CHAPTER **3**

SAMPLE APPLICATIONS

To illustrate the use of the methodologies and the data forms, four example applications are presented. These examples are as follows:

A. Starting a non-program-related passenger transportation service in a county where none presently exists.
B. Expanding an existing non-program-related passenger transportation service.
C. Establishing a new social service program.
D. Coordinating existing program and non-program related services.

The county used in these examples is Anycounty, Anystate. The county has the following characteristics:

County Size:	800 sq mi
Total Population:	32,000
Population Aged 16 and Over:	24,400
Population Aged 16 to 59:	19,700
Population Aged 60 and Over:	6,000
Population Aged 75 and Over:	2,000
Total Mobility-Limited Population:	6,400
Mobility-Limited Population Aged 16 to 64:	500
Number of Families Below Poverty Level:	2,100
Number of Persons Under Age 65 Below Poverty Level:	4,900

Social service programs operating in the county currently providing client restricted transportation are the following:

Program	Participants	Annual Vehicle-Miles
Senior Nutrition	80	50,000
Job Training	32	18,000

There are, at present, no non-program-related passenger transportation services available to residents of Anycounty.

A. STARTING A NON-PROGRAM-RELATED SERVICE

Under current conditions, all passenger transportation services being provided in Anycounty are directly related to a specific social service program. Use of these services is limited to individuals participating in the programs traveling to or from the program sites. To provide transportation for persons not enrolled in a specific program and to permit program participants to travel to non-program activities, it has been proposed that a general public transportation service be established. Funding is available to purchase and operate six vehicles in a demand-responsive service. What is the expected annual ridership?

Step 1—Record Basic Data on Form C-2

County area and number of persons in each of the three market segments are known from U.S. Census data. Vehiclemiles to be operated are not known. A review of other programs in Anystate shows that the average vehicle in rural paratransit service operates 14,000 mi per year. Because six vehicles will be operated, the total annual vehicle-miles are estimated to be 84,000. As the service is to be available for use by any person in the county, 84,000 is entered as the "vehicle-miles available" for each market. The vehicle-miles available per square mile value are 105 for each market.

Step 2—Compute Service Factors

The service factor for each market is computed by using the following forms:

Form C-3a: for persons aged 60 or over,
Form C-3b: for persons with mobility limitation, and
Form C-3c: for persons in families in poverty.

Because the vehicle-miles per square-mile value is 105, the first line of each for "If less than 4,000" is used. The service factors computed, after dividing by 1,000,000 are the following:

Persons aged 60 or over:	0.000658
Persons with mobility limitations:	0.001175
Persons in families in poverty:	0.000782

Step 3—Compute Non-Program-Related Demand

Using Form C-4, compute the annual passenger transportation demand estimate for each market segment. This computation yields

Persons aged 60 or over	=	4,738
Persons with mobility limitations	=	705
Persons in families in poverty	=	4,598
Total annual non-program trips	=	10,041

In evaluating this estimate, it must be recognized that this is only an estimate based on relationships developed from a sample of counties across the nation. The actual ridership could vary substantially from this value based on local conditions and actual operating patterns.

B: EXPANDING A NON-PROGRAM-RELATED SERVICE

The non-program transportation service considered in Sample Application A is initiated. After a year of operation, the service is perceived as successful. Vehicle-miles operated are higher than the typical county, reaching 18,000 mi per vehicle per year rather than 14,000 mi used in the original estimates. For the last 6 months, ridership has averaged 1,100 one-way trips per month, or a rate of 13,200 one-way trips per year. No records have been developed on ridership by market segment. Because of the success of the program, it is decided to provide additional funding that will permit doubling the fleet to 12 vehicles. How is ridership likely to change?

Step 1—Record Basic Data on Forms B-2a (Current Year) and B-2b (Future Year)

The county area of 800 sq mi is entered on both forms. Because no changes in the size of any of the market groups is expected, the populations of 6,000 persons aged 60 or over, 500 persons with mobility limitations, and 4,900 persons in families in poverty are entered on both forms. The vehiclemiles available for the current year is now known to be 6 x 18,000 or 108,000. This amount is entered for all markets on Form B-2a. Because it is expected that the same level of productivity—18,000 mi per vehicle per year—will be maintained with the expanded fleet, the vehicle-miles available value entered for the Forecast Year Form B-2b is 216,000.

