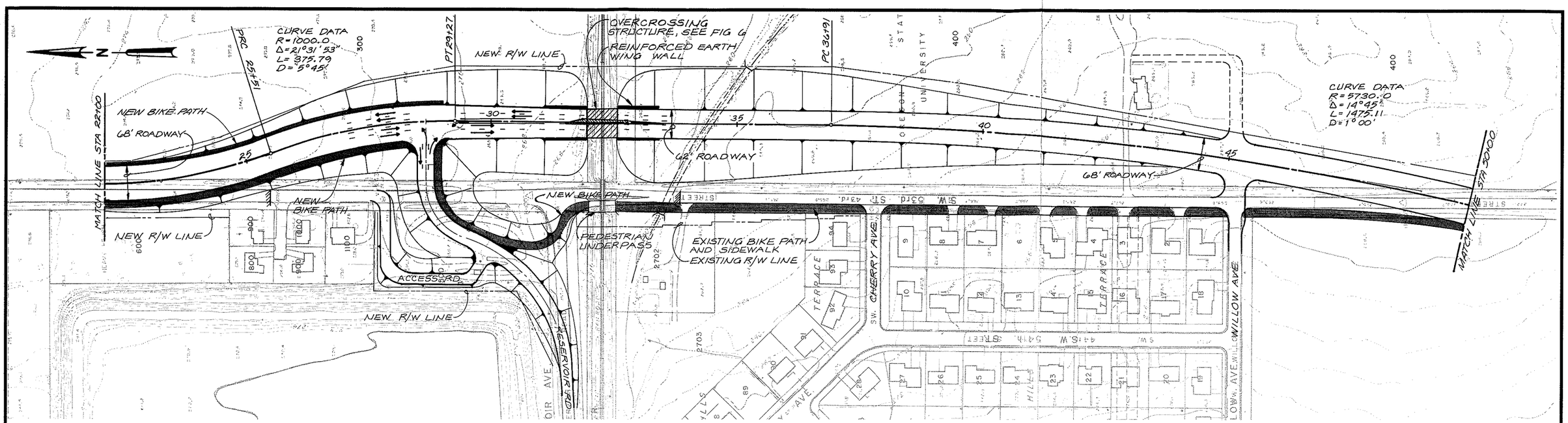

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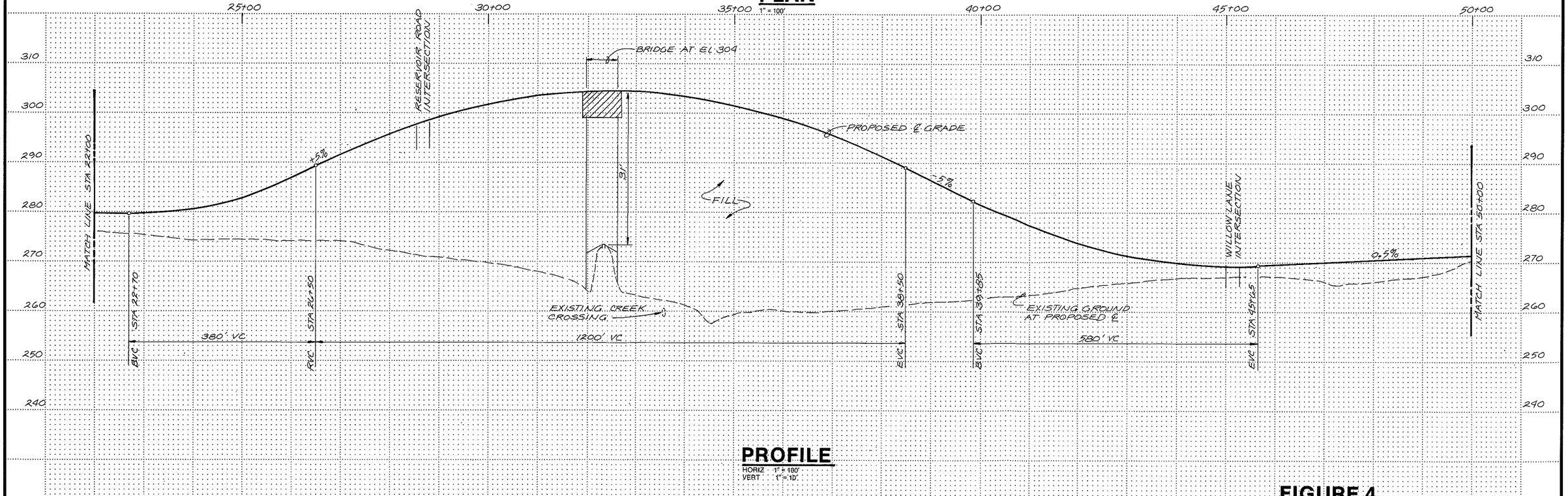

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HORIZ : 1" = 100'
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FIGURE 4

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DR JMK							
CHK RGE							
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ALTERNATE OP-3
OVERPASS CROSSING AT S.P.T.C.
STA 22+00 TO STA 50+00

SHEET 2 OF 3
DATE
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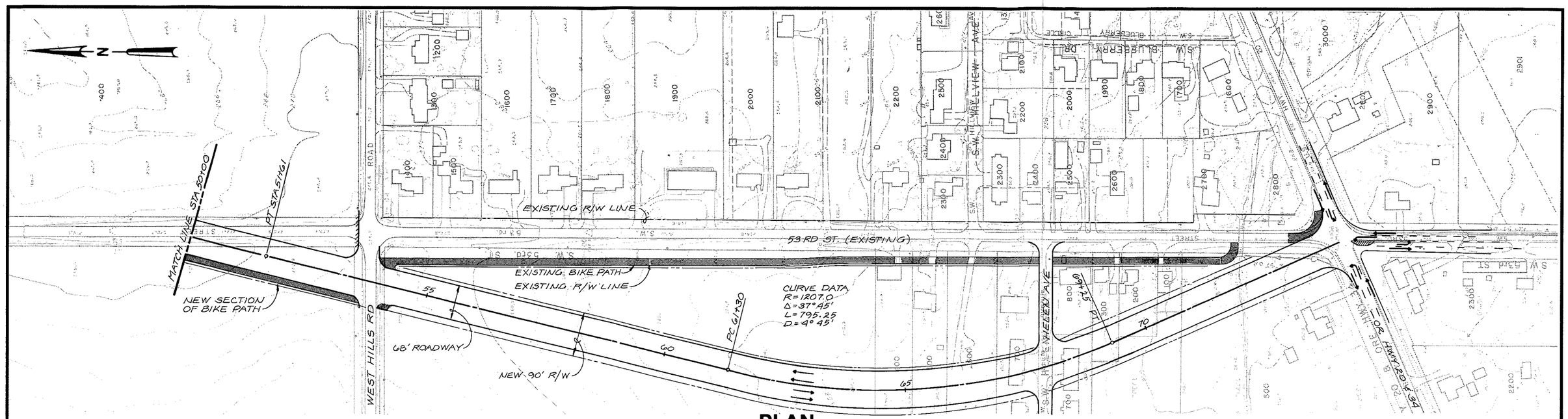

PLAN

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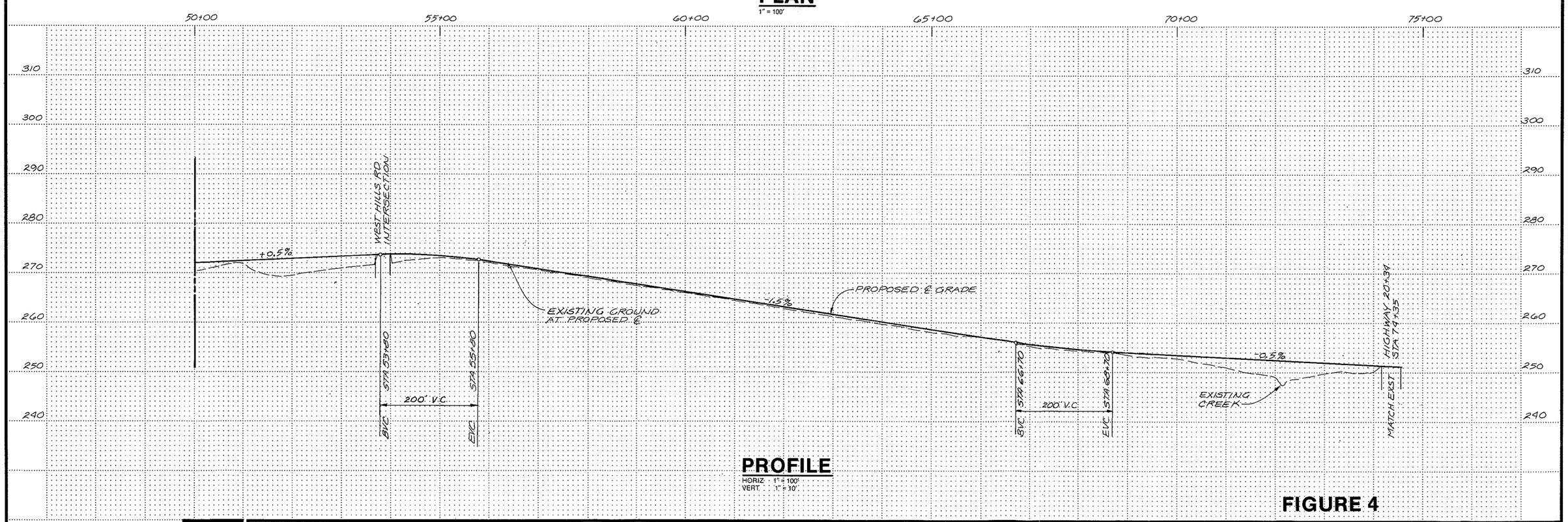

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FIGURE 4

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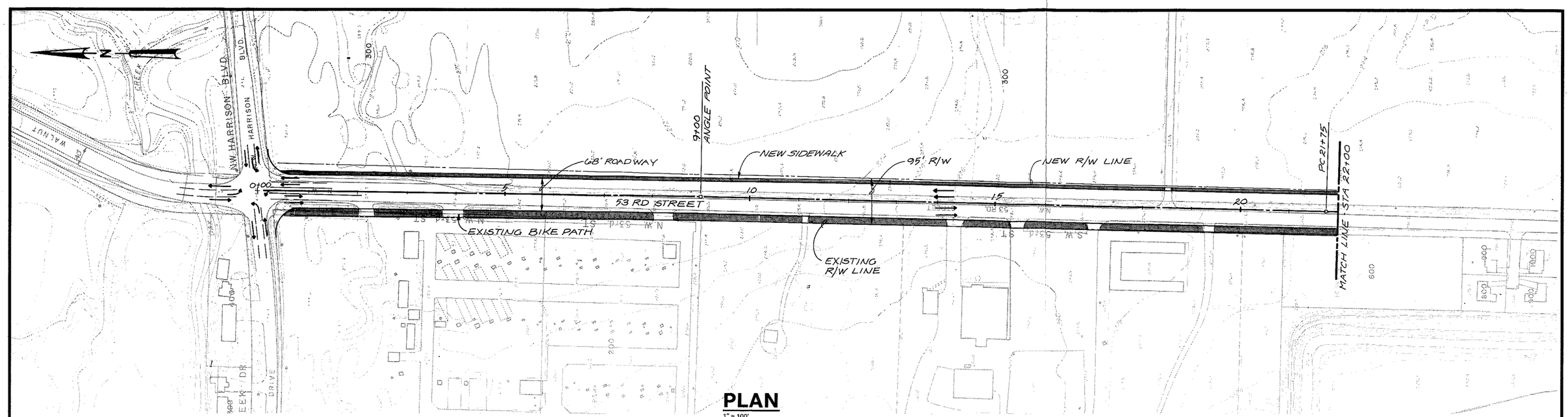

PLAN
1" = 100'

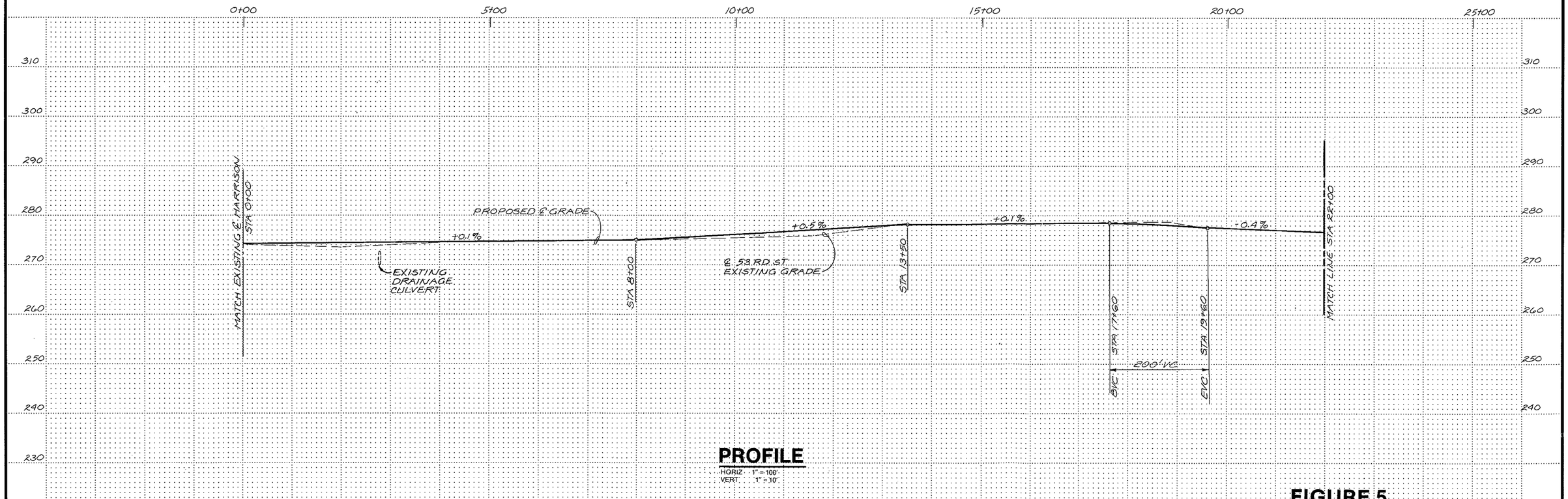

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FIGURE 5

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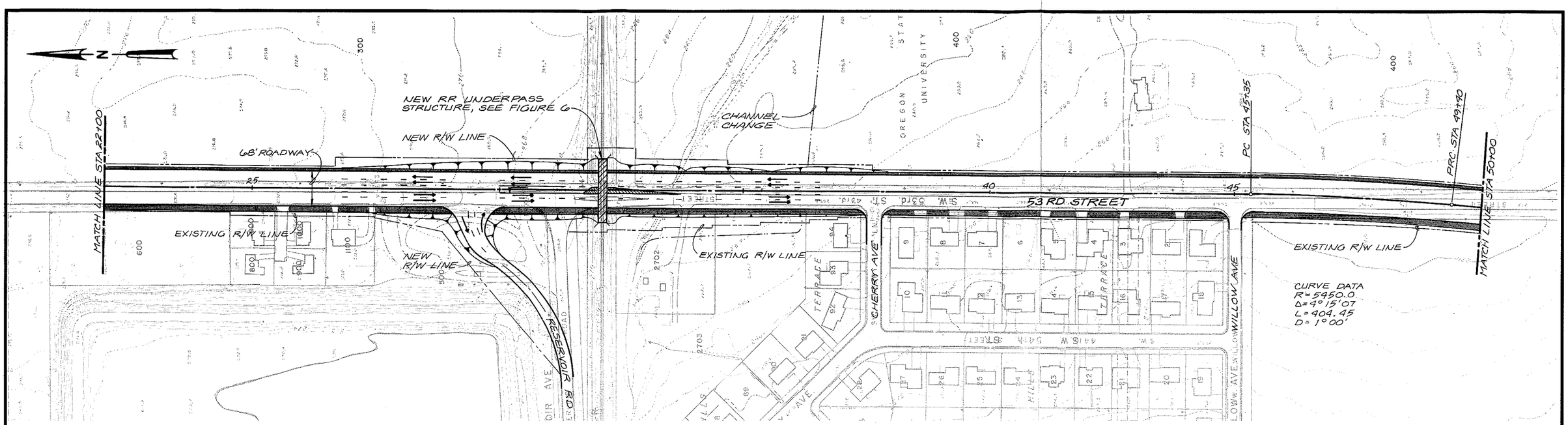
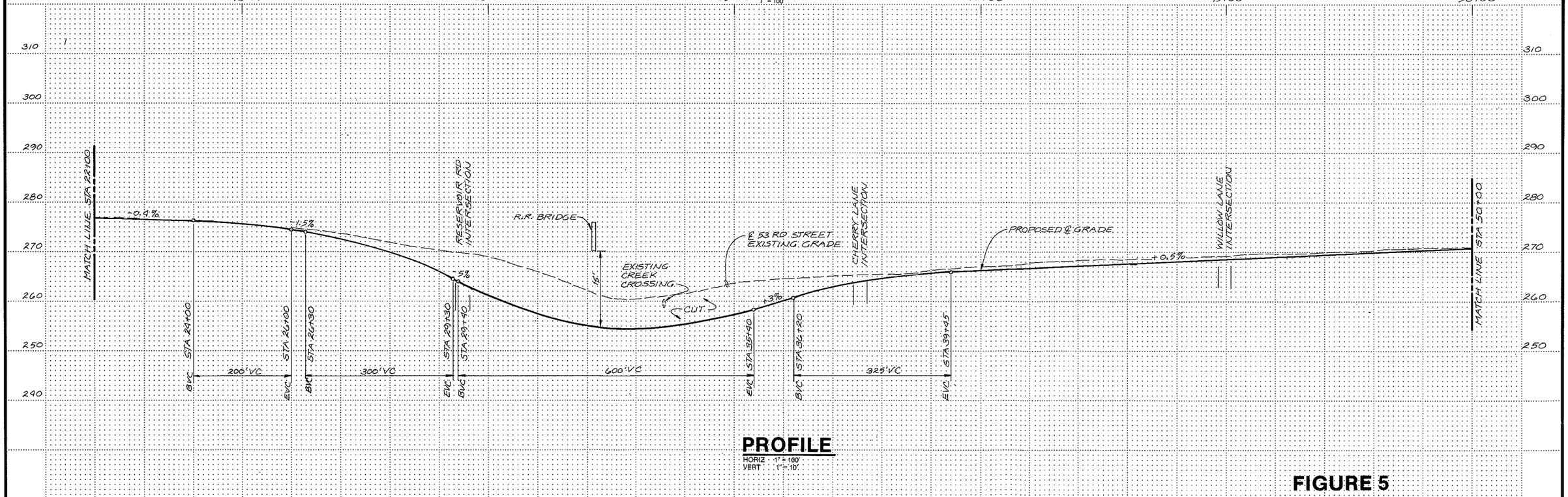


PLAN

1" = 100'



PROFILE

HORIZ 1" = 100'
VERT 1" = 10'

FIGURE 5

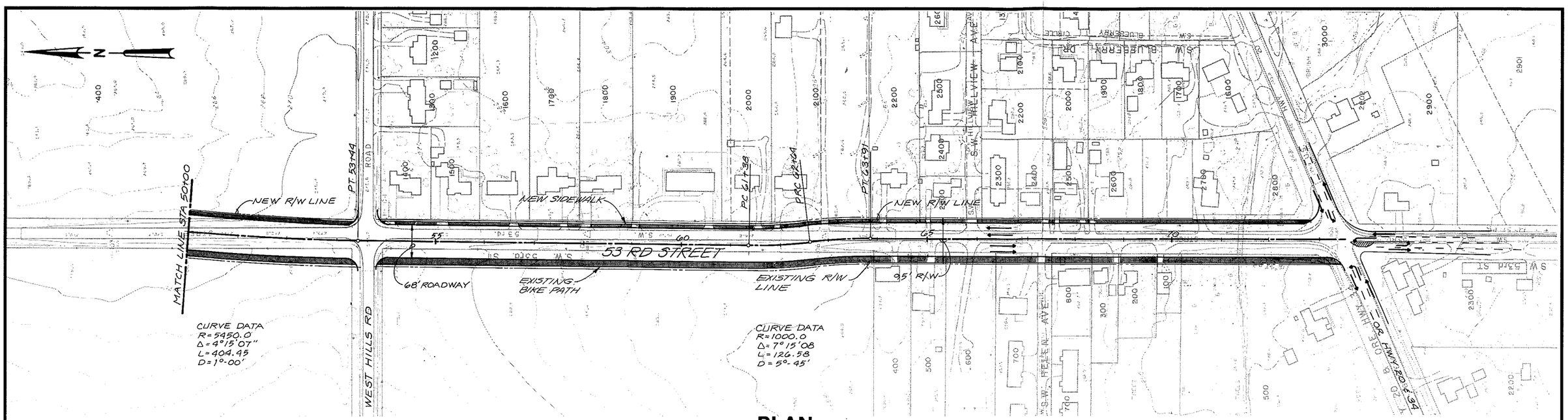
CH2M HILL	DSGN SAE DR JMK CHK RGE APVD RGE	NO.	DATE	REVISION	BY	APVD	**REUSE OF DOCUMENTS** THIS DOCUMENT, AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF CH2M HILL AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CH2M HILL. ©CH2M HILL

