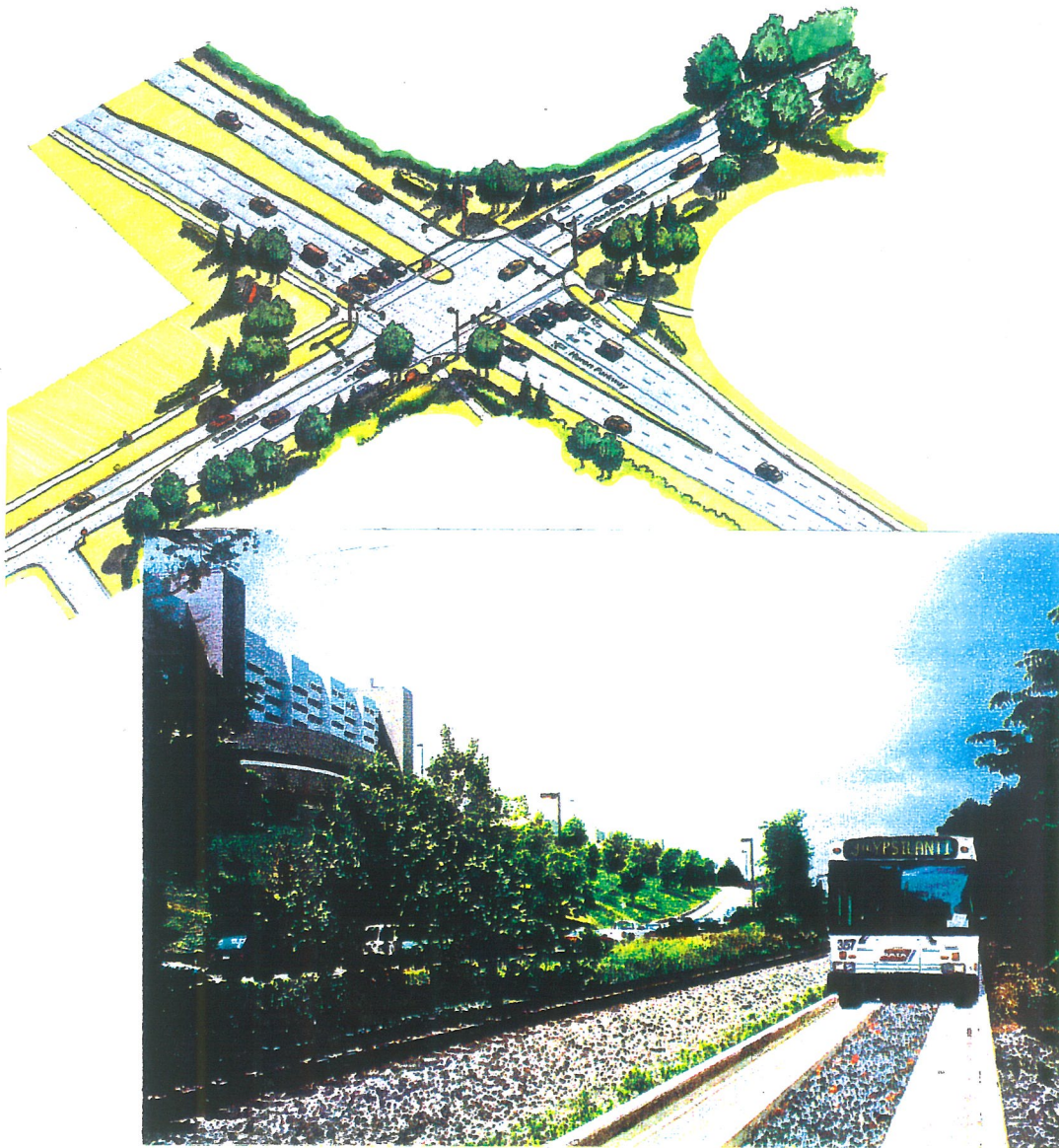


# Geddes/Fuller/Conrail

## Corridor Study



June 1994



J. KAHAN

# FINAL REPORT

Geddes/Fuller/Conrail

Corridor Study

July 1994

---

Prepared for:

The City of Ann Arbor  
Ann Arbor Transportation Authority  
University of Michigan