The vehicle-miles per square-mile values are 135 for each market in the current year (Form B-2a) and 270 for each market in the forecast year (Form B-2b).

Step 2—Compute Current and Future-Year Service Factors

Using Forms B-3a through B-3f, the current and future service factors are computed for each market. The resulting values are the following:

Market	Current Year	Future Year
Persons aged 60 or over	0.000738	0.001100
Persons with mobility limitations	0.001222	0.001434
Persons in families in poverty	0.000855	0.001187

Step 3—Compute Estimated Future Demand After Service Change (Forms B-4 and B-5)

The service factors computed on Forms B-3a through B-3f are entered on Form B-4. The current and future populations by market from Forms B-2a and B-2b are also entered on Form B-4. Because the ridership by market is not known, it must be estimated using Form B-5. The procedure on Form B-5 estimates the allocation of the 13,200 annual one-way trips as the following:

Persons aged 60 or over	6,336
Persons with mobility limitations	924
Persons in families in poverty	5,940

These values are entered on Form B-4. The computations on Form B-4 yield an estimate of 18,774 annual one-way trips after fleet expansion.

Sample Application A

FORM C-2
ESTIMATION OF NON-PROGRAM DEMAND
COUNTY AND SERVICE SUMMARY DATA

BASIC DATA FOR THE COUNTY (or Service Area):

Size of County in square miles (from Form A-1):

(H)

$$800$$

PERSONS AGE 60 AND OVER

Number of Persons Age 60 or Over:	Vehicle-Miles Available *	Vehicle-Miles Available Per Square Mile
(I)	(J)	(K) = (J)/(H)
6,000	84,000	105

PERSONS WITH MOBILITY LIMITATIONS

Number of Persons with Mobility Limitations Age 16-64	Vehicle-Miles Available *	Vehicle-Miles Available Per Square Mile
(L)	(M)	(N) = (M)/(H)
500	84,000	105

PERSONS RESIDING IN FAMILIES WITH INCOMES BELOW THE POVERTY LEVEL

Number of Persons, age 64 or less, residing in households with income below the poverty level	ADJUSTED Vehicle-Miles Available *	ADJUSTED Vehicle-Miles Available Per Square Mile
(O)	(P)	(Q) = (P)/(H)
4900	84,000	105

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* From Form A-5, columns (D), (E) and (F) totals or estimates of services to be provided.

FORM C-3a
ESTIMATION OF NON-PROGRAM DEMAND SERVICE FACTOR

PERSONS AGE 60 OR OVER

Service Factor:

Vehicle-Miles Available
Per Square Mile
Item (K) on Form C-2

	(K)						(R)
If less than 4,000	105	X	2.682	+	376	=	658
If 4,000 to 7,000		X	13.693	-	43,668	=	
If 7,000 to 10,000		X	50.727	-	302,908	=	
If 10,000 to 12,000		X	113.010	-	925,740	=	

If over 12,000   Use Exponential Method (See Appendix)

SERVICE FACTOR   (R)/1,000,000   0.000658

FORM C-3b
ESTIMATION OF NON-PROGRAM DEMAND SERVICE FACTOR

PERSONS WITH MOBILITY LIMITATIONS

Service Factor:

Vehicle-Miles Available
Per Square Mile
Item (N) on Form C-2

	(N)					(T)
If less than 4,000	*105*	X	1.570	+	1,010	=	*1175*
If 4,000 to 7,000		X	5.823	-	16,003	=	(T)
If 7,000 to 10,000		X	17.700	-	99,140	=	(T)
If 10,000 to 12,000		X	42.590	-	348,040	=	(T)
If over 12,000	Use Exponential Method (See Appendix)					

SERVICE FACTOR   (T)/1,000,000   *0.001175*

FORM C-3c
ESTIMATION OF NON-PROGRAM DEMAND SERVICE FACTOR

PERSONS RESIDING IN FAMILIES BELOW POVERTY LEVEL

Service Factor:

Vehicle-Miles Available
Per Square Mile
Item (Q) on Form C-2

	(Q)						(V)
If less than 4,000	105	X	2.450	+	525	=	782
If 4,000 to 7,000		X	8.828	-	24,988	=	
If 7,000 to 10,000		X	45.647	-	282,717	=	
If 10,000 to 12,000		X	99.520	-	821,450	=	
If over 12,000		Use Exponential Method (See Appendix)					

SERVICE FACTOR   (V)/1,000,000 0.000782

FORM C-4
COMPUTATION OF FUTURE PASSENGER DEMAND
NON-PROGRAM RELATED

POPULATION AGE 60 OR OVER

		From Form C-2 Population		From Form C-3a Service Factor		Forecast Ridership
1,200	X	6 000	X	0. 000658	=	4738

POPULATION WITH MOBILITY LIMITATIONS

		From Form C-2 Population		From Form C-3b Service Factor		Forecast Ridership
1,200	X	500	X	0. 001175	=	705

POPULATION RESIDING IN FAMILIES WITH INCOME BELOW THE POVERTY LEVEL

		From Form C-2 Population		From Form C-3c Service Factor		Forecast Ridership
1,200	X	4900	X	0.000782	=	4598

TOTAL FORECAST NON-PROGRAM RIDERSHIP   10, 041

62

FORM B-2a
ESTIMATION OF NON-PROGRAM DEMAND
COUNTY AND SERVICE SUMMARY DATA -- CURRENT YEAR

BASIC DATA FOR THE COUNTY (or Service Area):

Size of County in square miles (from Form A-1):

(H)

800

PERSONS AGE 60 AND OVER

Number of Persons Age 60 or Over:	Vehicle Miles Available From column (D) total, Form A-5	Vehicle Miles Available Per Square Mile
(I)	(J)	(K) = (J)/(H)
6 000	108, 000	135

PERSONS WITH MOBILITY LIMITATIONS

Number of Persons with Mobility Limitations Age 16-64	Vehicle Miles Available From column (E) total, Form A-5	Vehicle Miles Available Per Square Mile
(L)	(M)	(N) = (M)/(H)
500	108, 000	135

PERSONS RESIDING IN FAMILIES WITH INCOMES BELOW THE POVERTY LEVEL

Number of Persons, age 64 or less, residing in households with income below the poverty level	ADJUSTED Vehicle Miles Available From column (G) total, Form A-5	ADJUSTED Vehicle Miles Available Per Square Mile
(O)	(P)	(Q) = (P)/(H)
4900	108, 000	135

Sample Application B

FORM B-2b
ESTIMATION OF NON-PROGRAM DEMAND
COUNTY AND SERVICE SUMMARY DATA -- FORECAST YEAR

BASIC DATA FOR THE COUNTY (or Service Area):

Size of County in square miles (from Form A-1):

(H)

800

PERSONS AGE 60 AND OVER

Number of Persons Age 60 or Over:	Vehicle-Miles To be Available	Vehicle-Miles Available Per Square Mile
(I)	(J)	(K) = (J)/(H)
6000	216,000	270

PERSONS WITH MOBILITY LIMITATIONS

Number of Persons with Mobility Limitations Age 16-64	Vehicle-Miles To Be Available	Vehicle-Miles Available Per Square Mile
(L)	(M)	(N) = (M)/(H)
500	216,000	270

PERSONS RESIDING IN FAMILIES WITH INCOMES BELOW THE POVERTY LEVEL

Number of Persons, age 64 or less, residing in households with income below the poverty level	ADJUSTED Vehicle-Miles To Be Available	ADJUSTED Vehicle-Miles Available Per Square Mile
(O)	(P)	(Q) = (P)/(H)
4900	216,000	270

FORM B-3a
ESTIMATION OF NON-PROGRAM DEMAND SERVICE FACTOR
CURRENT YEAR

PERSONS AGE 60 OR OVER

Service Factor:

Vehicle-Miles Available
Per Square Mile
Item (K) on Form B-2a

	(K)						(R)
If less than 4,000	*135*	X	2.682	+	376	=	*738*
If 4,000 to 7,000		X	13.693	-	43,668	=	
If 7,000 to 10,000		X	50.727	-	302,908	=	
If 10,000 to 12,000		X	113.010	-	925,740	=	

If over 12,000   Use Exponential Method (See Appendix)