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

BENTON COUNTY
PUBLIC WORKS DEPARTMENT
CORVALLIS, OREGON

53RD STREET CORRIDOR STUDY
ALTERNATE UP-4
UNDERPASS CROSSING AT S.P.T.C.
STA 22+00 TO STA 50+00

SHEET 2 OF 3
DATE
PROJ NO. C19337.A0



PLAN

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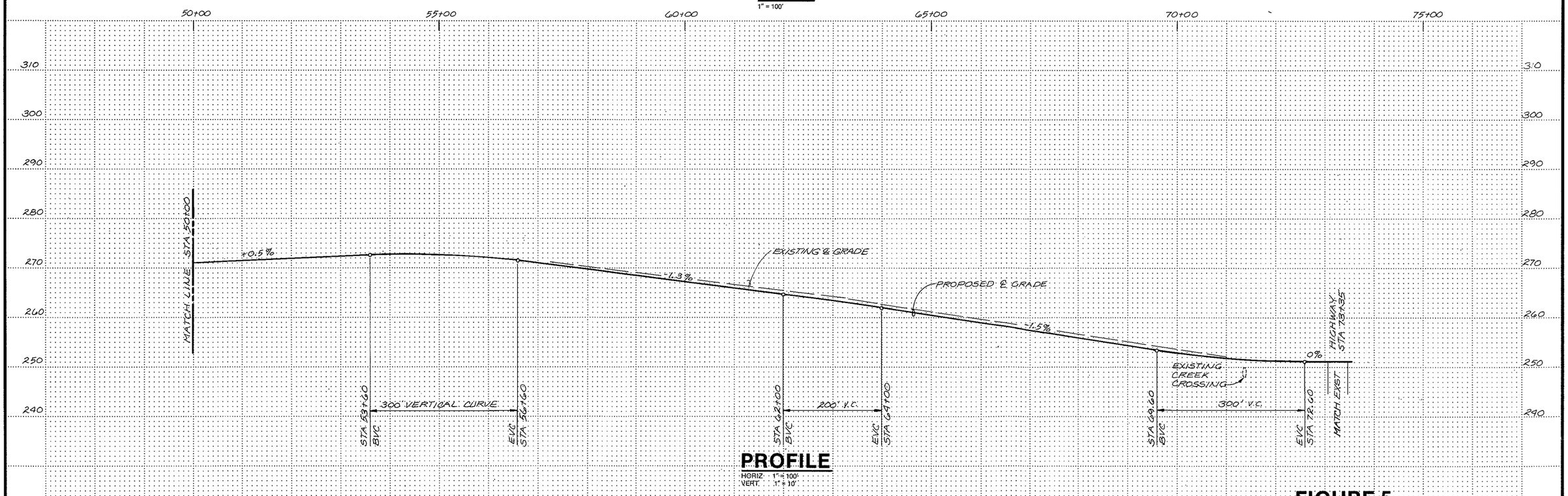

PROFILE

HORIZ. 1" = 100'
VERT. 1" = 10'

FIGURE 5

CH2MHILL	DSGN SAE DR JMK CHK RGE APVD RGE	NO.	DATE	REVISION	BY	APVD	**REUSE OF DOCUMENTS** THIS DOCUMENT, AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF CH2M HILL AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CH2M HILL. ©CH2M HILL	**VERIFY SCALES** BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1" IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.	BENTON COUNTY PUBLIC WORKS DEPARTMENT CORVALLIS, OREGON	53RD STREET CORRIDOR STUDY ALTERNATE UP-4 UNDERPASS CROSSING AT S.P.T.C. STA 50+00 TO STA 73+35	SHEET 3 OF 3 DATE PROJ NO. C19337.A0

SECTION 2

INTRODUCTION

Section 2
INTRODUCTION

CH2M HILL was retained by Benton County and the City of Corvallis in February 1985, to provide an implementation document for the improvement of the 53rd Street corridor from Harrison Boulevard to U.S. Highway 20.

STUDY OBJECTIVE AND SCOPE

Benton County and the City of Corvallis have the following objective for the project:

> "To consolidate existing and new information into one comprehensive plan for the 53rd Street corridor between Highway 20 and Harrison Boulevard."

To meet this objective, the project scope is comprised of the following tasks:

- Gather and analyze existing information.
- Meet with representatives of the City, County, and the Southern Pacific Transportation Company (SPTC).
- Study alternative alignments in the vicinity of West Hills Road.
- Develop and/or verify alternative preliminary layouts for the intersection of 53rd Street and the SPTC railroad track. This task assumes four alternatives--one at grade, two overcrossing, and one undercrossing). For each alternative, the following information is present in this report.
  - Structure type, length, and span arrangement
  - Vertical and horizontal alignment (scaled)
  - Approximate right-of-way requirements
  - Typical sections
  - Intersection and channelization plan
  - Bike path continuity
  - "Order of magnitude" cost estimates (±25 percent)

- Positive and negative points about each alternative

- Possible environmental concerns

o Investigate funding sources and recommend methods to pursue.

o Develop an implementation strategy and schedule. Evaluate impact to comprehensive plan and recommend changes as required.

o After the County and City have selected a preferred alternative:

- Coordinate with Southern Pacific and the PUC to gain their commitment to the selected alternative.

- Submit an application on the preferred alternative to the PUC.

o Produce a bound report (30 copies)

PROJECT NEEDS AND GOALS

Benton County and the City of Corvallis have long recognized the need for roadway improvements along 53rd Street, especially the replacement of the railroad underpass. Currently, the underpass presents a serious accident potential to automobiles and trucks as well as to joggers and bicyclists, who must use the existing road edge to travel through the underpass. In addition, the traffic along the corridor is expected to increase from 4,000± (avg) to over 17,000 trips per day by the year 2000. This increase of over four times the present day traffic, demands improvement from the present two-lane facility to four lanes with a continuous center left-turn lane.

The primary goals of the 53rd Street corridor improvement are:

o To improve traffic capacity in conformance with the area's comprehensive plan

o To improve safety for pedestrians, bicyclists, automobiles, and trains

o To limit the right-of-way required for project-related improvement

- To design the improvements to conform to the relevant standards of the Public Utilities Commission, Southern Pacific Transportation Company, Benton County, and the City of Corvallis
- To minimize direct impacts of the project on adjacent lands and residences
- To maintain train and vehicular traffic throughout construction activities
- To provide a functional facility at the least cost

/CVR9/049

SECTION 3

EXISTING CONDITIONS

Section 3
EXISTING CONDITIONS

53rd Street between Harrison Boulevard and U.S. Highway 20 is on level terrain located along the section line between Sections 4 and 5, Township 12 South, Range 5 West in Benton County. The route is also County Road No. 25270 and FAS Route No. A505. The roadway is two lanes with shoulders of approximately 5 feet and drainage ditches. The County has recently completed a 10-foot-wide, combination sidewalk/ bikepath on the west side along the entire route except for a discontinuity at the SPTC structure. Some drainage lines have also been installed on the west side of the roadway between Harrison Boulevard and West Hills Road in anticipation of a future curbed section. The existing road crosses under the Southern Pacific Transportation Company railroad through a short-span timber trestle with a hazardous center pier. The roadway dips under the railroad bridge resulting in a low spot that has had considerable flooding in the past during heavy rains.

Major intersections along the route are the Reservoir Road intersection immediately north of the railroad crossing, and Cherry Avenue and Willow Avenue serving the West Hills Terrace Subdivision, and West Hills Road. Also, many private drives as well as Hillview Avenue and Helen Avenue enter 53rd Street between West Hills Road and U.S. Highway 20.

Private drive accesses are also along the west side of the roadway between Cherry Avenue and Willow Avenue. A number of accesses also are served on the west side between Harrison Boulevard and Reservoir Road, including a few commercial businesses and the Benton County Fairgrounds. Oregon State University (OSU) agricultural lands lie on the east side between Harrison Boulevard and the Southern Pacific Transportation Company railroad. A private developer (State Federal) owns the open land between the railroad and West Hills Road on the east side of the road. The Assembly of God church owns the open land on the west side of the road between Willow Avenue and West Hills Road.

At present (1985) the route in general can be considered semirural; however, all property is committed to urbanization except the OSU property.

Only minimum soils and foundation information is available, but with proper engineering, all alternatives studied are feasible.

Utilities in the project area that will be affected by future improvements are the powerline along the east edge of the existing roadway. Oregon State University has a 3-inch

waterline on their property along the east edge of the roadway. There is a 27-inch waterline along the east edge of the roadway between Reservoir Road and Harrison Boulevard will also be affected by new construction.

CVR9/050

SECTION 4

EXISTING PROJECT DATA

Section 4
EXISTING PROJECT DATA

Past studies that relate to 53rd Street are mostly transportation studies, including the following:

- Transportation Management Plan, Benton County, Oregon, 1980 prepared by Transportation Planning and Management, Inc. Excerpts of this report are included in the appendix.

- Corvallis Transportation Plan, July 1983, by the consultant team of CRS Group; Gary Spanovich, Transportation Consultant; and Barton-Aschman Associates.

- 53rd Street Railroad Crossing Evaluation Report, May 1982, by Transportation Planning and Management, Inc. (TPM). This report is included in the appendix.

- Draft Environmental Impact Study for City of Corvallis, 1978, by Wilber Smith and Associates.

- OSU/Heritage Traffic Impact Study, 1983, by Wilber Smith and Associates.

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SECTION 5

CRITERIA AND STANDARDS

Section 5
CRITERIA AND STANDARDS

DESIGN CRITERIA

Basic criteria for the project were established to guide in the layout of alternatives. The principal design criteria are summarized below:

- The facility should be multimodal, accommodating automobiles, trains, bicycles, and pedestrians with equal ease.
- The facility should provide horizontal and vertical alignments in accordance with current design standards and established engineering principles.
- The grade separation, if chosen, should provide for uniform uninterrupted flow of both train and vehicular traffic. It should permit the railroad to retain all of its current functions in terms of the type, speed, function, size, and weight of existing trains.
- The facility should contain adequate traffic lanes including left-turn lane and traffic control devices to provide an acceptable level of service for vehicular traffic.
- The roadway and grade separation should blend aesthetically with the surroundings. Its design should complement existing features of the area. Design details, surface treatments, lighting, and landscaping should enhance the area.
- The construction should provide minimum disruption to the roadway user and Southern Pacific Transportation Company, as well as to the local property owners living along the corridor.

DESIGN STANDARDS

Following are the primary standards developed for the project. They have been taken from earlier documents: Transportation Management Plan (TPM, 1980), 53rd Street Railroad Crossing Evaluation Report (TPM, 1982), and the Corvallis Transportation Plan (CTP, 1983). Table 2 presents the standards applicable to the roadway.

Table 2
ROADWAY DESIGN STANDARDS

Classification	TPM-1980 Minor Arterial	TPM-1982 Arterial	CTP-1983 Arterial Street
Right-of-way	80-100'	90'	70-90'
Bike lanes	5' ea side	6' ea side	5' ea side
Travel lanes	12', 2 ea direction	12', 2 ea direction	54-72' including bike lanes
Center median (left turn)	12' continuous	12' continuous	Continuous
Sidewalks	6' both sides as required	6' one side	6' both sides
Parking	Prohibit	Restricted	Prohibit
Design speed	50 mph	50 mph	--
Stopping sight distance	450'	450'	--
Intersection approach grade	--	1-1/2% max	--
Roadway grade	4-6%	4% max	--
Minimum curve radius	800'	--	--
Traffic volume (year 2000)	17,500 vpd	17,500 vpd	--
Truck traffic	--	Less than 5%	--
Curb and gutter	Standard	Standard	Standard urban
Access	--	--	Minimal

The design standards for the railroad are taken from the 53rd Street Railroad Crossing Evaluation Report (TPM, 1982):

- Traffic--18 trains per week (freight)
- Tracks--single
- Operating Speed--40 mph (maximum), 30 mph (normal)
- Grade--no change allowed from present
- Loading--E-80 railroad loading
- Structure Width--16-foot minimum (18-foot desired)
- Construction--shoo-fly required if railroad structure replaced
- At-Grade Crossing--OAR 860-42-060 standard four automatic gate signal, and advance traffic warning signs conforming to Chapter VIII, MUTDC
- Horizontal Clearance--8 feet 6 inches to handrails, 20 feet to obstructions
- Vertical Clearance--23 feet 6 inches

DESIGN REFERENCES

References for the railroad design standards include the three reports used for roadway design standards and the following materials:

- Bridge Design Manual, Oregon Department of Transportation
- Manual for Railway Engineering, American Railway Engineering Association
- Foundation Investigations for Oak Creek Bridge Replacements, Benton County, Oregon, 1983, Willamette Geotechnical, Inc.
- Geologic Hazards of Eastern Benton County, Bulletin 98, Oregon Department of Geology and Mineral Industries, 1979, James L. Bela

CVR9/052

SECTION 6

PROJECT ALTERNATIVES

Section 6
PROJECT ALTERNATIVES

CONCEPT DEVELOPMENT

The initial step in the development and evaluation of alternative configurations for the 53rd Street corridor involved the development of a number of concepts to accomplish the intended functions. The concepts were developed by reference to past studies and by a functional analysis of project requirements. This approach was used to ensure that the study recognized past efforts while also considering practical new configurations.

Past studies have investigated basically two methods of handling the crossing of the Southern Pacific Transportation Company's railway with 53rd Street. The two methods were (1) an at-grade crossing, and (2) an underpass crossing similar to the existing one but with improved horizontal and vertical clearances and with improvement to 53rd Street limited to the existing alignment.

This study, in addition to updating past studies, included investigation of a railroad overpass configuration on an offset alignment as well as a realignment of 53rd Street from the railroad separation to U.S. Highway 20 as a limited access route.

The level of study is such that it does not develop design details to any great depth. For example, sidewalks are only shown in general for purposes of comparing costs between alternatives. During final design the definitive design details will show the exact locations of items such as sidewalks, bikepaths, and barriers. Project costs for each alternative are given in Table 1, in the Summary, Chapter 1.

ALTERNATIVE CONCEPTS

AG-1

This alternative is shown on Figure 2 (three sheets) and consists of upgrading the existing facility from two to four lanes with a continuous median left-turn lane. Improvement would be on the existing alignment using an at-grade crossing where the Southern Pacific Transportation Company railway crosses the alignment. This concept has been previously studied in the area of the railway crossing. Due to the railroad grade being above natural topography, a fill would be required at the crossing site. The south approach grade would have to be on the order of +3 percent to provide reasonable access to Cherry Avenue and some private approaches

on the west side of 53rd Street. Reservoir Road would also have to be raised in order to connect with 53rd Street.

Southern Pacific Transportation Company and the Oregon PUC would not look favorably on this alternative, as verified by telephone conversations.

Historically, railroads and highway jurisdictions have been in the process of improving from at-grade to separated roadways and the SPTC authorities feel that the implementation of this alternative would be a step backward.

Securing approvals for this alternative would be a time-consuming and possibly frustrating effort, as evidenced by the recent problems with the attempt to extend the bike path through the existing structure's end span.

As a summary, a listing of the general advantages and disadvantages of this alternative over other alternatives studied are provided below.

Advantages

- Least-cost alternative
- Minimum right-of-way acquisition
- Minimum construction time
- Traffic kept in basic corridor
- Least visual impact
- Least truck noise
- Future railroad abandonment would require minimum alterations (Note: abandonment not contemplated by railroad)

Disadvantages

- Potentially dangerous at-grade crossing--for autos, trucks, bicycles, pedestrians
- Maintenance costs on signal equipment
- Objections from Southern Pacific Transportation Company and the Oregon PUC
- Minimum limited-access route

- Periods where delays will cause inconvenience to the motorist and possible disruption of emergency vehicle service.

OP-2

This alternative, shown on Figure 3 (three sheets), uses an overpass structure spanning the railroad right-of-way. Because of the high fill required to provide vertical clearance for the railroad, the alignment was shifted to the east on to OSU agricultural and State Federal lands so that access to the properties lying on the west side of 53rd Street would not be affected. This alternative brings the alignment back onto the existing alignment as quickly as roadway geometrics and standards allow.

The bridge structure contemplated would be composed of reinforced earth walls containing the embankments with a simple-span, precast-concrete, girder bridge over the railroad's right-of-way (see Figure 6). Reinforced earth walls have proven to be a very economical method of retaining high fills. Because the panels are usually precast concrete, they can be made aesthetically pleasing by use of exposed aggregates, form liners, and/or textured and tinted surfaces. The bridge girders can be of precast, prestressed concrete design such as channel sections, deck bulb tees, I-girders, or box girders.

In the limited access portion, the median section can be reduced since left turns are not possible except on approaches to intersections.

Sidewalks were not considered in this alternative for the portion of roadway between Reservoir Road, and Willow Avenue. In the design phase, if a sidewalk was desired to serve the east side of the roadway, the extra cost for sidewalk, additional bridge structure, fill, and right of way would be approximately $175,000 above that given in Table 1.

If this alternative is chosen for final design, the preliminary study can investigate optimizing the cost by use of additional retaining walls to cut down the right-of-way take.

The advantages and disadvantages of this alternative are as follows.

Advantages

- Provides safe grade separation.
- Costs least of separated alternatives.

- Causes minimum utility relocation in area where alignment is offset.
- Does not disturb or interrupt railroad services.
- Offset alignment can be constructed while traffic uses existing road.
- Causes minimum interference to road users and local residents during 53rd Street construction.
- Recommended by Southern Pacific Transportation Company.
- Provides long section of limited access route improving safety and traffic flow.

Disadvantages

- Requires greatest amount of right-of-way take.
- Causes increase in truck noise over existing levels because of grades.
- Lengthens project because of curved alignment.
- High fill needs landscape and aesthetic treatment.
- High fill requires traffic barriers.
- Overpass causes aesthetic impact.
- Reservoir Road needs to be realigned and the grade raised for its connection with 53rd Street.
- Sidewalk on east side from Reservoir Road to Willow Avenue will be discontinuous.

OP-3

This alternative, shown on Figure 4 (three sheets), from Harrison Boulevard to the railroad structure, is identical to Alternative OP-2 but the alignment extending south of the railroad to the intersection with U.S. Highway 20 is off the existing route and traverses through open fields creating a limited access arterial for the majority of the project, thus improving both safety and traffic flow. Local access will be onto existing 53rd Street, which resorts to a frontage road.

The advantages and disadvantages are the same as for Alternative OP-2 with the following additions.

Additional Advantages

- Minimum utility relocation
- Over three-quarters of corridor a limited access arterial
- Possible reduction or elimination of center turn lane except at intersections
- Improved traffic capacity for design year

Additional Disadvantages

- Displacement of some homes, which may require relocation expense
- Added drainage facilities required
- Additional right-of-way required
- More expensive

UP-4

This alternative, shown on Figure 5 (three sheets), uses a new underpass structure (railroad over street) similar to the existing structure but with improved clearances and design (see Figure 6). The corridor is maintained for its entire length on present alignment. In order to secure acceptable vertical clearance and to provide a railroad bridge structure that Southern Pacific Transportation Company favors, the grade line of 53rd Street must be lowered. Since flooding has been a problem in the past, a lowering of grade can only compound the problem unless an expensive pump station and lengthy discharge line is incorporated. The lowering of grade would place the road at or below the elevation of the adjacent Squaw Creek thus below the water table, requiring a costly underdrain system. Any failure of pumps would cause extensive roadway damage with flooding of the underpass area. If this alternative is chosen, then considerable effort will be required to study and design the best drainage system.

A previous report suggests using a three-span structure with center span of 82 feet. After discussions with Southern Pacific Transportation Company, we would propose using a four-span structure so that the depth of structure can be held to a minimum and can use standard precast, prestressed concrete beams preferred by Southern Pacific Transportation Company because of their low maintenance requirements.

