## **Table of Contents**

Page
CHAPTER I
Summary of Major Findings and Study Approach1Purpose of the Study1Summary of Major Findings1Approach to the Study5
CHAPTER II
The Historical Relationship Between Transit and the Economy
CHAPTER HI
Relationship Between Transit and Energy
CHAPTERIV
Alternative Economic and Energy Futures 25 General Forecasts 25 Economic Consequences 30
CHAPTERV
Effects of Alternative Economic Conditions on Transit
CHAPTERVI
Analysis of the Capacity of Industry To Respond to  Major Changes in the Transit Program
CHAPTERVII
Effects of Alternative Energy Conditions on Transit

## CHAPTER VIII

Consideration of Possible Types of Actions To Achieve Increases inTransit Ridership and Decreases in Energy Consumption	'1 '4 '5
CHAPTERIX	
Summary of Impacts on Transit Ridership, the Transit Industry, Related Industries, and Energy Consumption	3
CHAPTERX	
Metropolitan Experience9Introduction9Summary9	3
CHAPTERXI	
National Policy Issues and Possible Initiatives	8
APPENDIXA	
Documentation of Forecasting Techniques	1
APPENDIXB	
Questionnaire	5
APPENDIXC	
Interindustry Analysis	9
APPENDIXD	
Survey of Effectiveness of Possible Actions To Improve Transit Ridership	7

## LIST OF TABLES

T(lhf(! Number		Page	Table Number Pa		
1	Alternative Energy and Economic Futures Selected for Analysis of Impact on Transit Industry	5	14	Percentage Differences in Growth Between the Threefold Study Scenarios for Both GNP and Employment	32
2	Transit Trends, 1926-1974	10	15	Percent Distribution of Forecast	32
3	Automobile Ownership in the U. S., 1960 and 1970	10	10	Output by Sector for Different Scenarios in the Ford Study	33
4	Energy Requirements of Passenger Transportation Modes	21	16	Trip Production per Dwelling Unit by all Modes and by Public	
5	Total ''BART'' Energy Requirements for All Purposes During 50-Year			Transit, Typical Weekday, Chicago Area 1956, by Occupational Class .	36
_	Life Span	22	17	Distribution of Trips by Mode of Travel and by Occupational Class,	27
6	Total Energy Requirements for Automobiles in the U.S	22	10	Chicago Area, 1956	37
7	Energy Conservation Potential of Various Transportation Policy		18	Distribution of Trips by Purpose for the ''Unemployed'' and "All" Occupation Classes, Chicago	
	Action	22		Area 1956	37
8	Summary of Effects of Various Options on Fuel Savings From Department of Transportation		19	Factors Used for Estimating Transit Trip Reductions Associated With Incremental Unemployment	39
9	Program	23	20	Estimated Reduction in Transit Trips by the Incrementally Unemployed (Work Trip Method)	
	Projections, Gross Energy Resource Consumption 1972/73-1985	25	21	Estimated Reduction in Transit Trips by the Incrementally Unemployed	
10	Alternative Energy and Economic			(Household Trip Method)	40
	Futures Selected for Analysis of Impact on Transit Industry	27	22	Transit Ridership and Selected Economic Variables, United States—	41
11	Comparison of Reported Energy Alternatives From Federal Energy		23	1926-36  Household Expenditures on Local,	41
	Administration and Ford Foundation	29		Public and Total Transportation— by Income Level and Family	
12	"Project Independence". Annualized Compound Rates of Growth for Gross National Project, Personal Consumption, and Employment			Size, 1961	43
		31	24	Income Elasticity of Transportation Expenditures by Urban Household Size, 1960-61	44
13	Comparison of Key Economic Variables for Historic Growth, Technical Fix, and Zero Energy Growth in Ford Foundation	22	25	Disposable Personal Income, Public Transit Passenger Revenues, and Income Elasticity of Local Public Transit	45
	Study	32		Expenditures: 1951-74	43