SERVICE FACTOR   (R)/1,000,000   *0.000738*

FORM B-3b
ESTIMATION OF NON-PROGRAM DEMAND SERVICE FACTOR
CURRENT YEAR

PERSONS WITH MOBILITY LIMITATIONS

Service Factor:

Vehicle-Miles Available
Per Square Mile
Item (N) on Form B-2a

	(N)						(T)
If less than 4,000	*135*	X	1.570	+	1,010	=	*1222*
If 4,000 to 7,000		X	5.823	-	16,003	=	
If 7,000 to 10,000		X	17.700	-	99,140	=	
If 10,000 to 12,000		X	42.590	-	348,040	=	

If over 12,000   Use Exponential Method (See Appendix)

SERVICE FACTOR   (T)/1,000,000   *0.001222*

FORM B-3c
ESTIMATION OF NON-PROGRAM DEMAND SERVICE FACTOR
CURRENT YEAR

PERSONS RESIDING IN FAMILIES BELOW POVERTY LEVEL

Service Factor:

Vehicle-Miles Available
Per Square Mile
Item (Q) on Form B-2a

	(Q)						(V)
If less than 4,000	135	X	2.450	+	525	=	855
If 4,000 to 7,000		X	8.828	-	24,988	=	
If 7,000 to 10,000		X	45.647	-	282,717	=	
If 10,000 to 12,000		X	99.520	-	821,450	=	
If over 12,000	Use Exponential Method (See Appendix)						

SERVICE FACTOR   (V)/1,000,000   0.000855

FORM B-3d
ESTIMATION OF NON-PROGRAM DEMAND SERVICE FACTOR
FUTURE YEAR

PERSONS AGE 60 OR OVER

Service Factor:

Vehicle-Miles Available
Per Square Mile
Item (K) on Form B-2b

	(K)					(R)
If less than 4,000	*270*	X	2.682	+	376	= *1100*
If 4,000 to 7,000		X	13.693	-	43,668	=
If 7,000 to 10,000		X	50.727	-	302,908	=
If 10,000 to 12,000		X	113.010	-	925,740	=
If over 12,000	Use Exponential Method (See Appendix)					

SERVICE FACTOR   (R)/1,000,000   *0.00110 0*

FORM B-3e
ESTIMATION OF NON-PROGRAM DEMAND SERVICE FACTOR
FUTURE YEAR

PERSONS WITH MOBILITY LIMITATIONS

Service Factor:

Vehicle-Miles Available
Per Square Mile
Item (N) on Form B-2b

	(N)						(T)
If less than 4,000	270	X	1.570	+	1,010	=	1434
If 4,000 to 7,000		X	5.823	-	16,003	=	(T)
If 7,000 to 10,000		X	17.700	-	99,140	=	(T)
If 10,000 to 12,000		X	42.590	-	348,040	=	(T)

If over 12,000   Use Exponential Method (See Appendix)

SERVICE FACTOR   (T)/1,000,000   0.001434

FORM B-3f
ESTIMATION OF NON-PROGRAM DEMAND SERVICE FACTOR
FUTURE YEAR

PERSONS RESIDING IN FAMILIES BELOW POVERTY LEVEL

Service Factor:

Vehicle-Miles Available
Per Square Mile
Item (Q) on Form B-2b

	(Q)						(V)
If less than 4,000	270	X	2.450	+	525	=	1187
If 4,000 to 7,000		X	8.828	-	24,988	=	
If 7,000 to 10,000		X	45.647	-	282,717	=	
If 10,000 to 12,000		X	99.520	-	821,450	=	
If over 12,000	Use Exponential Method (See Appendix)						

SERVICE FACTOR   (V)/1,000,000   0.001187

FORM B-4
COMPUTATION OF FUTURE DEMAND
CHANGE FROM EXISTING SERVICE

POPULATION AGE 60 OR OVER

From Surveys
or Form B-5
Current Ridership

		From Form A-1 Future Population		From Form B-3d Future Service Factor		Forecast Ridership