As suggested in previous studies to maintain scheduled train service, a "shoo-fly" must be constructed. This temporary

bypass constructed adjacent to existing alignment would provide access to the new bridge and would require extensive rail work plus a trestle structure at 53rd Street. To fit into railroad geometry, the length of shoo-fly alignments normally take about 2,000 feet thus requiring costly easements and disruptions. Depending on which side (north or south) the shoo-fly is to be constructed, conflicts will be present. South of the existing tracks a private sewage treatment plant and a number of private home lots exist while on the north side, Reservoir Road and railroad spur tracks would conflict with a shoo-fly alignment.

The advantages and disadvantages of this alternative are as follows.

Advantages

- Grade separated
- Minimum right-of-way take
- Straight alignment maintained

Disadvantages

- Maximum construction cost of all alternatives
- Greatest disruption to railroad
- Greatest disruption to road user
- Railroad section does not lend itself to staged construction
- Longest design and construction time
- Drainage problem
- Center pier in median (although protected by barrier and shoulder clearances)
- Considerable time to secure railroad approvals thus hard to set firm dates for construction activities
- Maximum utility relocations

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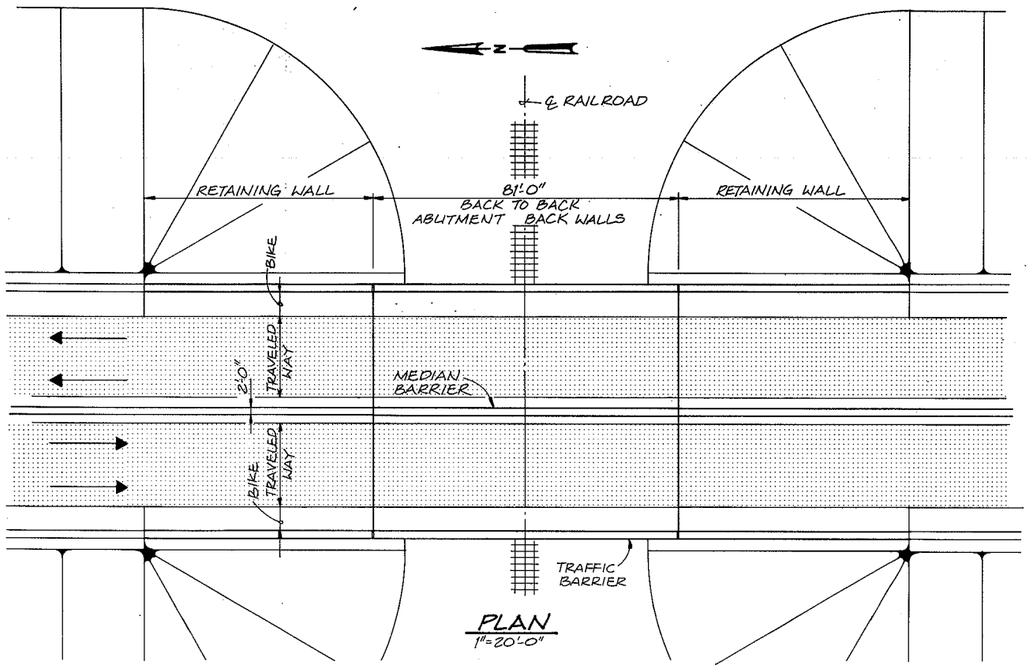

PLAN
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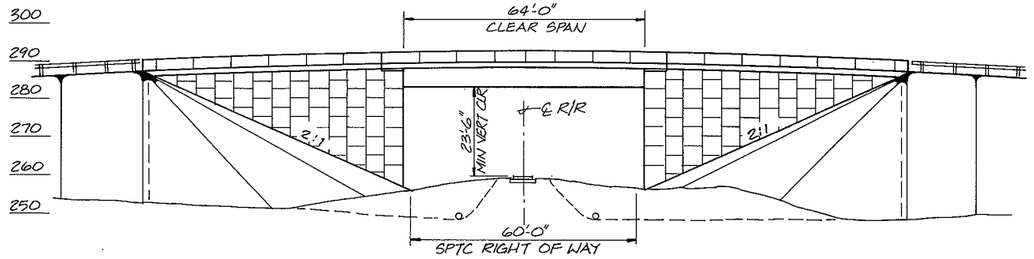
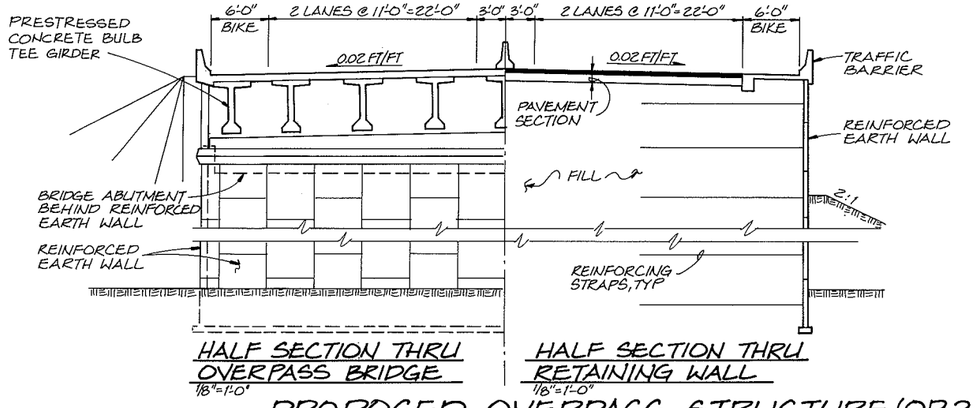


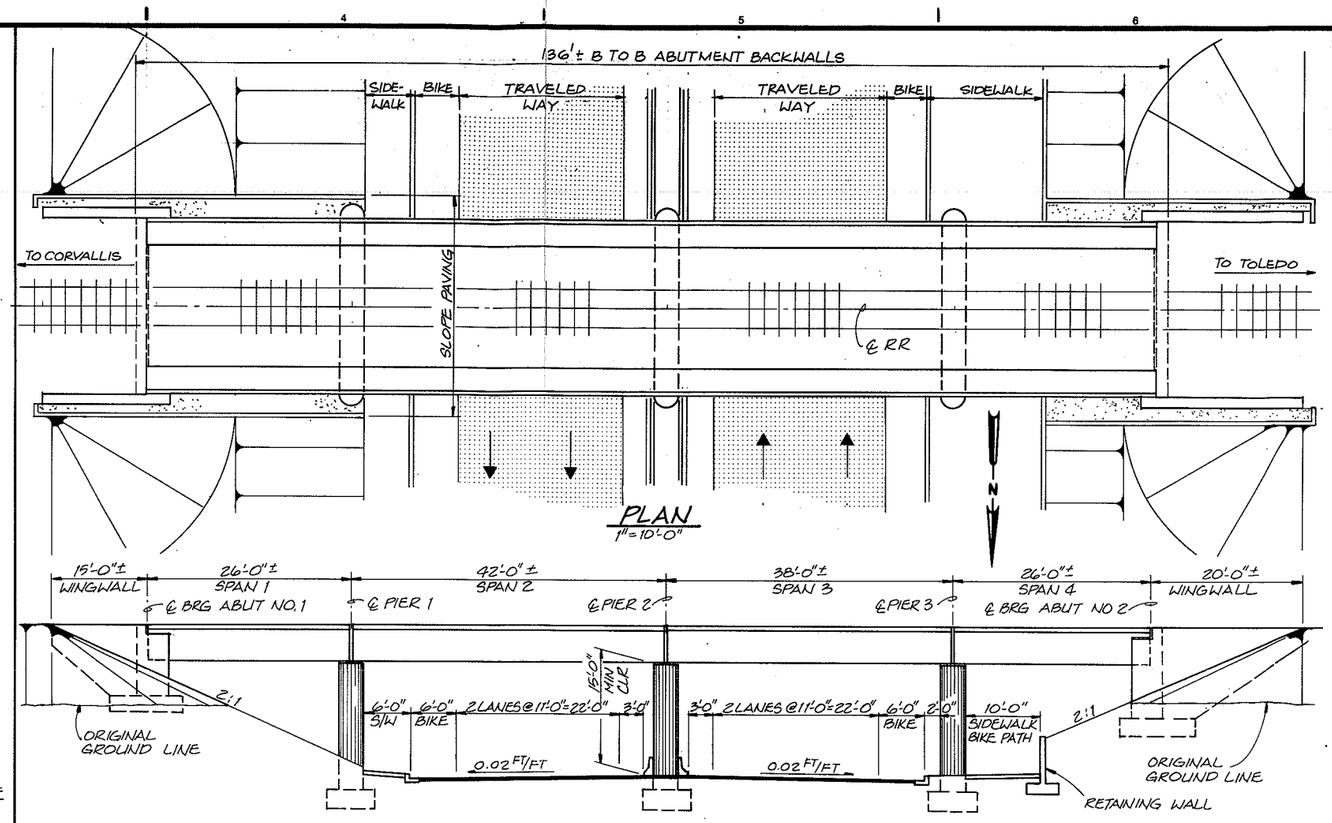
ELEVATION
1"=20'-0"



HALF SECTION THRU OVERPASS BRIDGE
1/8"=1'-0"

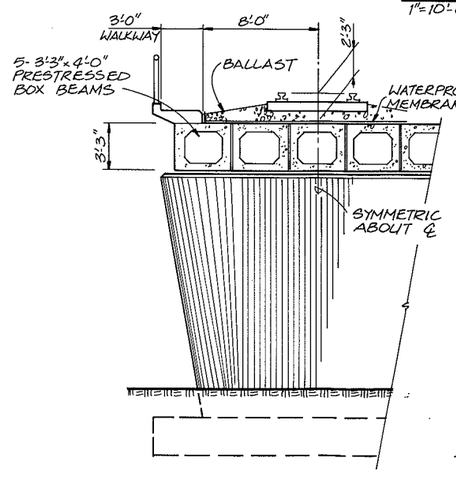
HALF SECTION THRU RETAINING WALL
1/8"=1'-0"

PROPOSED OVERPASS STRUCTURE (OP-2&3)

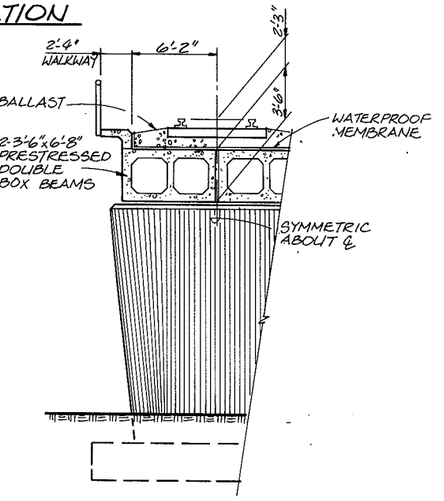


PLAN
1"=10'-0"

ELEVATION
1"=10'-0"



TYPICAL SECTION (PREFERRED)
3/16"=1'-0"



TYPICAL SECTION (MINIMUM ALTERNATE SUBJECT TO R/R APPROVAL)
3/16"=1'-0"

PROPOSED UNDERPASS STRUCTURE (UP-4)

FIGURE 6

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SECTION 7

TRAFFIC

Section 7
TRAFFIC AND DEVELOPMENT WITHIN THE CORRIDOR

EXISTING CONDITIONS

The existing traffic is shown on Figure 7.

FUTURE CONDITIONS

The increase and rate of increase of traffic on 53rd Street depend on a number of factors such as:

- Roadway improvements
- Approval and initiating planned developments
- Other area growth

In Figures 8 through 15, the projected year 2000 traffic figures on 53rd Street from past studies are shown. Table 3 indicates which studies were used to prepare the figures and lists assumptions made about development in those studies.

As can be seen from these various ADT estimates, the buildup of traffic on 53rd Street will change dramatically depending on the area's type and rate of growth. The startup of any of the RTC's could dramatically increase the traffic in the corridor.

Considering a traffic increase of 1,000 trips (ADT) per year, the following improvements should be considered:

- Signalize and improve the intersection at Harrison Boulevard in 3 years.
- Signalize and improve intersections at Reservoir Road and West Hills Road in 4 to 5 years.
- Build out to four lanes for entire length between Harrison Boulevard and U.S. Highway 20 in 7 to 8 years.

Monitoring of traffic counts at all intersections should be carried out at regular intervals so that as soon as signals are warranted they can be scheduled for installation.

The possibility of providing a roadway link between 53rd and 35th Streets was considered in the 1977 transportation study by Wilber Smith & Associates. This link proved rather ineffective in reducing traffic on 53rd and also on Harrison Boulevard and therefore, need not be seriously considered in the future. However, if OP-2 or OP-3 is implemented and constructed, and at some date in the future the SPTC abandons their tracks due to loss of business in the area, then

Table 3
KEY TO FIGURES 8 THROUGH 15

Figure No.	Name of Study	Assumptions-Comments
8	TPM, 1980	None of five proposed high-tech developments in immediate area included; based on fairly high growth rate.
9	CTP, 1983	None of five proposed developments included; assumed about a 35 percent lower growth rate than TPM, 1980.
10	OSU/Heritage	Includes OSU/Heritage, McKee, and Sunset Research Park research technical centers (RTC) at 50-percent development; estimated to occur in 1992.
11	OSU/Heritage	Includes ultimate population assumptions for OSU/Heritage, McKee, Sunset Research Park, State Federal, and OSU Brooklane developments.
12	OSU/Heritage	Includes RTC development at Sunset Research Park and State Federal and light industrial employment in north and south Corvallis.
13	OSU/Heritage	Includes Sunset and McKee RTC's with light industrial employment in north and south Corvallis; also multifamily residential subdivision on State Federal property.
14	OSU/Heritage	Includes OSU/Heritage, Sunset and State Federal property.
15	OSU/Heritage	Includes OSU Heritage, Sunset, McKee, and State Federal developments.

some consideration could be made to develop the right-of-way into a connecting roadway link between 53rd and 35th Streets. The railroad (SPTC) certainly does not contemplate abandoning their line and there has been planning for an inland port at Toledo. If the Toledo port materializes, then the railroad's traffic would expect to increase, thus providing more justification for a separation.

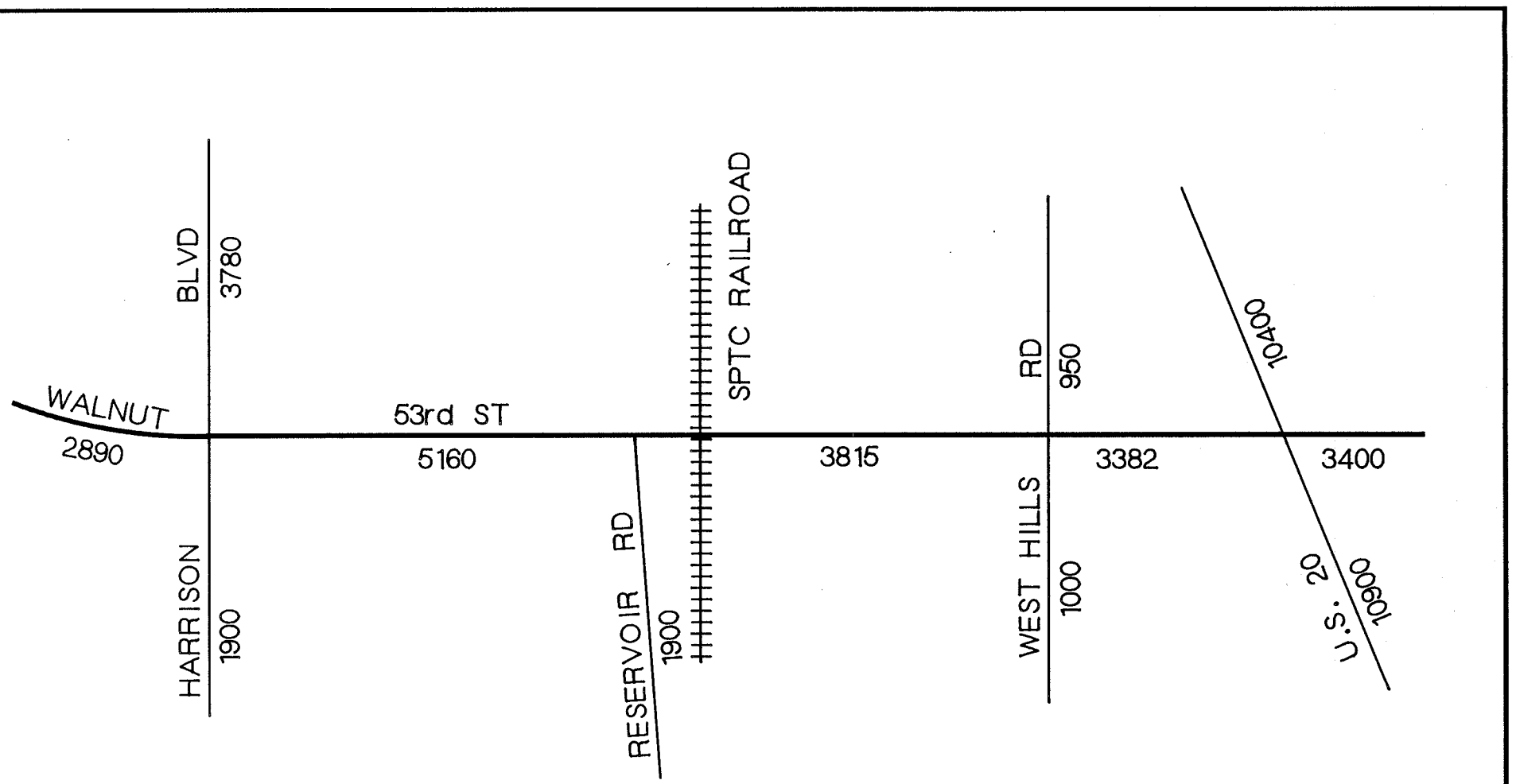
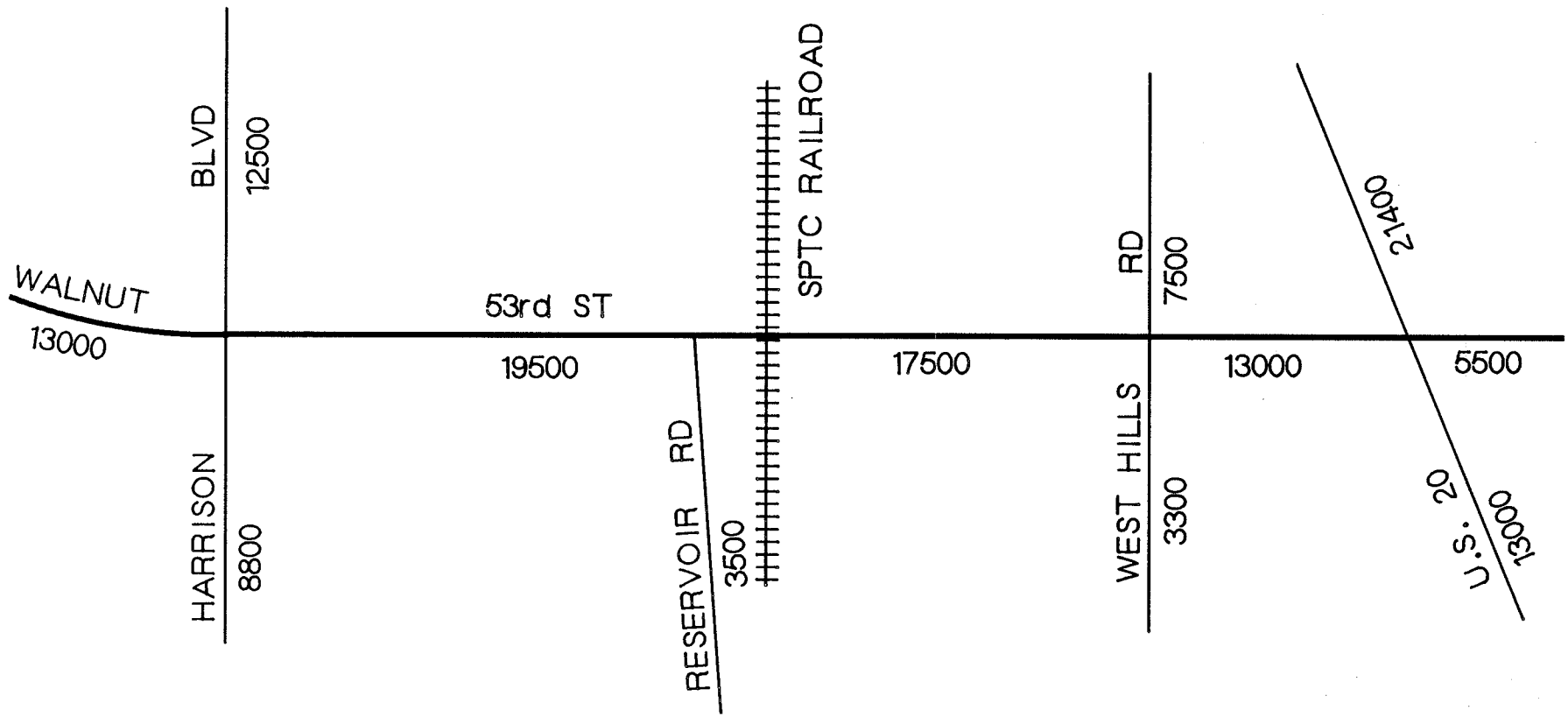