Prepared by:

BRW, Inc.  
Thresher Square  
700 Third Street South  
Minneapolis, Minnesota

100

100

100

100

100

100

100

100

100

# TABLE OF CONTENTS

EXECUTIVE SUMMARY .....	vi
I. INTRODUCTION .....	I-1
Background .....	I-1
Problem Definition .....	I-3
Existing Traffic Conditions .....	I-6
Forecasted Traffic Conditions .....	I-6
Forecast Methodology .....	I-6
Transportation System Deficiencies Within the Study Areas .....	I-9
Study Goals and Objectives .....	I-9
II. RECOMMENDATION .....	II-1
Discussion of Recommended Strategies .....	II-4
Potential Staging and Funding of the Recommended Alternative .....	II-10
Federal Funding Sources .....	II-10
State Funding Sources .....	II-11
Local Funding Sources .....	II-11
Transit Agencies .....	II-11
Other Funding Sources .....	II-12
Next Steps .....	II-17
III. EVALUATION OVERVIEW .....	III-1
IV. SCREEN 1 - FATAL FLAW ANALYSIS .....	IV-1
Screen 1: Alternatives .....	IV-1
Travel Demand Management Strategies .....	IV-1
Transportation System Management Strategies .....	IV-2
Intelligent Vehicle-Highway Systems .....	IV-6
Environmental and Aesthetic Issues .....	IV-7
Do Nothing/No Build .....	IV-7
Screen 1: Fatal Flaw Criteria .....	IV-8
Screen 1: Results .....	IV-9
V. SCREEN 2 - MACRO LEVEL ANALYSIS .....	V-1
Screen 2: Alternatives .....	V-1
Screen 2: Macro Level Criteria .....	V-6
Use/Ridership .....	V-6
Environmental Issues .....	V-7
Cost Considerations .....	V-8
Screen 2: Results .....	V-9

## TABLE OF CONTENTS (Continued)

VI. SCREEN 3 - MICRO LEVEL ANALYSIS .....	VI-1
Screen 3: Alternatives .....	VI-1
Screen 3: Micro Level Criteria .....	VI-5
Desirable Person and Vehicle Throughput .....	VI-5
Ridership .....	VI-6
Travel Time Savings .....	VI-9
Proximity to Congested Roadways .....	VI-13
Consistency with Transportation Plan .....	VI-13
Safety .....	VI-13
Right-of-Way Requirements .....	VI-13
Air Quality .....	VI-13
Noise Impacts .....	VI-16
Wetlands, Woodlands, and Other Natural Features .....	VI-16
Impact on Side Slopes .....	VI-19
Existing Traffic Level of Service .....	VI-19
Reverse Commuter Trips .....	VI-20
Visual and Enhancement Opportunities .....	VI-20
Capital Costs .....	VI-20
Operating and Maintenance Costs .....	VI-20
Cost-Effectiveness .....	VI-21
Screen 3: Results .....	VI-22
Parking Restrictions and Management .....	VI-24
Additions to Transit Services .....	VI-29
Smart Buses, Kiosks, and ATIS Transit Information .....	VI-33
Park-and-Ride with Bus Transfer .....	VI-34
Employee RideShare Programs .....	VI-39
Area Bicycle Circulation System .....	VI-42
Pedestrian Circulation System .....	VI-45
IVHS Applications .....	VI-48
Intersection Improvements, Signals Optimization and Progression .....	VI-52
One-Lane Bus Guideway on Conrail .....	VI-62
Extend Existing HOV on Geddes/Fuller .....	VI-71
Widen Geddes/Fuller to Four Lanes .....	VI-73
Do Nothing .....	VI-74
VII. COST-BENEFIT EVALUATION .....	VII-1
APPENDICES. .... (Under Separate Cover)	