6336 X ___**6000**___ X ___**0.001100**___ = **9444**

From Form A-1 Current Population: **6000**

From Form B-3a Current Service Factor: **0.000738**

POPULATION WITH MOBILITY LIMITATIONS

From Surveys
or Form B-5
Current Ridership

From Form A-1 Future Population

From Form B-3e Future Service Factor

Forecast Ridership

924 X ___**500**___ X ___**0.001434**___ = **1083**

From Form A-1 Current Population: **500**

From Form B-3b Current Service Factor: **0.001223**

POPULATION RESIDING IN FAMILIES WITH INCOME BELOW THE POVERTY LEVEL

From Surveys
or Form B-5
Current Ridership

From Form A-1 Future Population

From Form B-3f Future Service Factor

Forecast Ridership

5940 X ___**4900**___ X ___**0.001187**___ = **8247**

From Form A-1 Current Population: **4900**

From Form B-3c Current Service Factor: **0.000855**

TOTAL FORECAST NON-PROGRAM RIDERSHIP   **18,774**

FORM B-5
ESTIMATION OF CURRENT NON-PROGRAM RIDERSHIP BY POPULATION GROUP

	(A) Number of Persons	(B) Service Factor From Form B-3a	(C)=(A)x(B)	Trip Allocation (K)=(C)/(J)	Total Non-Program Trips	Trips by Population Group (O)=(K)x(N)
Persons Age 60 and Over	*6000*	*0.000738*	*4.428*	*0.48*		*6336*
Persons Age 16-64 With a Mobility Limitation	(D) *500*	(E) From Form B-3b *0.001223*	(F)=(D)x(E) *0.612*	(L)=(F)/(J) *0.07*	From Form A-4 (N) *13,200*	(P)=(L)x(N) *924*
Persons Under Age 65 Residing in Households With Income Below the Poverty Level	(G) *4900*	(H) From Form B-3c *0.000855*	(I)=(G)x(H) *4.190*	(M)=(I)/(J) *0.45*		(Q)=(M)x(N) *5940*
Total			(J)=(C)+(F)+(I) *9.230*		Total Non-Program Demand	(O)+(P)+(Q) *13,200* should equal (N)

USE THIS FORM WHEN THE TOTAL CURRENT NON-PROGRAM RIDERSHIP IS KNOWN,
BUT THE RIDERSHIP BY POPULATION GROUP IS NOT KNOWN.

C: ESTABLISHING A NEW SOCIAL SERVICE PROGRAM

The Anystate Department of Social Services announces that it will be establishing a Developmental Services Program in Anycounty. This program will include educational and counseling services. Transportation will be provided for program participants using vehicles owned and operated by the Department of Social Services. Use of the transportation is limited to persons enrolled in the program. The Department of Social Services indicates that it does not know how many people will actually participate in the program.

Step 1—Estimate Program Participation

Refer to Table 2, Program Participation Estimation Methodologies. This table gives two methods for estimating program participation: 1) one based on total population (to be used if no other data are available) and 2) one based on more detailed population data. For Adult

Developmental Services, the "best" estimation technique is related to "population aged 16 and above." Applying these relationships yields the following estimates for the number of persons likely to participate in the new program.

"Best" method $(24,400/1,000) \times 2.15 = 52$
"Total population" method $(32,000/1,000) \times 1.76 = 56$

The estimates are quite close. Use the "best" estimate of 52 participants in the program for developmentally disabled adults.

Step 2—Estimate Program-Related Transportation Demand

Use Form C-1a. For the program type Developmental Services: Adult, there are two formulas: 1) one for programs fewer than 25 participants and 2) one for programs with 25 or more participants. Using the formula for larger programs yields an estimate of

$(52 \times 430) - 1,686 = 20,674$ annual one-way trips.

Sample Application C

FORM C-1
ANNUAL PROGRAM TRIP ESTIMATION WORKSHEET -- PAGE ONE

Developmental Services: Adult

If # of participants is less than 25, use: [   ] X 358   = [   ]
Participants

or

If at least 25, use: [52] X 430 - 1,686   = [20,674]
Participants

Developmental Services: Case Management

In all cases, use: [   ] X 39.2   = [   ]
Participants

Developmental Services: Pre-School

In all cases, use: [   ] X 224   = [   ]
Participants

Group Home

If you know the number of days per year
transportation is provided, and the   [   ] X 2.05 X [   ]   = [   ]
# of participants is less than 10, use: # Participants   # of days

or

If you know the number of days and the #   ([   ] X 1.42 + 5.94) X [   ] = [   ]
of participants is at least 10, use: # Participants   # of days

or

If you don't know the number of days, and   [   ] X 615   = [   ]
the # of participants is less than 10, use: # Participants

or

If you don't know the number of days, and   [   ] X 291 + 3,760   = [   ]
the # of participants is at least 10, use: # Participants