FIGURE-7

YEAR 1985 TRAFFIC (ADT)

MAY 1985
C19337.A0

CH2M HILL



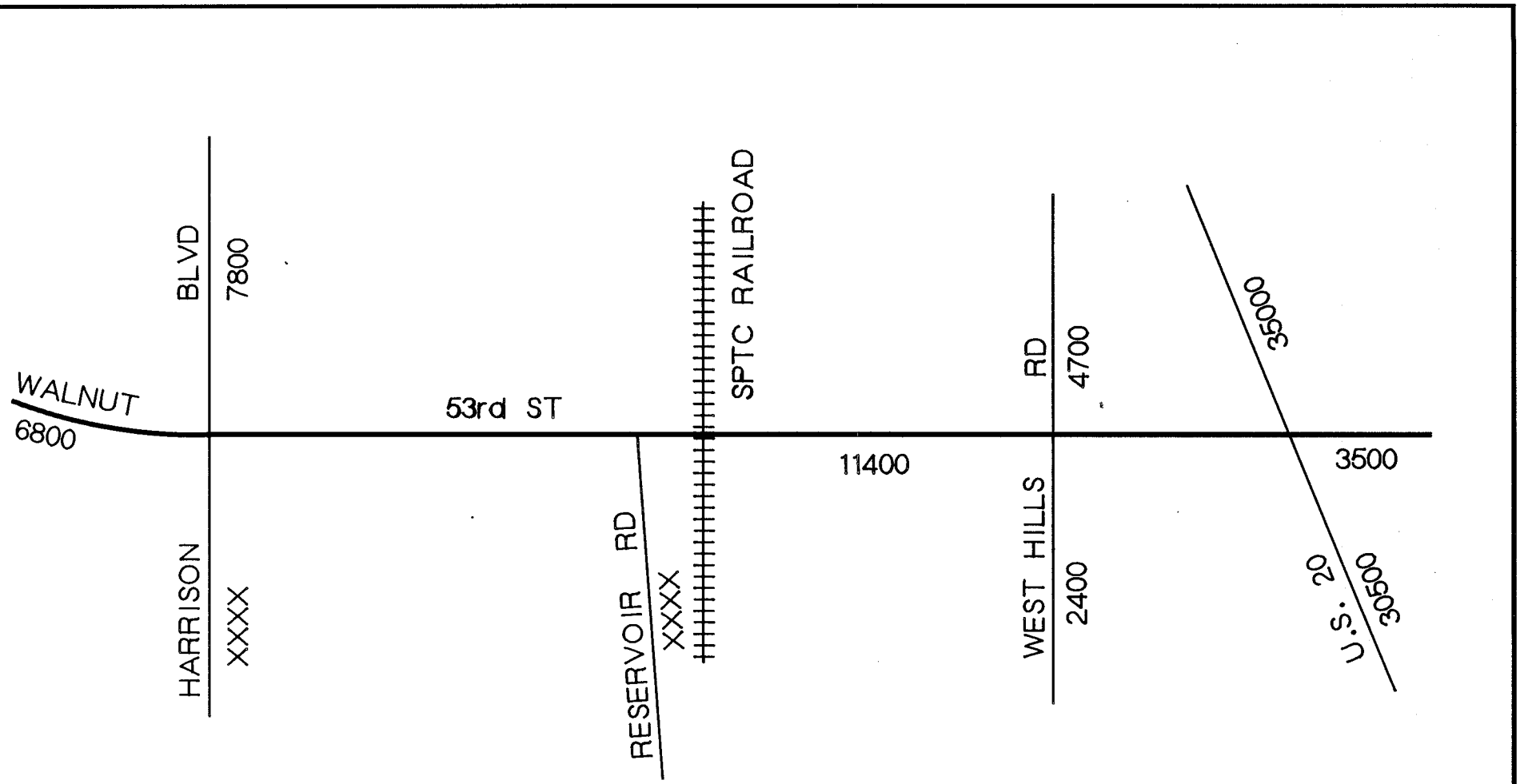
SOURCE: TMP, 1980 STUDY

FIGURE-8

YEAR 2000 TRAFFIC (ADT)

MAY 1985
C19337.A0

CH2M HILL

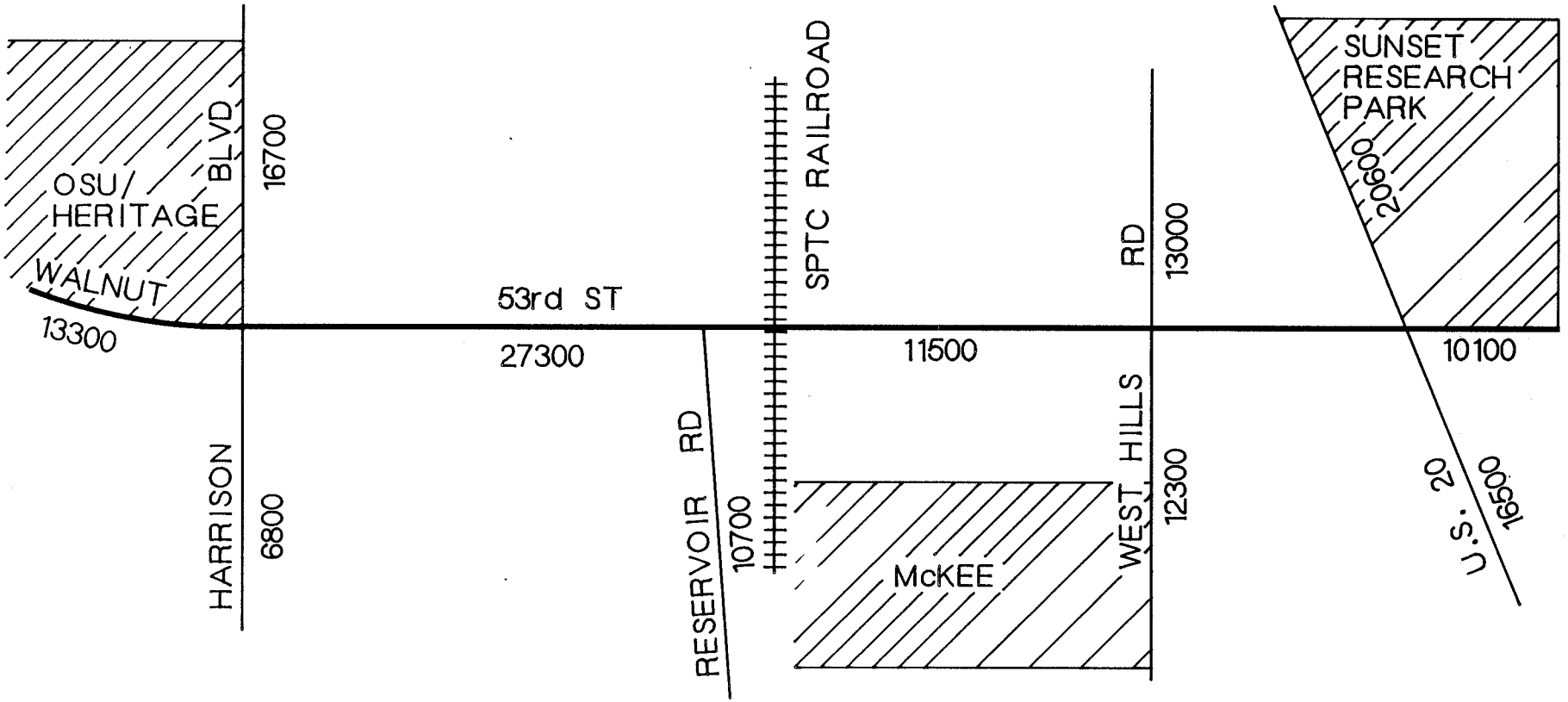


SOURCE: CORVALLIS TRANSPORTATION PLAN, 1983

FIGURE-9

YEAR 2000 TRAFFIC (ADT)

MAY 1985
C19337.A0



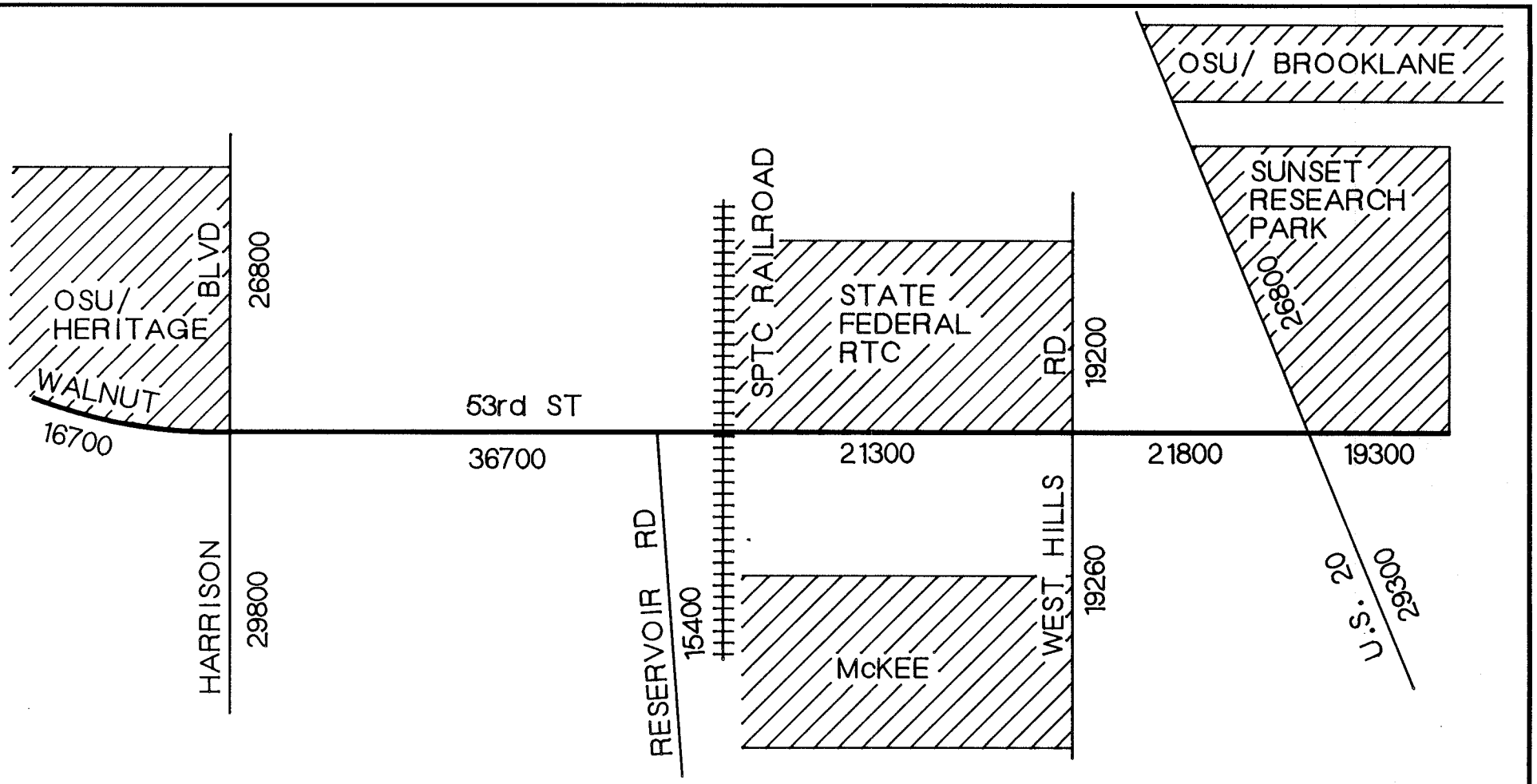
SOURCE: OSU/ HERITAGE, 1983 REPORT
DESCRIPTION: MID YEAR POPULATION OF OSU/ HERITAGE, McKEE AND SUNSET RTC'S.

FIGURE-10

YEAR 1992 TRAFFIC (ADT)

MAY 1985
C19337.A0

CH2MHILL



SOURCE: OSU/ HERITAGE, 1983 REPORT
DESCRIPTION: ULTIMATE POPULATION OF OSU/ HERITAGE, STATE FEDERAL McKEE, SUNSET AND OSU/ BROOKLANE RTC'S.

FIGURE-11

YEAR 2000 TRAFFIC (ADT)

MAY 1985
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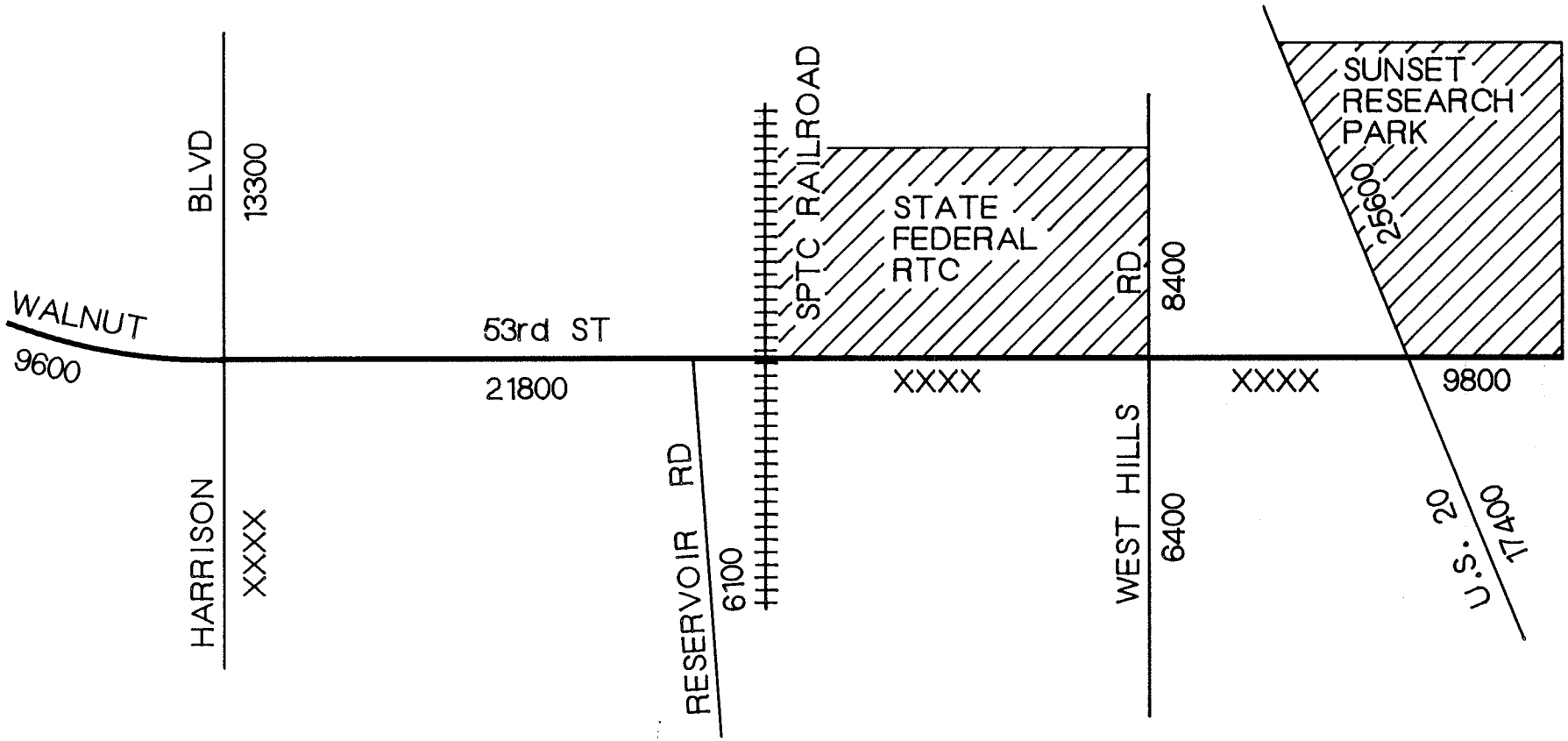
CH2MHILL



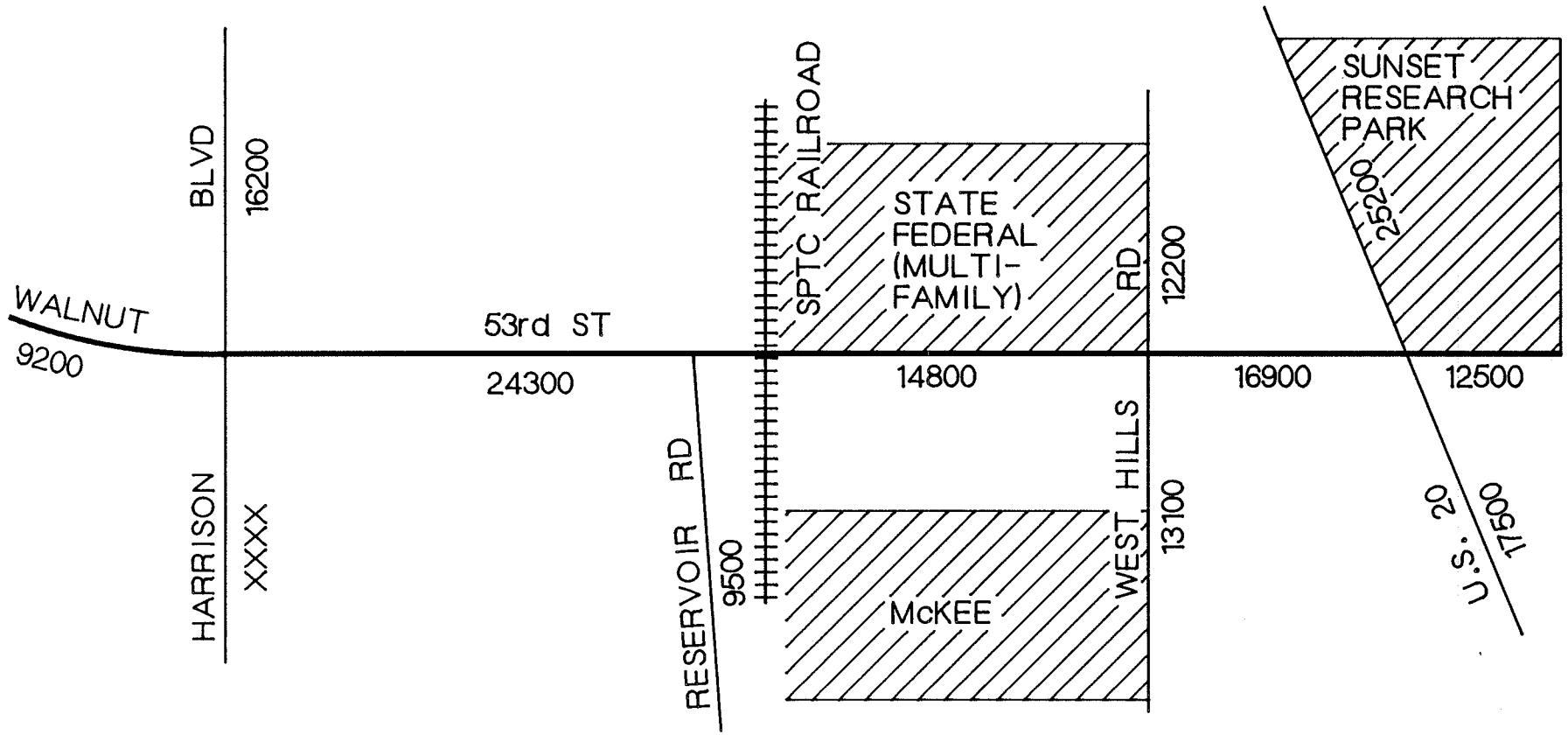
SOURCE: OSU/ HERITAGE, 1983 STUDY
DESCRIPTION: ULTIMATE POPULATION STATE FEDERAL AND SUNSET RTC'S AND LIGHT INDUSTRIAL EMPLOYMENT IN NORTH AND SOUTH CORVALLIS.