# LIST OF FIGURES

1	Primary and Secondary Study Areas .....	I-2
2	Traffic Analysis Districts for the Primary Study Area .....	I-5
3	Average Daily Traffic for 1985, 1988 and 1993 .....	I-7
4	Roadway Capacities (ADT) .....	I-8
5	Comparison of Reduction in Average Daily Traffic from Recommended Improvements .....	II-1
II-A	Existing Geddes/Fuller at Huron Parkway .....	II-3
II-B	Proposed Geddes/Fuller at Huron Parkway .....	II-3
II-C	Visual Representation of the Proposed Bus Guideway .....	II-5
6	Existing Land Use--Alternatives Resulting from Screen 2 ..	VI-2
7	Forecasted Transit Ridership .....	VI-11
8	Forecasted Bus Guideway Ridership .....	VI-12
9	VOC Emissions for Ann Arbor .....	VI-15
10	NO <sub>x</sub> Emissions for Ann Arbor .....	VI-17
11	Sum of VOC and NO <sub>x</sub> Emissions for Ann Arbor .....	VI-18
12	Screen 3 Evaluation Results .....	VI-23
13	1994 Level of Service by Vehicle Occupancy Rate on Fuller/Geddes .....	VI-27
14	Fixed Route Transit Servicing Primary Study Area .....	VI-30
15	Forecasted Transit Ridership .....	VI-31
16	Potential Park-and-Ride Lot Locations .....	VI-37
17	Effect of Park-and-Ride on Geddes/Fuller Traffic .....	VI-38
18	Bicycle Circulation Plan .....	VI-43
19	Potential IVHS Applications .....	VI-51
20	Existing Demand Queue Lengths-- Geddes/Fuller and Huron Parkway .....	VI-55
21	Existing Demand Queue Lengths-- Washtenaw Avenue and Huron Parkway .....	VI-56
22	Post Improvement Maximum Demand Queue Length at Geddes/Fuller and Huron Parkway .....	VI-59
23	Post Improvement Maximum Demand Queue Length at Washtenaw Avenue and Huron Parkway .....	VI-60
24	Potential Bus Guideway Layout 1 .....	VI-63
25	Potential Bus Guideway Layout 2 .....	VI-64
26	Potential Bus Guideway Right-of-Way .....	VI-65
27	Forecasted Bus Guideway Ridership .....	VI-68

# LIST OF TABLES

1	Socioeconomic Data for Primary Study Area Traffic Analysis Districts .....	I-4
2	Signalized Intersection Recommendations .....	II-2
3	Potential Staging and Funding of the Recommended Alternative .....	II-12
4	Screen 1 Analysis Results .....	IV-10
5	Universe of Strategies for Ann Arbor Alternatives .....	IV-16
6	Screen 2 Analysis Results .....	V-10
7	Vehicle Occupancy Rates .....	VI-6
8	Transit Ridership Forecast Elements .....	VI-10
9	Vehicle Reduction by HOV Parking Percentage .....	VI-26
10	Potential Park-and-Ride Locations .....	VI-36
11	Inquiries and Applicants of AATA RideShare .....	VI-40
12	Approximate Bicycle Facility Costs Per Mile by Facility Type .....	VI-44
13	Average Walking Distances for Ann Arbor .....	VI-46
14	Signalized Intersection Recommendations .....	VI-53
15	Summary of Intersection Measures of Effectiveness: Level of Service and Degree of Saturation .....	VI-57
16	Estimated Bus Guideway New and Total Ridership .....	VI-69
17	Cost-Benefit Analyses Summary .....	VII-3
18	Cost Benefit Rankings .....	VII-6
19	Overall Strategy Rankings .....	VII-7

# LIST OF ACRONYMS

CAC	Citizens' Advisory Committee
SOV	Single-Occupant Vehicle
HOV	High-Occupancy Vehicle
O&M	Operation & Maintenance
TSM	Transportation System Management
TDM	Travel Demand Management
LOS	Level of Service
VOC	Volatile Organic Components (air quality analysis)
IVHS	Intelligent Vehicle-Highway System
ADT	Average Daily Traffic
ATMS	Advanced Traffic Management Systems
ATIS	Advanced Traveler Information Systems
CVO	Commercial Vehicle Operations
AVI	Automatic Vehicle Identification
APTS	Advanced Public Transportation Systems
AHS	Automatic Highway Systems
ARTS	Advanced Rural Transportation Systems
RRR	Resurfacing, Restoring & Rehabilitation
ROW	Right-of-Way
ISTEA	Intermodal Surface Transportation Efficiency Act
CMAQ	Congestion Mitigation and Air Quality Program
STP	Surface Transportation Program