Headstart

In all cases, use: [   ] X 263   = [   ]
Participants

Headstart: Home Base

If you know the number of days per year the   [   ] X 0.16 X [   ]   = [   ]
program operates, use: # Participants   # of days

or

If you don't, use: [   ] X 30.5   = [   ]
Participants

Headstart-Other

In all cases, use: [   ] X 1.86   = [   ]
Participants

TOTAL FOR PAGE ONE: [20,674]

Sample Application C

FORM C-1
ANNUAL PROGRAM TRIP ESTIMATION WORKSHEET -- PAGE TWO

Job Training

In all cases, use:　　[　　　　] X　137　　　　　　　　= [　　　　]
　　　　　　　　　　# Participants

Mental Health Services

In all cases, use:　　[　　　　] X　347　　　　　　　　= [　　　　]
　　　　　　　　　　# Participants

Mental Health Services: Case Mgmt

In all cases, use:　　[　　　　] X　6.35　　　　　　　 = [　　　　]
　　　　　　　　　　# Participants

Nursing Home

If the # of participants is less than 50, use:　　[　　　　] X　9.10　　　　= [　　　　]
　　　　　　　　　　　　　　　　# Participants

　　　　　　　　　　　　　　　　　　　　　　　　　　　　　or

If the # of participants is at least 50, use:　　[　　　　] X　12.5　-　173　= [　　　　]
　　　　　　　　　　　　　　　　# Participants

Senior Nutrition

In all cases, use:　　[　　　　] X　248　　　　　　　　= [　　　　]
　　　　　　　　　　# Participants

Sheltered Workshop

If you know the number of days per year the　　[　　　　] X 1.58 X [　　　　]　= [　　　　]
program operates, use:　　　　　　　　　　　# Participants　　　　# of days

　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　or

If you don't, use:　　[　　　　] X　384　　　　　　　 = [　　　　]
　　　　　　　　# Participants

ALL OTHER PROGRAM TYPES: Develop estimate on case-by-case basis.

　　　　　　　　　Program: _____　[　　　　]

　　　　　　　　　Program: _____　[　　　　]

　　　　　　　　　Program: _____　[　　　　]

TOTAL FOR PAGE TWO:　　　　　　　　　　　　　　　[　—　]
　　　　　　　　　　　　　　　　　　　　　　　　　　　+
ENTER TOTAL FROM PAGE ONE HERE:　　　　　　　 [20,674]
　　　　　　　　　　　　　　　　　　　　　　　　　　　=
TOTAL ANNUAL PROGRAM TRIP ESTIMATION:　　　　 [20,674]

D: COORDINATING EXISTING PROGRAM- AND NON-PROGRAM-RELATED SERVICES

The Senior Nutrition program that has operated in Anycounty for many years serves 80 participants and operates 50,000 vehicle-mi of service per year with four vans. After extended discussions and negotiations with the Anycounty Senior Center, it is agreed that these vans will be included in a coordinated service.

During the trips to or from the Senior Center, about 4 hours a day, the vans will carry any person aged 60 or over who wants to travel in the general direction of the existing van trip. Riders will be assigned by Anycounty Transit under a brokerage agreement.

During the time the vans are not in use—also about 4 hours each day—the vans will be used by Anycounty Transit for general purpose, non-restricted service open to anyone who wishes to ride. How is the non-program-related passenger transportation program demand likely to change?

Step 1—Estimate Change in Vehicle-Miles of Service Available to Non-Program Markets

The Senior Center vans now operate 50,000 mi per year. These vehicle-miles will, under the coordinated program, be available to any person aged 60 or over.

In addition, operating 4 additional hours a day will, at current levels of productivity, add about 7,000 vehicle-mi per year per van or 28,000 vehicle-mi for the four vans to the services available to each of the non-program markets.