FIGURE-12

YEAR 2000 TRAFFIC (ADT)

MAY 1986
C19337.A0

CH2M HILL



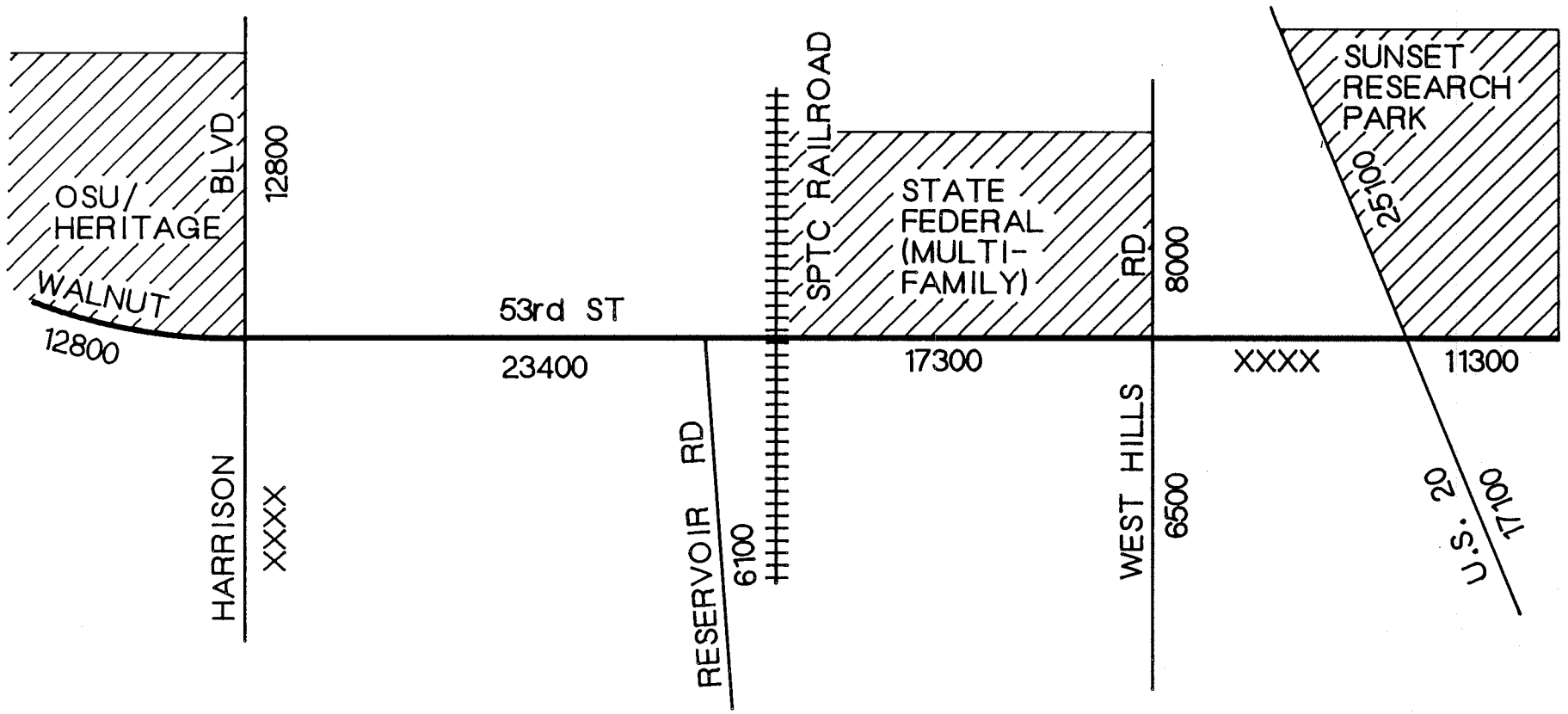
SOURCE: OSU/ HERITAGE, 1983 STUDY
DESCRIPTION: ULTIMATE POPULATION OF SUNSET, AND McKEE RTC'S AND STATE FEDERAL AS A MULTI-FAMILY RESIDENTIAL WITH LIGHT INDUSTRIAL EMPLOYMENT IN NORTH AND SOUTH CORVALLIS.

FIGURE-13

YEAR 2000 TRAFFIC (ADT)

MAY 1985
C19337.A0

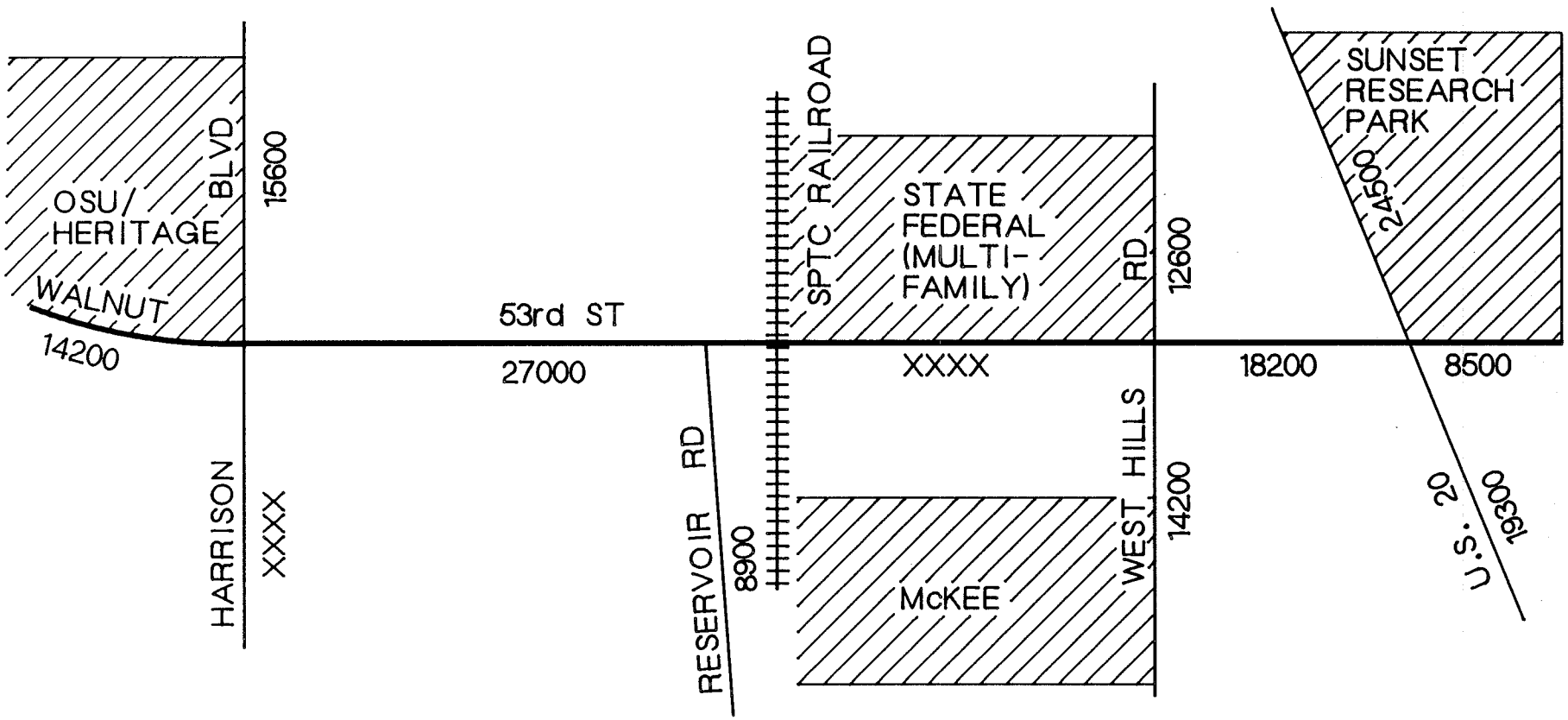
CH2M HILL



SOURCE: OSU/ HERITAGE, 1983 STUDY
DESCRIPTION: ULTIMATE POPULATION OF SUNSET AND OSU/ HERITAGE RTC'S AND STATE FEDERAL AS MULTI-FAMILY RESIDENTIAL WITH LIGHT INDUSTRIAL EMPLOYMENT IN NORTH AND SOUTH CORVALLIS.

FIGURE-14
YEAR 2000 TRAFFIC (ADT)
MAY 1985
C19337.A0

CH2M HILL



SOURCE: OSU/ HERITAGE, 1983 STUDY
DESCRIPTION: ULTIMATE POPULATION OF SUNSET, McKEE AND OSU/ HERITAGE RTC'S AND STATE FEDERAL AS MULTI-FAMILY RESIDENTIAL WITH LIGHT INDUSTRIAL EMPLOYMENT IN NORTH AND SOUTH CORVALLIS.

FIGURE-15

YEAR 2000 TRAFFIC (ADT)

MAY 1985
C19337.A0

CH2MHILL

SECTION 8

FUNDING

Section 8
FUNDING

There is no single source of funding for this project. Therefore, it is recommended that the County aggressively pursue all state and federal programs in which 53rd Street might qualify.

In March 1985, a joint application by Benton County and the City of Corvallis was made to the state for federal aid funds (HBR bridge replacement) to replace the existing 53rd Street underpass structure.

The state's response basically stated that the structure does not qualify under HBR funds since it is under SPTC's jurisdiction. (See letter in appendix.) The state's letter indicated that the City/County could apply for other sources of funding, including FAS, HES (both through the state), and railroad protection funds through PUC.

Other remote but possible funding sources relating to the railroad crossings would be federal funds from the rail-highway crossing improvements (Section 203 of the highway safety programs included in Title II of P.L. 95-599). The program provides categories of assistance for elimination of rail-highway crossing hazards, both on and off the federal highway system facilities, and authorizes about $150 million per year nationwide. One-half of the amount must be spent for installation of protective devices at railway-highway at-grade crossings. The federal share of project funding is normally 90 percent. Oregon's annual apportionment would be quite small.

Some funds may be secured from SPTC since the project improvement would be to their benefit from both a liability and a maintenance standpoint. It can only be reasonably assumed that the amount would be a small percentage of the cost of separation only. Their policy in this area has been to participate up to 5 percent of the cost where an at-grade crossing is upgraded to a separation. In this case where a separation is replaced with a separation, they have no policy and the amount, if any, would have to be negotiated with SPTC management.

Some of the County's FAS funds (currently at approximately $180,000 per year) could be dedicated to the project; but, to obligate these funds, definite pieces of construction would have to be identified and placed under construction during that particular year resulting in a piecemeal project development approach. Another County program that could add to the FAS funding is revenue sharing funds (presently at approximately $225,000 per year). It was assumed that

$80,000 per year from the FAS funds and $40,000 from revenue sharing could be allocated to the 53rd Street project. This assumes that the federal revenue sharing program will continue.

Economic development grants from both state and federal levels should be pursued. Some of the revenues from the new state lottery will be made available to economic development projects, of which the 53rd Street project should be a prime prospect because of the planned development. The federal programs include Housing and Urban Development block grants and EDA grants. Both the County and City have the ability to issue bonds and create Local Improvement Districts, which are possibilities, and it was assumed that the largest bulk of funds would be generated by this source.

Other sources of funding that need to be pursued are funds from future developments affecting the corridor, such as OSU/Heritage, McKee, State Federal, and Sunset Research Park, the developers have a financial responsibility to help improve the roadway network serving their developments. A county gas tax is another possibility in a few years but the recent decision by the County voters to not impose this tax makes it an improbable source at this time.

Assuming that all work should be accomplished over the 10-year period (1985-1995), the funding sources and amounts shown in Table 4 may be reasonably expected if all funding possibilities are aggressively pursued.

Table 4
FUNDING SOURCES AND POSSIBLE AMOUNTS

Source	Alternative AG-1 (7-year)	Alternative OP-2 (8-year)	Alternative OP-3 (10-year)	Alternative UP-4 (10-year)
Federal Aid Sec. (FAS)	$ 560,000	$ 640,000	$ 800,000	$ 800,000
County revenue sharing	280,000	320,000	400,000	400,000
Capital improvement revenue (bonds and LID's)	1,200,000	1,885,000	2,310,000	2,110,000
SPTC	--	50,000	50,000	50,000
Economic development grants	200,000	225,000	250,000	250,000
State grade crossing (PUC)	10,000	10,000	10,000	10,000
Federal grade crossing funds	10,000	50,000	50,000	50,000
Other (County gas tax, developers, etc.)	240,000	520,000	630,000	530,000
	$2,500,000	$3,700,000	$4,500,000	$4,200,000

CVR9/055

SECTION 9

PROJECT IMPLEMENTATION

Section 9
IMPLEMENTATION

Implementation of the 53rd Street improvements should start immediately. The alternate should be selected. Design should be completed and required right-of-way purchased.

Funding cannot be accurately predicted; therefore, development of the 53rd Street corridor will probably have to be developed in stages as funds become available. The implementation schedule shown on Figures 16 through 19 have taken into account that the project will have to be contracted in segments and extend over a 7- to 10-year duration. Ample construction time was allowed for each segment so that two or three contracts could be let for each segment depending on funding availability.

The highest priority should be to correct the hazardous condition existing at the railroad bridge. Therefore, the implementation schedules were developed with this in mind.

CVR9/056

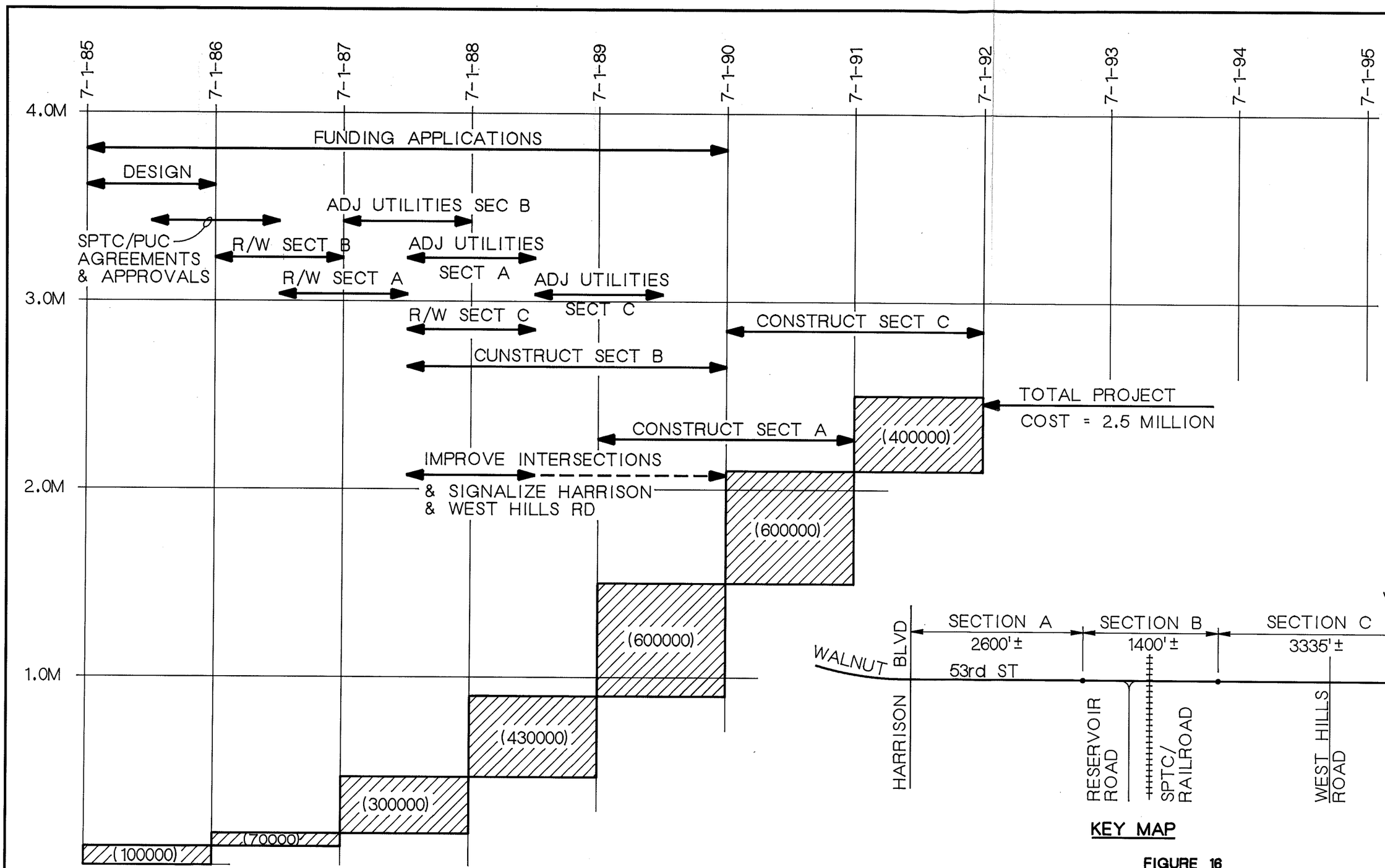


FIGURE 16
IMPLEMENTATION SCHEDULE
53rd ST CORRIDOR
ALTERNATIVE AG-1
MAY 1985
C19337.A0

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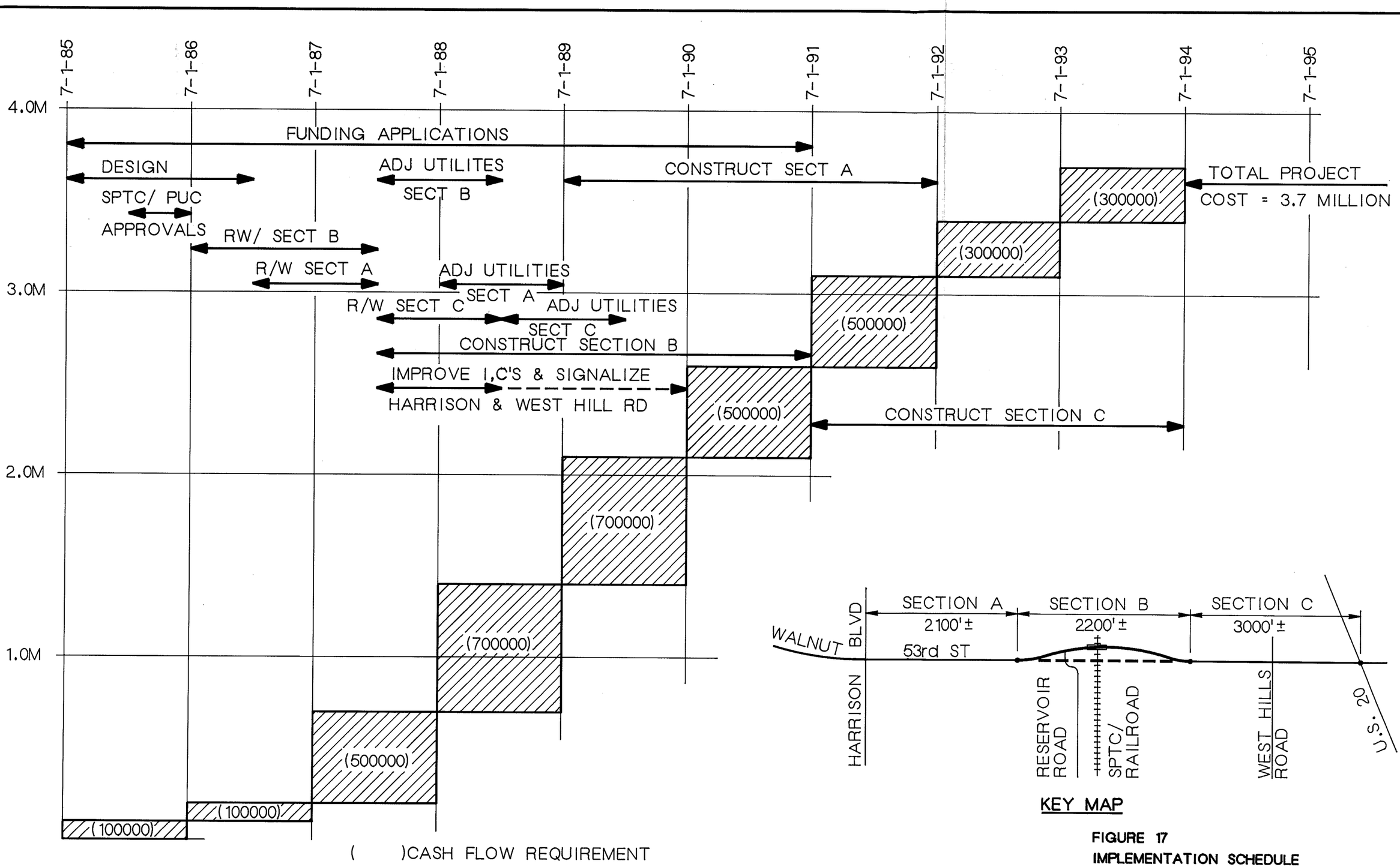