Table Nufn	,	Page	Tabl Num		Page
26	Total Employment Generated by Public Transit and Selected Transit Capital Goods Supplying Industries		40	Quarterly Time Series Data Generated	112
		. 51	41	Monthly Time Series Input	113
27	Total U.S. Employment Directly Attributable to the Government-Owned	l	42	Longrun (Quarterly] Regression of Transit Revenue Passengers (LRP)	114
•	Public Transit Industry by Selected Industry Group, 1967	52	43	Short Run (Monthly) Regression of Adjusted Transit Revenue	115
28	Total Employment Multiplier of Public Transit and Transit Capital Goods Supplying Industries	52	44	Passengers [LFRPZ]	115 117
29	Main Industry, Direct, Indirect, and Employment Generated by Transit and Related Industries	53	45	Estimated Conditions for Transit Travel in the Peak and Off-Peak Periods to Predict Transit Ridership	
30	Manufacturers' Capacity Utilization Rates: Ratios of Operating to Preferred Rates—March, June, September, and December 1974	53		Increases and Reductions in Automobile Energy Consumption Associated With Transit Fare Reductions and Service Improvements	121
31	Increases in National Transit Ridership During the 1973-74 Fuel Crisis and Adjacent Months	61	46	Estimates of the Effect of Doubling Transit Vehicles Miles of operation on Energy	
32	Data From New York City— Manhattan Bridge Crossings 1973-74	64	47	Consumption by Automobiles  Estimates of the Effect of No Fare Transit and Related Service	121
33	First Trip to Columbia by Purpose, 1972 and 1974	66		Improvements on Energy Consumption by automobiles	123
34	Frequency With Which Respondents Said They Used a Particular Gas Saving Method	66	48	Estimate of the Effect of a \$1.50/Day Increase in the Price of Downtown Commuter Parking on Transit Work Trips tothe Affected Area	124
35	Public Preferences for Cutting Fuel Consumption	68	49	Calculation of Indirect Requirements	132
36	Preferred Solution if Gasoline Prices go to 800 a Gallon	68	50	Computation of Indirect Employment	
37	Effect of Energy Futures on Transit Revenue Passengers	70	51	Employment Generated per Million 1974 Dollars	133
38	Summary of Approximate Effects on Transit and Related Industries of Alternative Assumed Economic and Energy Futures and		52	Summary of No-Fare and Reduced Fare Impacts on Transit Ridership and Diversion	135 138
39	Packages of Transit-Related Actions	89 112	53	Summary of Priority Lane Treatment Impacts on Transit Ridership and Diversion	139

Table Number		Page	Table Number		
54	Bus Fleet Expansions Needed To Achieve Projected Reductions in Auto Use	142	56 Summary of Busway Impacts on Transit Ridership and Diversion	144	
55	Hourly One-Way Express Bus Capacities on Busways	143	57 Projected Changes in Travel Behavior Resulting From a Parking Tax in Washington, D.C,	145	
	LIST	OF	FIGURES		
Fig Nu	ure mber	Page	Figure Number	Page	
1	Flow Diagram—Conceptual Approach to the Analysis of Alternative Future Economic and Energy		9 Change in Motor Fuel Sales, Traffic Volumes, and Bus Ridership Between 1973 and 1974	62	
2	Conditions and Their Relation to Mass Transit	6	Change in Peak-Period and Weekend Traffic Volumes Between 1973 and 1974	63	
۷	By Motor Vehicles In 1950 and 1972	14	11 Monthly Change in Traffic Volume for Total Week, Weekday, and Weekend ADT on I-126	65	
3	Factors Contributing to Increased Passenger Car Fuel Consumption Between 1950 and 1972	14	12 Ridership by Week, Dutch Fork Area	67	
4	Average Annual Use of Vehicles	15	13 Effectiveness of Transit Incentive and Auto Restraint Actions	82	
5	Average Fuel Economy (MPG) of U.S. Passenger Car Fleet, 1953-1972	16	14 Increases in Transit Ridership Associated With Packages of Actions and Economic Energy Futures	84	
6 7	Passenger Car Sales by Market Class	16	15 Net 1980 Energy Reductions Associated With Packages of Actions	91	
,	[VMT) and Transit Riders by Month, 1971-74	18	16 Effect of Fuel Costs on Transit Ridership	94	
8	Energy Consumption by Transport	20	17 Effect of Fare on Total Transit Ridership	94	