KEY MAP

FIGURE 17

IMPLEMENTATION SCHEDULE
53rd ST CORRIDOR
ALTERNATIVE OP-2

MAY 1985
C19337.A0

CH2M HILL

7-1-85
7-1-86
7-1-87
7-1-88
7-1-89
7-1-90
7-1-91
7-1-92
7-1-93
7-1-94
7-1-95

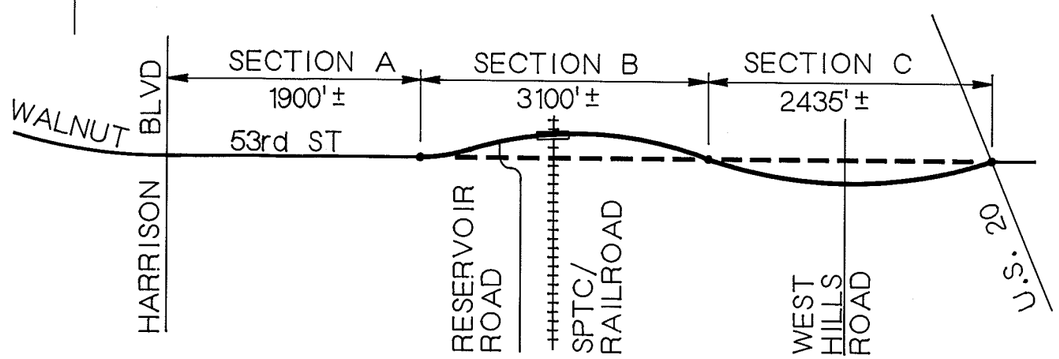
4.0M
3.0M
2.0M
1.0M

FUNDING APPLICATIONS
DESIGN
SPTC/ PUC APPROVALS
RW/ SECT B
R/W SECT A
ADJ UTILITIES SECT B
CONSTRUCT SECTION B
IMPROVE I,C'S & SIGNALIZE HARRISON & WEST HILL RD
R/W SECT C
ADJ UTILITIES SECT A
ADJ UTILITIES SECT C
CONSTRUCT SECTION A
CONSTRUCT SECTION C

(100000)
(100000)
(500000)
(750000)
(750000)
(700000)
(700000)
(400000)
(300000)
(200000)

( ) CASH FLOW REQUIREMENTS

TOTAL PROJECT COST = 4.5 MILLION



KEY MAP

FIGURE 18
IMPLEMENTATION SCHEDULE
53rd ST CORRIDOR
ALTERNATIVE OP-3
MAY 1985
C19337.A0

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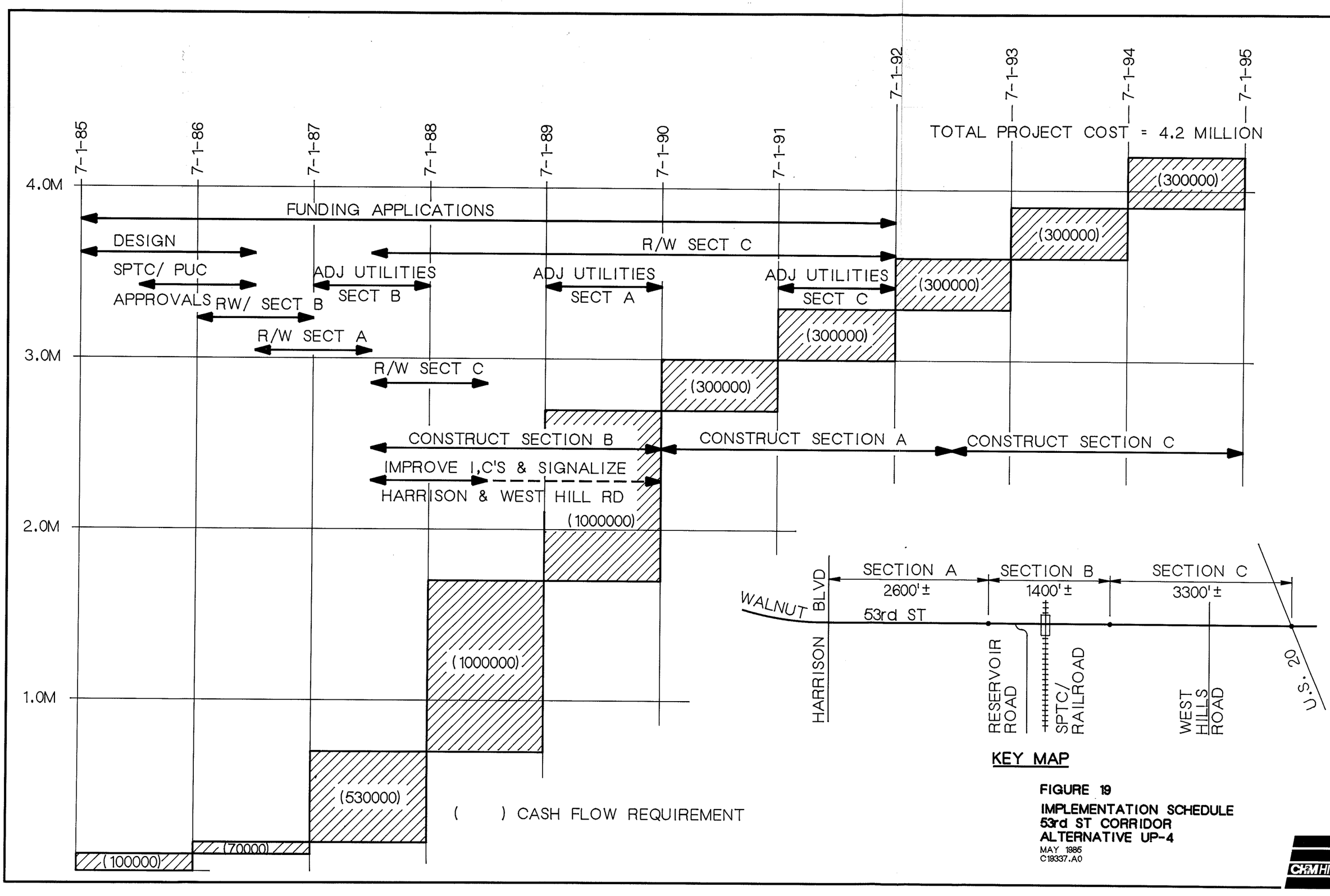


FIGURE 19
IMPLEMENTATION SCHEDULE
53rd ST CORRIDOR
ALTERNATIVE UP-4
MAY 1985
C19337.A0

APPENDIX A

TRANSPORTATION PLANNING AND MANAGEMENT, INC.
8200 N.W. Chaparral Drive
Corvallis, Oregon 97330
(503) 754-8248

C108-3
21 May 1982

Mr. James E. Blair,PE
Director of Public Works
Benton County
360 SW Avery Avenue
Corvallis, Oregon 97333

Dear Jim:

Subject: 53rd Street Railroad Crossing Evaluation Report

We are pleased to submit this Evaluation Report on our study of the 53rd Street Crossing at the Southern Pacific Railroad. Traffic impacts, costs, accident potential, topography, and construction problems were evaluated for an at-grade crossing and a grade separated crossing. The attached Report covers:

Background Conditions
Concept Design Plans
Design Plan Evaluation
Recommended Design Plan

Both crossing Design Plans include about 1150 feet of 53rd Street and the Reservoir Road and Cherry Avenue intersections. The at grade railroad crossing with automatic gate protection and proper traffic warning devices and associated roadway improvements will cost about $620,000 in 1982 dollars. The grade separated under crossing structure, shoo-fly, and associated roadway improvements will cost about $2,100,000. The resulting cost per vehicle for the grade separated crossing at the year 2000 is 3.4 times more costly than the at grade crossing, ie:

Crossing Type	Estimated Cost 1982 $	Traffic (UPD) year 2000	Cost Per Vehicle
At Grade	$620,000	$17,500	$35.43/vehicle
Separated	$2,100,000	$17,500	$120.00/vehicle

Again, it has been my pleasure to work with you and your staff on this Evaluation Report. Please call if I can be of further assistance.

Sincerely,

Leonard D. Schoolcraft

Leonard D. Schoolcraft
President and General Manager

LDS:mn

PW 0793/13

Evaluation Report
53rd Street Railroad Crossing
Benton County
May 1982

CONTENTS

EVALUATION REPORT: 53RD STREET RAILROAD CROSSING
BENTON COUNTY, MAY 1982

BACKGROUND CONDITIONS

A review of background conditions has provided the basis for discussion, decision, and recommendations. Such background study items include:

* Railroad Operations
* Road Traffic
* Traffic Accidents
* Topographic Features
* Previous Planning and Reports

RAILROAD OPERATIONS

The Southern Pacific Transportation Company owns the railroad right-of-way and operates rail service on the Corvallis to Toledo Branch:

Eugene to Toledo
6 days per week — 9:30am towards Toledo
4:00pm returns

Train--55 to 75 cars

Local Service to Wren
3 days per week — 1:00pm to Wren
Usually Tuesday, Thursday, Friday — 3:30pm returns

Future Schedules
No schedule changes considered at this time.

Number of Tracks
The railroad is a single track facility

Operating Speed
40 mph maximum

Trainmaster
Albany (503) 928-4875

ROAD TRAFFIC

Road Traffic on 53rd Street is about 4000 vehicles per day (VPD) at the railroad under crossing. Traffic is expected to increase to 17,500 VPD by the year 2000.

Present traffic control at the railroad is grade separated railroad crossing structure over 53rd Street. The old timber trestle has two narrow spans with a hazardous center pier on the center line of the roadway.

TRAFFIC ACCIDENTS

A separate report has been prepared for "Traffic Accidents Evaluation--53rd Street, U.S. 20 to Harrison Avenue." This report shows that 45 reported traffic accidents occurred on this portion of 53rd Street during the 6 year period 1976--1981. Twenty one (21) injury accidents insured 33 persons. Seventy six (76) motor vehicles were damaged. Three (3) bicycle accidents were reported. One pedestrian was injured.

Principle accident types were angle (13), turning (12), fixed objects (9), and rear end (7). Principle causes of traffic accidents were failed to yield (14), passed Stop (8), speed (7), and other improper driving (17).

The average daily traffic along 53rd Street is 4200 vehicles per day resulting in a 6 year accident rate of 3.29 accidents per million vehicle miles traveled. The two-year accident rate (1980-981) was 2.80. (These compare with 3.92 for Oak Creek Road; 1.78 for North Albany Road; 2.13 for Gibson Hill Road; and 5.3 for North Highland Drive).

A serious accident potential exists at the 53rd Street Railroad under crossing--a fixed object hazard (center bridge pier).

TOPOGRAPHIC FEATURES

53rd Street presently crosses under the SP railroad through a narrow (short span) timber trestle with a hazardous center pier on the roadway center line. The Sag vertical curve at the under crossing is near the Squaw Creek flow line causing considerable flooding during heavy rains.

The single track railroad is about on the roadway grade line extended North to South.

SW 53rd Street is County road number 25270 and FAS route number A505, located along the section line between Sections 4 and 5 Township 12 South, Range 5 West in Benton County. The roadway presently has a 4.8 foot shoulder and 12.4 travel lane South bound; a 7.6 foot median protective barrier at center pier; 11 foot travel lane and 4.4 foot shoulders north Bound.

The railroad crosses 53rd Street East-West at a 90° angle.

Future roadway improvements on 53rd include widening to 72 feet to accommodate 6 foot bike lanes each side, 2-12 foot travel lanes for north bound and south bound traffic and a 12 foot median left turn lane.

Squaw Creek provides drainage to the area crossing 53rd through a 40" X 65" diameter corrugated metal pipe located about 115 feet south of the railroad crossing.

Reservoir Road intersects 53rd Street from the West about 90 feet North of the railroad crossing.

Cherry Avenue provides access to a sub-division at a "T" intersection to the West about 560 feet South of the railroad crossing.

A privately owned and operated sewage treatment plant is located in the Southwest quadrant of the railroad crossing together with private property and the West Hills Terrace Sub-Division.

The Northwest quadrant contains Reservoir Road, a log pond and private property.

The Northeast quadrant is owned by a private developer.

The Southeast quadrant is OSU property.

Individual driveway access from 53rd is not encouraged.

PREVIOUS PLANNING AND REPORTS

Railroad crossing improvements planning goes back more than 25 years. A CH2M Hill report "Roadway and Traffic Safety Plan" completed in 1978 identifies the railroad underpass as a number one-high priority project. The "Transportation Management Plan" (An Element of the County Comprehensive Plan) completed in 1980 by Transportation Planning and Management, Inc. (TPM) lists the railroad crossing improvement as number one in Table IV-2, Chapter IV, page 15. The County presently carries this project on its Capital Improvement Program.

CONCEPT DESIGN PLANS

A number of design concepts were considered. The two (2) design concept plans presented in this evaluation report are: 1) An at-grade railroad crossing, and; 2) a new grade separated under crossing structure. The design plans were considered under:

* Railroad Design Features
* Roadway Design Features
* At-Grade Crossing
* Grade Separated Crossing

RAILROAD DESIGN FEATURES

Design features for railroad crossing improvements briefly include:

Grade: Changes in railroad grade are discouraged by the Southern Pacific Railroad.

Crossing Type: The PUC would like to see the improvements retained as a grade separated under crossing.

Train Operation: Daily train schedules must be maintained. A "shoo-fly" will be required for constructing a new structure.

Structure Loading: E-80 railroad loading.

Structure Width: 16 foot minimum (18 foot desired).

At Grade Protective Devices: OAR 860-42-060 Standard 4 Automatic Gate Signal, and advance traffic warning signs conforming to chapter VIII, MUTCD.

ROADWAY DESIGN FEATURES

Roadway design features for the 53rd Street corridor improvements conform to the recommendations of the Transportation Management Plan:

Design Features

1.	Right of Way	90'
2.	Bike Lanes each side	6' each
3.	Travel lanes, 2 each way	12' each
4.	Center median, left turn	12'
5.	Curb and gutter	standard
6.	Sidewalk one side	6'
7.	Parking	restricted
8.	Design speed	50 mph
9.	Stopping sight distance	450'
10.	Intersection approach grade (where permitted)	1 1/2% maximum
11.	Roadway grade	4% maximum
12.	Traffic Volumes (yr 2000)	17,500 VPD
13.	Truck traffic	less than 5%

AT-GRADE CROSSING

Figure 1 illustrates an at-grade railroad crossing design plan. The roadway approach grades are 3.25% from the South and 1.40% from the North. The principle reason for the 3.25% South approach grade is to provide access to Cherry Avenue and a reasonable driveway approach to the lots number 2703 and 2702 in the Southwest quadrant.

The roadway section for 53rd Street provides 2-12 foot travel lanes for North and South bound traffic. Six foot bike lanes are provided at each curb and a 12 foot median and left turn center lane. Left turn lanes are provided for left turns South to West at Cherry Avenue and Reservoir Road.

The right-of-way is 90 feet.

Individual driveway access is not recommended. Approved single access to Planned Unit Development is recommended.

Railroad grade crossing protection will meet the requirements of OAR 860-42-060. It is proposed to use standard No. 4, Automatic gate signals and the appropriate traffic warning signs conforming to chapter VIII of the Manual on Uniform Traffic Control Devices (MUTCD).

Earthwork for this at-grade crossing design amounts to 30,500 cubic yards. 1150 lineal feet of new roadway on 53rd Street will be necessary. Reservoir Road will be improved for a distance of about 240 feet to accommodate the at-grade crossing design. A new access driveway will be provided for lots 2702 and 2703 in the southwest quadrant.

GRADE SEPARATED CROSSING

Figure 2 illustrates a grade separated crossing with a new 53rd underpass structure. The County has prepared a preliminary design plan (1979) for a 64 span. We propose an 82 foot center span plus two spans of 22' each. The clearance from underside of structure to road surface should be 16'-0".

To maintain scheduled train service a "shoo-fly" must be constructed requiring costly easements and temporary construction features. The private sewage treatment plant will have to be relocated.

As an alternate to the "shoo-fly", the railroad could be relocated immediately South of its present alignment with transitions of about one mile each side. This feature will not be favorably received by the Southern Pacific Railroad.

DESIGN PLAN EVALUATION

To provide a basis for a recommended alternative, an evaluation of the two concept design plans is considered under:

* Preliminary Design Cost
* Cost Effectiveness (cost per vehicle)
* Funding Sources
* Evaluation summary

PRELIMINARY DESIGN COST

Construction costs in 1982 dollars are determined using certain unit prices and allowing for engineering and contingency costs.

AT-GRADE CROSSING COST ESTIMATES

Roadway section 72' with curb and gutter each side

Asphalt concrete pavement	$51.00/foot run	
Base rock and leveling course	$51.00/foot run	
Curb and gutter each side	$10.00/foot run	
Sidewalk, one side only	$8.00/foot run	
Total per foot run	$120.00	
Length of Roadway Section	1,150 feet	
Roadway Costs = 1,150 x $120.00	$138,000	

Earthwork

Volume = 30,500 cubic yards		
Assume pit run in place @ $8.00/yd.	$244,000	
Railroad Crossing	$20,000	
Railroad Crossing Automatic Protection Gate	$90,000	
Reservoir Road	$42,000	
Access Driveway	$1,500	
Subtotal		$538,500
Allow 25% for Engineering and Contingencies		81,500
TOTAL AT GRADE CROSSING		$620,000

GRADE SEPERATION STRUCTURE

3-Span Structure: 22'-82'-22' = 126'
Width = 18'
Superstructure Area = 2268 sq. ft.
Assume $200/sq. ft.

Superstructure Cost	$453,600	
Substructure and Footings	146,400	
Subtotal Structure		$600,000
Add 40% Engineering and Contingencies		$240,000
Construct Shoo-fly / or provide Alt. Alignment		$1,085,000

Roadway Improvements		
53rd Street 1000' @ $120	$120,000	
Reservoir Rd. 240' @ $85	$20,000	
Misc. and Engineering	$35,000	
Subtotal Road Improvements		$175,000
TOTAL BRIDGE ALTERNATIVE		$2,100,000

COST EFFECTIVENESS (cost per vehicle)

Preliminary design costs were computed in the previous section, summarized as:

At-Grade Crossing Design	$620,000
Grade Separated Crossing Design	$2,100,000

Traffic usage is recorded as:

Present traffic	4000 VPD
Year 2000 traffic	17,500 VPD

Traffic safety is improved by either design with greater safety provided by the grade separated crossing. To assign a dollar value to these features is not realistic. Both provide proper safety protection and are in use in the Corvallis area.

Cost effectiveness can simply be determined by the total cost of the improvement per vehicle using the crossing.

At Grade Crossing provides cost per vehicle of:

Present traffic $620,000 divided by 4000 VPD	=	$155.00/vehicle
Year 2000 traffic $620,000 divided by 17,500 VPD	=	$35.43/vehicle

Grade Separated Crossing provides cost per vehicle of:

Present traffic $2,100,000 divided by 4,000 VPD	=	$525.00/vehicle
Year 2000 traffic $2,100,000 divided by 17,500 VPD	=	$120.00/vehicle

FUNDING SOURCES

According to the Transportation Management Plan this project is to be funded from the County Capital Improvement Program for the years 1982-1983.

EVALUATION SUMMARY

The at-grade crossing at $620,000 is considerably cheaper than the bridge alternative at a cost of $2,100,000. Therefore, the cost per vehicle effectiveness of the at-grade crossing is nearly 3 1/2 times greater than the railroad bridge crossing.

RECOMMENDED DESIGN PLAN

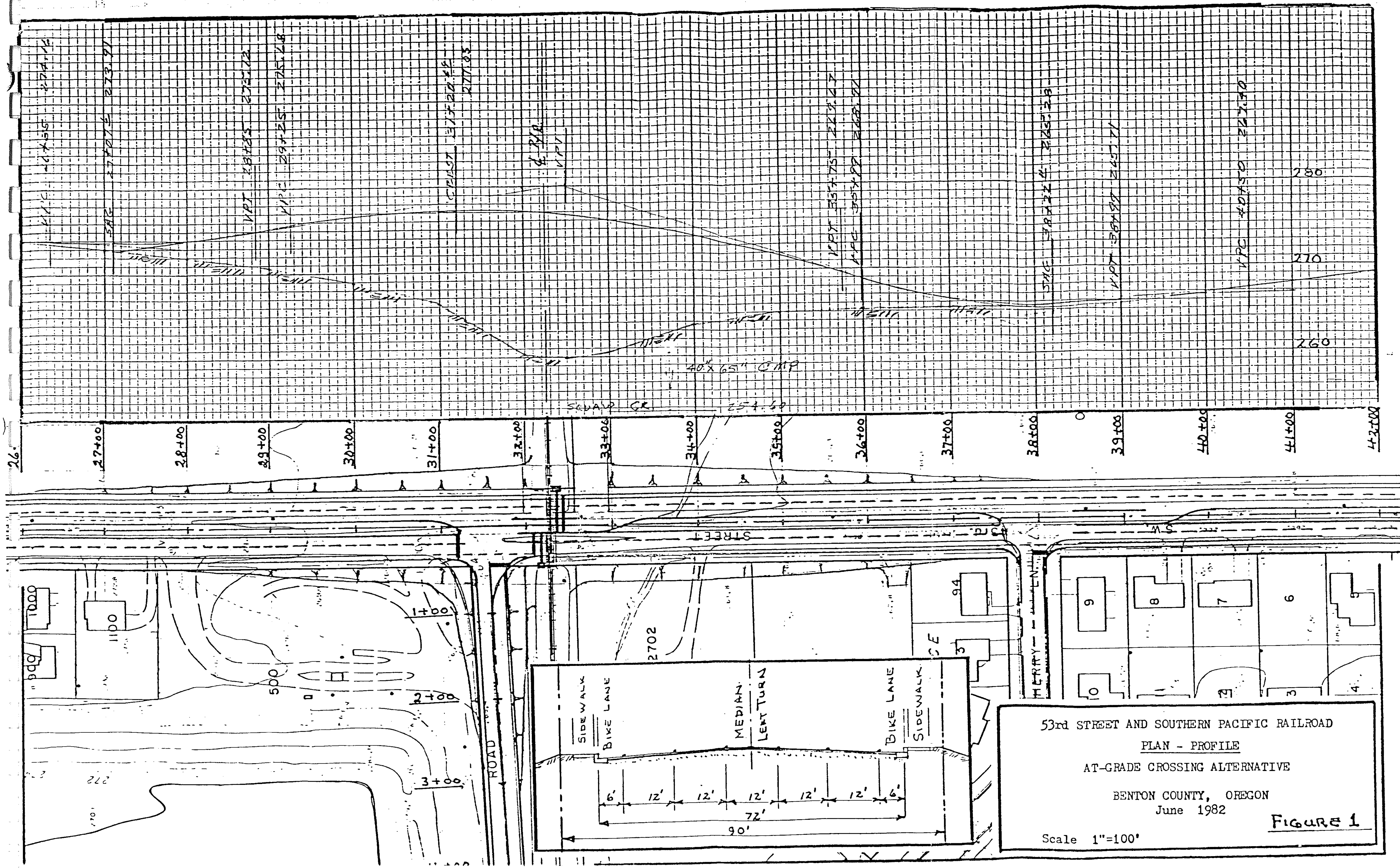
AT-GRADE RAILROAD CROSSING

Because of the 3.4 times greater cost of the Railroad bridge alternative, which represents an additional $1,480,000 cost: and because of the much increased construction problems with either the shoo-fly or a new alignment immediately South of the existing structure; and because safety protection can be properly and adequately provided to the low speed, 6 trains per day (none at peak hour) train traffic; the at-grade railroad alternative is recommended.

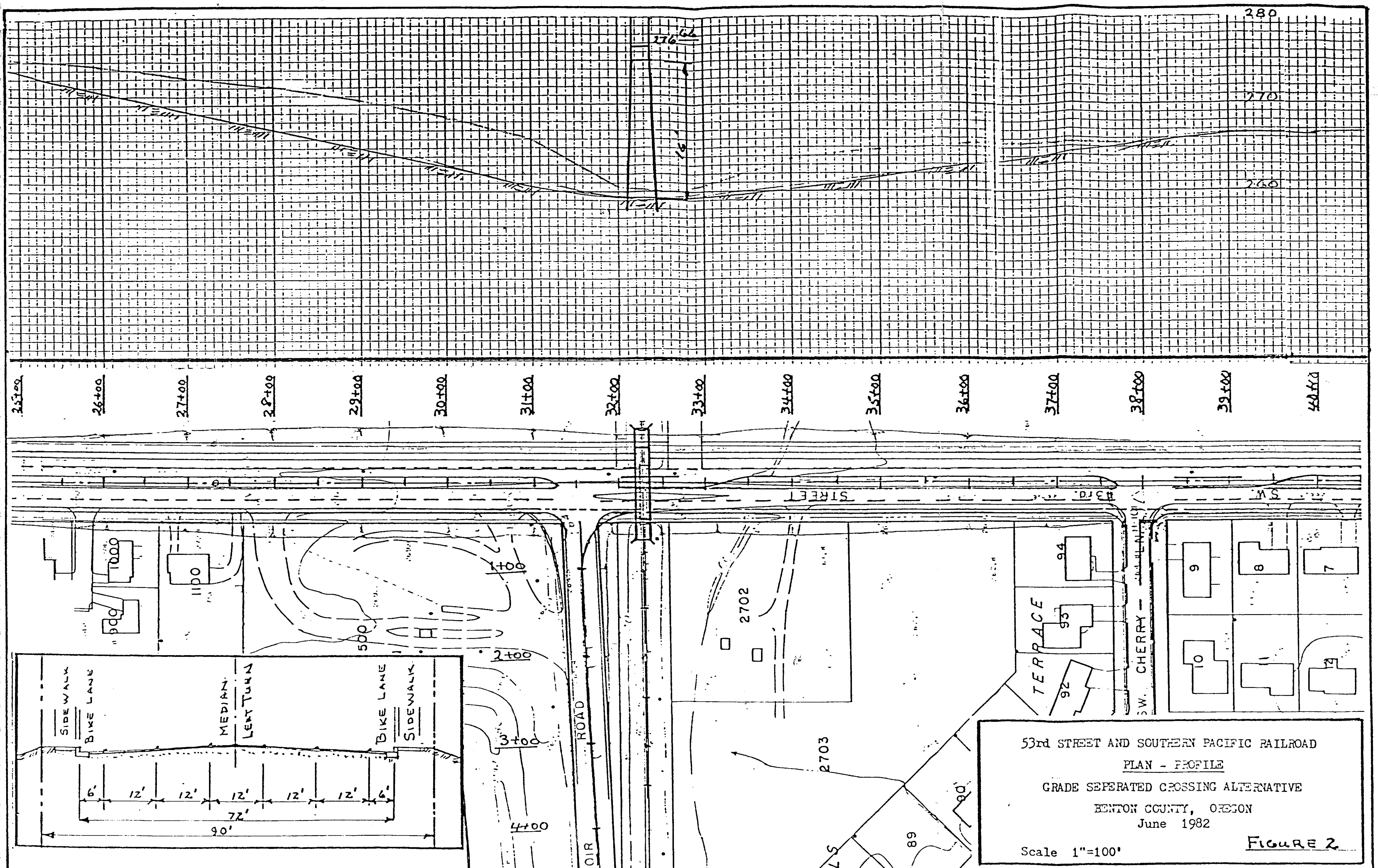
RIGHT-OF-WAY

In addition to the At-Grade crossing recommendation we further recommend that for the 53rd Street Improvement Program that you acquire additonal right-of-way as follows:

* All 10 feet on the east side of 53rd from Harrison to about 1320' north of West Hills Road.
* Transition from 10 foot take east at this point to "No-take" at the West Hills R/W line.
* Take all 10 feet on West side of 53rd from US 20 north to West Hills Road.
* Transition from a 10 foot take west of 53rd at West Hills Road to "No-take about 1320' north of West Hills Road.



280
270
260
40" x 65" CMP
SQUAW CR.
26
27+00
28+00
29+00
30+00
31+00
32+00
33+06
34+00
35+00
36+00
37+00
38+00
39+00
40+00
41+00
42+00
STREET
ROAD
1+00
2+00
3+00
1000
1100
500
2702
94
SIDEWALK
BIKE LANE
MEDIAN
LEFT TURN
BIKE LANE
SIDEWALK
6'
12'
12'
12'
12'
12'
6'
72'
90'
53rd STREET AND SOUTHERN PACIFIC RAILROAD
PLAN - PROFILE
AT-GRADE CROSSING ALTERNATIVE
BENTON COUNTY, OREGON
June 1982
Scale 1"=100'
FIGURE 1



53rd STREET AND SOUTHERN PACIFIC RAILROAD

PLAN - PROFILE

GRADE SEPERATED CROSSING ALTERNATIVE

BENTON COUNTY, OREGON

June 1982

Scale 1"=100'

FIGURE 2

APPENDIX B

EXECUTIVE SUMMARY

FINAL REPORT

OSU/HERITAGE TRAFFIC IMPACT STUDY

Corvallis, Oregon

Prepared for
PAUL GREEN AND ASSOCIATES, INC.

By

WILBUR SMITH AND ASSOCIATES
December 8, 1983

EXECUTIVE SUMMARY

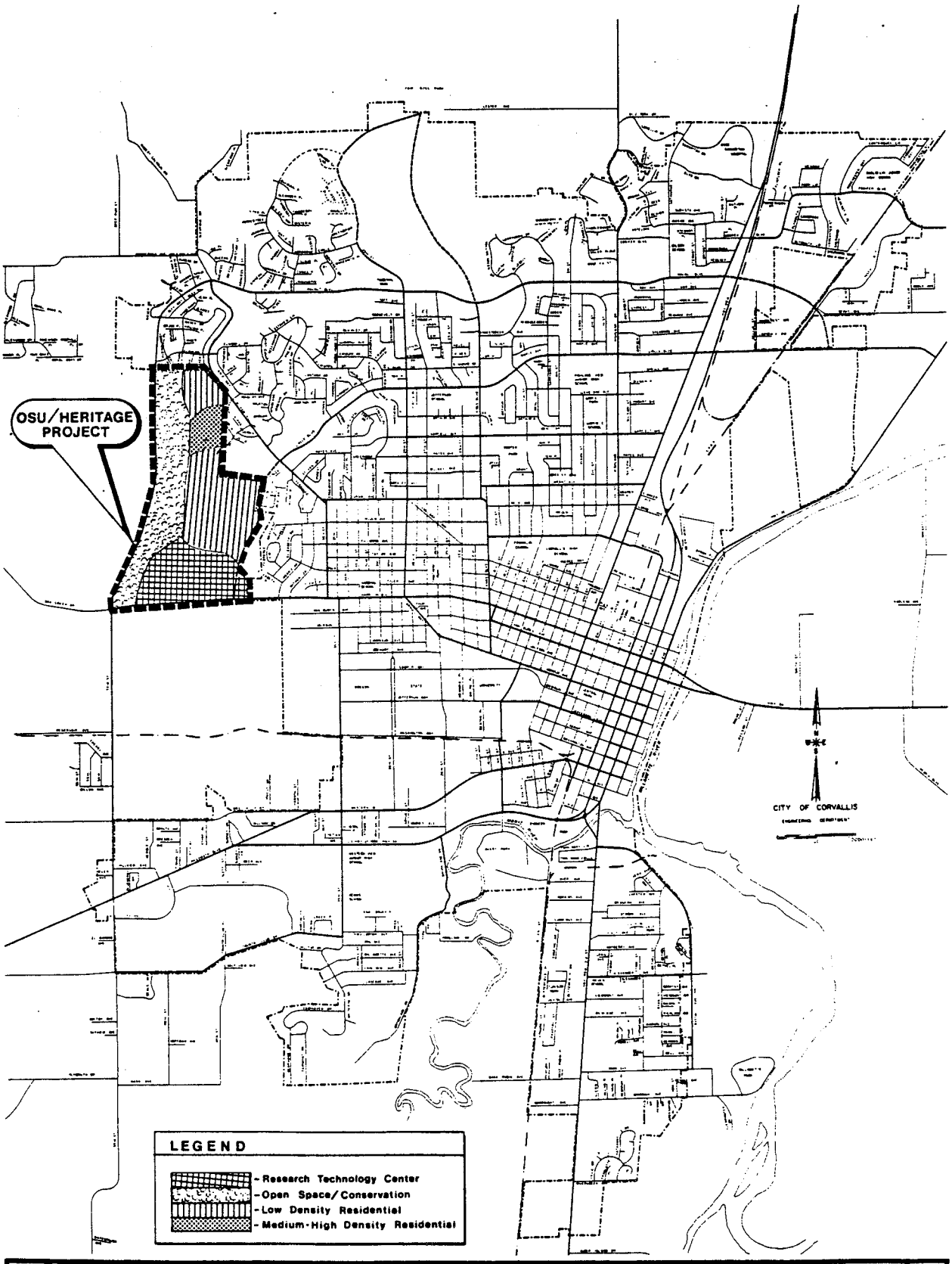
Wilbur Smith and Associates (WSA) conducted a study of the potential traffic impacts which could occur if the proposed OSU/Heritage Research Technology Center (RTC) and Residential Development is approved by the City of Corvallis and constructed. This is a summary of the purpose and scope of the traffic study, its procedures, and principal findings. Further details are available in the technical report for those interested (Wilbur Smith and Associates, 1983).

The OSU/Heritage Project

The project would include research and development uses, light manufacturing uses, and low and medium-high density residential development. Figure E-1 illustrates the study area and location of the project. A description of the project is presented below:

OSU/HERITAGE PROJECT

LAND USE	ACRES	BUILDING AREA OR DWELLING UNITS (d.u.)
Research Technology Center (RTC)	84	1,014,000 gross square feet
Low Density Residential	134	473 d.u.
Medium High Density Residential	27	462 d.u.
Open Space/Conservation	102	-



PROJECT LOCATION

OSU/HERITAGE TRAFFIC IMPACT STUDY
CORVALLIS, OREGON

Wilbur Smith and Associates

FIGURE E-1

Study Purpose

The purpose of this study was to provide the Corvallis community with answers to three fundamental questions:

1. How would local traffic conditions be affected if the OSU/Heritage was approved and built as proposed?

2. How would other proposed RTC projects affect local traffic conditions if the OSU/Heritage project were not built?

3. If the OSU/Heritage project and other proposed RTC projects were built, what changes in traffic patterns and conditions would occur, and what portion of the changes would be attributed to the OSU/Heritage project?

Of major interest were the potential traffic impacts on several local streets, including Harrison Boulevard, Circle Boulevard, Witham Hill Drive, Walnut Boulevard, 53rd Street, and the Corvallis-Newport Highway. These particular roadways were identified through review of testimony at previous public hearings regarding the project, and through a series of personal interviews with the project sponsor and members of the City's Planning and Engineering departments.

Study Scope

Three general tasks were performed.

1. Establish Existing Conditions - This task involved meetings with City staff, inventory and collection of existing traffic data, and review of recent transportaton studies performed by the City, County, and the State.

2. Define and Evaluate Potential Growth Scenarios - A total of six growth scenarios, all based on the Comprehensive Plan of the City of Corvallis, were evaluated in this study.

a. Scenario A - Mid-Year Population, which would include OSU/Heritage, McKee, and Sunset Research Park RTC developments.

b. Scenario B - Ultimate Population, which would include the above RTC projects as well as development of the designated RTC uses defined as Estate Builders and OSU Brooklane.

c. Scenario A-1 - Sunset and Estate Builders, which would include RTC development at Sunset Research Park and Estate Builders, and light industrial employment in north and south Corvallis.

d. Scenario A-2 - Sunset, McKee, Estate Builders; the Sunset and McKee RTC's would be developed and light industrial employment would be located in north and south Corvallis. In addition, Estate Builders would be built as a multi-family residential subdivision.

e. Scenario A-3 - OSU/Heritage, Sunset and Estate Builders, the same as Scenario A-2, except this OSU/Heritage project would take the place of the McKee project.

f. Scenario A-4 - OSU/Heritage, Sunset, McKee, and Estate Builders - The same as Scenario A-2, except OSU/Heritage would be added to the development scenario.

3. Evaluate Projected Traffic Conditions - Projected future planning data on population and employment, including, for each scenario, the proposed RTC projects listed above, were used in conjunction with a computer traffic model to estimate the amount of traffic associated with the OSU/Heritage project and other RTC projects that would use the local Corvallis roadways. Improvements necessary to accommodate the forecast traffic were identified in this process.

The future roadway network used included improvements to Walnut (widening by one lane and extending to Circle Boulevard), 53rd Street (widening to 5 lanes), Corvallis-Newport Highway (widening to 5 lanes), the Circle Boulevard extension, and the construction, in phases, of the Corvallis Bypass.

Conclusions

Several conclusions were drawn from the study findings. They are listed and discussed briefly below.

1. Considering the existing roadway system and travel desires, along with existing development activity, traffic will continue to grow on key roadway segments such as Walnut Boulevard, Harrison Boulevard, the Corvalllis-Newport Highway, 53rd Street, and Witham Hill Drive.

2. This study has shown that new development activity in the RTC designated zones will necessitate improvements on the above roadways. Similar improvements will be necessary with or without the OSU/Heritage project.

3. The OSU/Heritage project sponsor plans to construct,

and pay for, substantial roadway improvements, which will improve future traffic conditions in Corvallis by releasing pressure from other local roadways. Committed improvements include:

- o widening Harrison, west of Circle, to accommodate new left turn lanes at Walnut and Circle;
- o extending Circle Boulevard from Witham Hill to Harrison;
- o Constructing Wildwood Drive, which would connect Circle and Walnut; and,
- o constructing left turn lanes on Circle and Walnut at Wildwood Drive.

4. The OSU/Heritage project, under full development, would generate approximately 15,600 daily trips, as listed below:

   - RTC: 6,600 daily trips
   - Residential Development: 9,000 daily trips.

5. Full development of the OSU/Heritage RTC would occur over at least 8 years; the residential development would take about 13 years. Therefore, traffic impacts would be felt gradually instead of "overnight."

6. The OSU/Heritage project would, along with other local growth, increase traffic levels on local streets. The projected average daily traffic volumes on local roadways under each scenarios are presented in Table E-1.

7. Under any development scenario, vehicles would experience delays during the peak periods in crossing or turning onto the following streets:

Table E-1

PROJECTED AVERAGE DAILY TRAFFIC LEVELS
UNDER SIX DEVELOPMENT SCENARIOS
OSU/Heritage Traffic Impact Study

ROADWAY SEGMENT	AVERAGE DAILY TRAFFIC VOLUME						
	Existing	Future Under Scenario:					
		A	B	A-1	A-2	A-3	A-4
Walnut Boulevard							
Wildwood Drive to Harrison	2,900	13,300	16,700	9,600	9,600	12,800	14,200
53rd Street							
Harrison to Reservoir	5,600	27,300	36,700	21,800	24,300	23,400	27,000
Harrison Boulevard							
53rd to Circle	3,800	16,700	26,800	13,300	16,200	13,800	15,600
36th to 29th	9,600	13,800	18,700	11,400	13,200	14,100	13,900
Circle Boulevard							
Harrison to Project	-	10,900	15,200	7,500	8,000	9,200	11,000
Dale to Witham Hill	-	9,400	11,300	8,700	9,200	9,000	10,400
Witham Hill							
Omega to Grant	3,200	12,000	13,600	10,500	14,700	18,000	16,300

Source: Wilbur Smith and Associates, 1983. Existing traffic volumes from City of Corvallis, 1983.

- o Harrison, between 36th and 29th;
- o Witham Hill, at Circle Boulevard;
- o Reservoir Road at West Hills Road;
- o Circle Boulevard, at the project driveway (Wildwood Drive); and
- o Walnut Boulevard, at Wildwood Drive.

The delay would be slightly worse then is now experienced in turning left onto Harrison Boulevard from 30th or 35th Streets. On Harrison, through traffic would experience some added delay due to the intersection at 29th Street.

8. Vehicles using the following intersections would experience delay, during the peak periods, under any development scenario:

   - o Harrison at Circle; vehicles exiting from Circle would experience turning delays;
   - o 53rd/Walnut at Harrison; traffic would back up due to heavier volumes;
   - o 53rd at Reservior; similar to Harrison delays;
   - o 53rd at Corvallis/Newport Highway; left turning vehicles would experience increased delay, and may have to wait through more than one signal cycle to clear the intersection.

9. The following improvements would be necessary to mitigate project impacts:

   - o Wildwood Drive at Circle and Walnut Boulevards:

- right turn lanes - southbound Circle and northbound Walnut;

- left turn lanes - northbound Circle and southbound Walnut;

- right and left turn lanes - Wildwood Drive;

o Harrison Boulevard and Circle Boulevard:

- signalize, widen to accommodate a left turn lane on Harrison.

o Harrison at Walnut

- add westbound left turn lane.

These improvements would improve traffic conditions to a point whereby left turning vehicles would experience minor to moderate delays.

10. Improvements at the following intersections would be necessary to accommodate traffic increases associated with future RTC developments and OSU/Heritage, if full development of these projects occurs:

o 53rd/Walnut at Harrison

- signalize

- add southbound through lane;

o Circle and Witham Hill

- signalize.

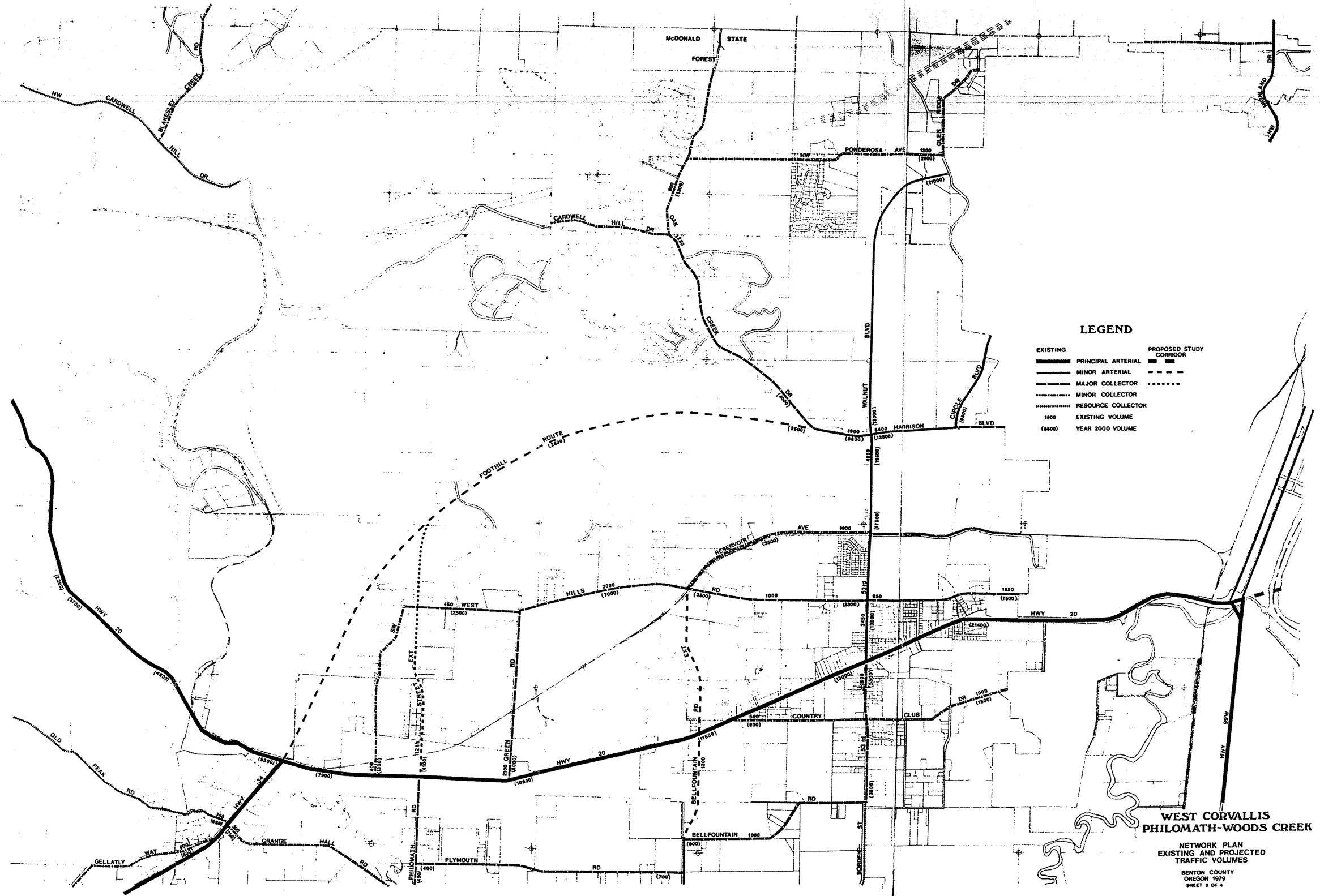
Traffic will back up, but will quickly clear with these improvements.

11. The magnitude and time frame of traffic growth and consequent improvement needs will depend upon the level of development which occurs. Again, this development would occur over many years.

12. The implementation, by the project sponsor, of strategies to reduce the number of employee vehicles destined for the project site could reduce peak hour traffic levels significantly, depending upon the strategies used. Such strategies include staggered work hours, carpool and vanpool programs, and incentives to use bicycles and other alternatives to the automobile. Incentives could include among others secure, covered bicycle parking areas, and shower/locker facilities for bicyclists and joggers.

13. The large employment concentrations which would result from RTC development could create additional demand for transit. Increased transit use by employees could reduce peak hour traffic impacts of the RTC projects.

APPENDIX C



WEST CORVALLIS PHILOMATH-WOODS CREEK

NETWORK PLAN
EXISTING AND PROJECTED
TRAFFIC VOLUMES

BENTON COUNTY
OREGON 1979
SHEET 3 OF 4

TABLE IV-2

EXISTING CORRIDOR ROUTE IMPROVEMENT PROJECTS
URBAN FRINGE AREAS
Benton County, Oregon 1980

Project	Road Number	Type of Improvement	Priority Rating	Cost Effectiveness *	Funding Source	Estimated Construction Cost 1980 $	Proposed Construction Schedule ($1,000's) 1981	1982	1983	1984	1985	Beyond
S.W. 53rd Street Railroad over-crossing structure	25270	Railroad overcrossing of 53rd Street to accommodate a 64 foot minimum roadway	51		C.I.P.**	$1,800,000		1000	1295			
S.W. 53rd Street M.P. 0.00 to M.P. 1.40	25270	Roadway widening to 4 lanes and 2-way left turn lane, 6' gravel shoulders, drainage ditch relocation and 8' bike path.	51		C.I.P.	$ 531,000				780		
Highland Drive M.P. 0.00 to M.P. 1.58	15350	Overall roadway widening 2 feet of paving on west side outside of fog line for safety, add 4' gravel shoulder west side, ditch relocation, left turn bay at Crescent Valley Drive, channelization at Lewisburg, and replacement of timber bridges at Frazier Creek and Jackson Creek.	50		C.I.P.	$ 175,000	195					
North Albany Road M.P. 0.00 to M.P. 1.05	14400	1.05 miles of 4 travel lanes and 2-way left turn lane, curbs and gutters, side-walks, A.C. paving and 8' separated bike path.	46		C.I.P.	$ 793,000				550	670	
Oak Creek Drive M.P. 0.00 to M.P. 1.92	15500	Roadway widening, shoulder widening to 5', 5' bike lane, drainage ditch relocation, replace two timber bridges.	43		C.I.P.	$ 263,000	290					
Springhill Drive M.P. 0.00 to M.P. 5.01	13470	1.21 miles of 4 travel lanes and 2-way left turn lane, curbs and gutters, side-walks, A.C. overlay and 8' bike path. 3.80 miles of shoulder widening to 5' ditch relocation and A.C. overlay of roadway	40		C.I.P.	$1,204,000					1000	1030
Highland Drive M.P. 1.58 to M.P. 2.23	15350	"S" curve realignment and widening to 4 lanes, relocate bike path.	37		C.I.P.	$ 750,000						140
Lewisburg Road M.P. 0.00 to M.P. 0.98	15360	Roadway travel lane widening and 2' paved shoulders, left turn bays at Mt. View Drive and at Highland, channelization at Hwy. 99W.	33		C.I.P.	$ 211,000						400
					TOTAL 1980	$ 5,727,000	485	1,000	1,295	1,330	1,670	1,570
					TOTAL C.I.P. - 10 Year Period				$7,350,000			

* Cost Effectiveness is a function calculated annually by the Director of Public Works.

** C.I.P. - Capital Improvement Program

TABLE II-1

DESIGN FEATURES FOR URBAN ROADWAYS
Benton County, Oregon 1980

Design Features	Arterial	Low Volume Arterial [4]	Major Collector	Minor Collector	Local
Right-of-way [1]	80'-100'	80'	60'-70'	60'	50'-60'
Travel Lane Width [2]	12'-14'	12'-14'	12'-14'	12'-14'	9'-10'
Shoulder or Curb	Std. C & G	2'Paved + 2' Gravel	Std. C & G	Std. C & G	Std. C & G
Left Turn Lane Width	12'	12'	12'	12'	- - -
Number of Travel Lanes	4	2	2	2	2
Parking, on street	Prohibit	Prohibit	Prohibit	Discourage	One or Both Sides
RECOMMENDED STANDARDS					
Design Speed (MPH)	50	50	45	30	30
Minimum Curve Radius	800'	800'	600'	275'	250'
Stopping Sight Distance	450'	450'	350'	250'	250'
Maximum Grade	4-6%	5-8%	10%	10%	15%
Sidewalk or Bike Lane Width	6'-Sidewalks 5' Lanes	--- 5'Lanes [3]	6'-Sidewalks 4' Lanes	5'-Sidewalks 4'Lanes	5'-Sidewalks -----

[1] Right-of-Way provides flexibility for the addition of bikeways.

[2] The 14' lane width applies to a lane adjacent to a curb.

[3] Class I separated bike path along arterials where feasible, 8 feet wide.

[4] Projected traffic volumes less than 700 vehicles per day.

TABLE III-2

IMPROVEMENT PROJECT PRIORITY ASSIGNMENT
Benton County, Oregon 1980

Location	Road Number	Traffic Safety				Transportation Mobility		General Plan Conformance		Priority Rating Total
		Traffic Accidents	Accident Severity	Roadside Improvements	Roadway Improvements	Traffic Volumes	Roadway Improvements	Functional Classification	Public Transit Considerations	
S.W. 53rd Street - Harrison Boulevard to Hwy. 20-34	25270	16	10	6	2	10	4	3	0	51
Railroad Overcrossing - 53rd Street at Reservoir Road	25270	- - - - - - Same priority as 53rd Street - - - - - - - -								51
Highland Drive - Lewisburg Road to Lester Avenue	15350	28	8	2	0	5	2	3	2	50
North Albany Road - Hwy. 20 to Gibson Hill Road	14400	12	11	2	2	10	4	3	2	46
Granger Avenue - Hwy. 99W to Hwy. 20	14360	12	9	6	5	5	7	2	0	46
Oak Creek Drive - 53rd Street to Cardwell Hill Drive	15500	20	10	3	0	5	3	2	0	43
S.E. Kiger Island Drive - Hwy. 99W to first intersection of Powells Road	25300	15	7	4	2	5	6	2	0	41
Springhill Drive - Hwy. 20 to Independence Hwy.	13470	8	11	8	2	5	2	2	2	40
Alpine Road - Hwy. 99W to Bellfountain Road	45120	8	10	5	2	5	7	3	0	40
South Philomath Road - Philomath City Limits to Llewellyn Road	26250	16	9	2	2	5	3	2	0	39
Independence Hwy. - Hwy. 20 to Polk County Line	14430	8	12	4	3	5	3	3	0	38
Highland Drive - Corvallis City Limits to Lester Avenue	15350	8	9	1	0	10	4	3	2	37
Bellfountain Road - Bellfountain Road Extension to Alpine Road	25100	8	10	5	2	5	3	3	0	36
Lewisburg Road - Hwy. 99W to Highland Drive	15360	8	8	1	0	5	6	3	2	33

APPENDIX D

Benton County Public Works Department

360 S.W. AVERY AVENUE

PHONE 757-6821 CORVALLIS, OREGON 97333

- ENGINEERING
- SURVEYING
- BUILDING
- ROAD

March 25, 1985

Rick Sjolander
Region Federal Aid Engineer
Oregon State Highway Division
2960 East State Street
Salem, OR 97310

Subject: Federal Aid Project Request
53rd Street Bridge

Attached for your review is a joint application by Benton County and the City of Corvallis for Federal Aid funds to replace a hazardous structure on 53rd Street with a highway bridge over the railroad.

If you have any questions, please call.

Roger M. Irvin
Assistant County Engineer

hvc

cc: Engineering & Utility Services
City of Corvallis

PW 2037/41

VICTOR ATIYEH
GOVERNOR

Department of Transportation
HIGHWAY DIVISION
Region 2
2960 STATE STREET, SALEM, OREGON 97310 PHONE 378-2626

April 8, 1985

RECEIVED BY
APR 10 1985
PUBLIC WORKS DEPT.

In Reply Refer To
File No.: 2-HOLD

James E. Blair
Director of Public Works
360 Avery
Corvallis, Oregon 97330

RE: 53rd Street Undercrossing of SPTC

Your project application for Highway Bridge Replacement (HBR) funds to replace the Southern Pacific Railroad Bridge over 53rd Street has been reviewed.

In this situation, HBR funds are not eligible to replace the structure, or to build a new structure over the railroad tracks. SPTC has jurisdiction over the existing bridge and is not eligible to receive HBR funds. There is not an existing structure on 53rd under your jurisdiction, so again, HBR funds do not apply.

Your sources of funding are FAS, HES, and Railroad Protection funds. You may apply through this office for FAS and HES funds. If you wish to request HES funds, provide us with a narrative report describing the situation and solution, and an accident history. You should request the Railroad Protection funds through PUC.

Your project request is being returned with no action taken.

Richard T. Sjolander
REGION FEDERAL AID SPECIALIST

RTS:vlw

ALH

IGHWAY 20 TO HARRISON

ACCIDENT ANALYSIS SUMMARY

Road No.	Road Name			ACCIDENTS						ACCIDENT TYPE														CONTRIBUTING CIRCUMSTANCES											Road
25270	CW 53 RD																																		252
Date:	DAY OF WEEK	HOUR OF DAY	Location / Milepost	TOTAL	FATAL	INJURY	PROPERTY DAMAGE	RATE	RANK	HEAD ON	REAR END	ANGLE	TURN MOVEMENT	SS MEETING	SS OVERTAKING	BACKED INTO	PARKING MANUVER	FIXED OBJECT	OVERTURNING	OTHER NON-COLLISION	PEDESTRIAN	BICYCLE	RAILWAY TRAIN	OTHER	SPEED TOO FAST	FAILED TO YIELD	PASSED STOP SIGN	DISREGARDED SIGNAL	DROVE LEFT OF CENTER	IMPROPER OVERTAKING	IMPROPER TURN	ALCOHOL INVOLVED	HAD BEEN DRINKING	OTHER DRIVING	MECHANICAL EFFECT	OTHER	25270
1-6-80	1	1P	1.25				✓				✓																			✓					SAID	
1-2-80	4	6P	1.31			✓					✓																BIKE			WAIT FOR L					AUTO BIKE
x 3-11-80	3	7P	0.38	1		I-A 1 I-B 2						✓														✓									3 CAR	018
x 7-3-80	5	4P	0.38	2			½					✓													✓										049
x 7-22-80	3	1P	0.38	3		I-A 1 I-C ½	3					✓														✓									3 CAR	008
1-20-81	3	9A	0.50	4		I-C ½	2				✓																			✓				3 CAR	003
x 1-7-81	4	8A	0.38	5		I-A ½	2					✓													✓										000
x 9-8-81	3	12N	0.38	6			½					✓													✓										079
1-16-81	6	12M	0.77				✓													✓					✓										002
4-11-81	7	11A	0.79				✓											✓													HIT R/R BRIDGE				04
9-14-91	2	11P	0.71				✓													✓													✓		81-122
12-4-82		4P	0.68			✓												✓								Lost Control									82-148
7-10-82	7	11A	0.91			✓					✓																			✓					045
✓ 11-10-83	5	4P	NO LOCATION	7			½				✓														HIT STOPPED VEHICLE										095C
2-12-83	7	10A	0.80			✓												✓												HIT RR BRIDGE					0117 83-19
1-13-83	5	8A	0.70				✓				✓																			HIT TRAIN ?					002
x 5-13-84	6	12N	0.38	8		I-C ✓	3					✓														✓										84-695
3-24-84	7	11A	1.31			✓					✓																							SAID	016 84-39
2-23-84	5	2P	0.80			✓												✓							✓										0083 84-24

WEST CORVALLIS WATER TRANSMISSION

Scott Olson Design and Construction Engineer **PROJECT MANAGER**	Utility Services **PROGRAM**

PROJECT DESCRIPTION

This project provides for the completion of a water transmission line from Baldy Reservoir along 53rd Street between Harrison and Philomath Boulevards.

DISCUSSION OF PROJECT

Construction of this project will strengthen the water supply system in the west side of the City and support recent annexations and planned development in that area. It will result in more effective utilization of the Baldy Reservoir/Rock Creek system by providing a more direct supply from Baldy Reservoir to the northwest area of the City. Additionally, it provides a more direct connection between Baldy Reservoir and the developing southwest area of the City.

This project is identified in the City's water facilities plan as part of the water supply system necessary to insure adequate supply and pressure for existing and future users. This is an essential part of the plan to maintain quality water service to the community and provide for planned development and continued urbanization.

WEST CORVALLIS WATER TRANSMISSION

COSTS	1985-86	1986-87	1987-88	1988-89	1989-90	5-YEAR TOTAL
Land and Right-of-Way						
Design and Engineering	$117,000					$117,000
Construction	586,000					586,000
Other						
TOTAL	$703,000					$703,000
FUNDING SOURCE						
B-WR	$703,000					$703,000
TOTAL	$703,000					$703,000

5-80-3-3324

S.W. 53RD STREET WIDENING -
WEST HILLS ROAD TO HARRISON BOULEVARD

A. Gordon Wyatt Transportation Services Engineer **PROJECT MANAGER**	Transportation **PROGRAM**

PROJECT DESCRIPTION

This project involves reconstructing and widening S.W. 53rd Street ~~from~~ the ~~present two lanes to five lanes~~. The project will provide bikelanes, sidewalks, a continuous left-turn lane, and landscaping. As a part of this project the ~~existing underpass at the~~ Southern Pacific Railroad ~~will be reconstructed to provide a grade~~ separated crossing, ~~and 53rd Street~~'s ~~intersections with West Hills Road~~ and Reservoir Road ~~will be signalized~~.

DISCUSSION OF PROJECT

This project completes a major segment of the Walnut Boulevard circumferential arterial route. The project will increase safety and capacity on this important element of our transportation network. This will improve the mobility of people, goods, and services within the community and reduce potential traffic through the City's core neighborhoods.

The improved accessibility provided by the continuous turn lane will promote the development of adjacent undeveloped multi-family and/or research technology lands as well as making access to existing development, such as the Fairgrounds, easier and safer. The project will also rebuild the existing substandard underpass at the railroad, greatly increasing the safety of the underpass and the adjacent Reservoir Road-53rd Street intersection.

S.W. 53RD STREET WIDENING
(PHILOMATH HIGHWAY TO WEST HILLS ROAD)

Scott Olson Design and Construction Engineer **PROJECT MANAGER**	Transportation **PROGRAM**

PROJECT DESCRIPTION

This project includes reconstruction and widening of S.W. 53rd Street from the present two lanes to five lanes. The project will provide bikelanes, sidewalks, a continuous left turn refuge lane, and landscaping.

DISCUSSION OF PROJECT

This project completes an important link in the Walnut Boulevard circumferential route. Providing adequate capacity on this arterial roadway reduces potential traffic through the City's core neighborhoods. This project facilitates the designated Research-Technology Center, commercial, and residential economic development. This widening and reconstruction complements recent major investments in the roadway and utility systems in the area. It also reduces maintenance costs by replacing a rapidly deteriorating roadway.

S.W. 53RD STREET WIDENING
(PHILOMATH HIGHWAY TO WEST HILLS ROAD)

COSTS	1985-86	1986-87	1987-88	1988-89	1989-90	5-YEAR TOTAL
Land and Right-of-Way			$ 75,000			$ 75,000
Design and Engineering			110,000			110,000
Construction			745,000			745,000
Other						
TOTAL			$930,000			$930,000
FUNDING SOURCE						
SA-BBF			$500,000			$500,000
B-PT			430,000			430,000
TOTAL			$930,000			$930,000

4-80-4-3807