The additional annual vehicle-miles to be made available are as follows:

Persons aged 60 or over: 50,000 + 28,000	=	78,000
Persons with mobility limitations	=	28,000
Persons in families in poverty	=	28,000

Step 2—Record Basic Data on Forms B-2a (Current Condition) and B-2b (Future Condition)

The population size and program ridership data are taken from Sample Application B. The data entered on Form B-2a, in the example, are the same as shown on B-2b in Application B. With the coordinated service, the total annual vehicle-miles available by market and annual vehicle-miles per square-mile are as follows:

	Available Vehicle-Miles	Vehicle-Miles Per Square-Mile
Persons aged 60 or over	294,000	368
Persons with mobility limitations	244,000	305
Persons in families in poverty	244,000	305

Step 3—Compute Current and Future Service Factors

The "current" service factors and ridership by market are taken from the Sample Application B results. The new service factors after coordination, computed by using Forms B-3d, B-3e, and B-3f, are as follows:

	Service Factor
Persons age 60 or over	0.001362
Persons with mobility limitations	0.001486
Persons in families in poverty	0.00127

Step 4—Compute Estimated Passenger Demand

Enter data on Form B-4 and compute the expected non-program-related demand by market and in total. The estimated annual non-program-related one-way trips are as follows:

	Annual One-Way Trips
Persons aged 60 or over	11,693
Persons with mobility limitations	1,122
Persons in families in poverty	8,837
Total	21,652

FORM B-2a
ESTIMATION OF NON-PROGRAM DEMAND
COUNTY AND SERVICE SUMMARY DATA -- CURRENT YEAR

BASIC DATA FOR THE COUNTY (or Service Area):

Size of County in square miles (from Form A-1):

(H)

$$800$$

PERSONS AGE 60 AND OVER

Number of Persons Age 60 or Over:	Vehicle Miles Available From column (D) total, Form A-5	Vehicle Miles Available Per Square Mile
(I)	(J)	(K) = (J)/(H)
6000	216,000	270

PERSONS WITH MOBILITY LIMITATIONS

Number of Persons with Mobility Limitations Age 16-64	Vehicle Miles Available From column (E) total, Form A-5	Vehicle Miles Available Per Square Mile
(L)	(M)	(N) = (M)/(H)
500	216,000	270

PERSONS RESIDING IN FAMILIES WITH INCOMES BELOW THE POVERTY LEVEL

Number of Persons, age 64 or less, residing in households with income below the poverty level	ADJUSTED Vehicle Miles Available From column (G) total, Form A-5	ADJUSTED Vehicle Miles Available Per Square Mile
(O)	(P)	(Q) = (P)/(H)
4900	216,000	270

FORM B-2b
ESTIMATION OF NON-PROGRAM DEMAND
COUNTY AND SERVICE SUMMARY DATA -- FORECAST YEAR

BASIC DATA FOR THE COUNTY (or Service Area):

Size of County in square miles (from Form A-1):

(H)

800

PERSONS AGE 60 AND OVER

Number of Persons Age 60 or Over:	Vehicle-Miles To be Available	Vehicle-Miles Available Per Square Mile
(I)	(J)	(K) = (J)/(H)
6000	294,000	368

PERSONS WITH MOBILITY LIMITATIONS

Number of Persons with Mobility Limitations Age 16-64	Vehicle-Miles To Be Available	Vehicle-Miles Available Per Square Mile
(L)	(M)	(N) = (M)/(H)
500	244,000	305

PERSONS RESIDING IN FAMILIES WITH INCOMES BELOW THE POVERTY LEVEL

Number of Persons, age 64 or less, residing in households with income below the poverty level	ADJUSTED Vehicle-Miles To Be Available	ADJUSTED Vehicle-Miles Available Per Square Mile
(O)	(P)	(Q) = (P)/(H)
4900	244,000	305

FORM B-3a
ESTIMATION OF NON-PROGRAM DEMAND SERVICE FACTOR
CURRENT YEAR

PERSONS AGE 60 OR OVER

Service Factor:

Vehicle-Miles Available
Per Square Mile
Item (K) on Form B-2a

	(K)					(R)
If less than 4,000	270	X	2.682	+	376	=	1100
If 4,000 to 7,000		X	13.693	-	43,668	=	
If 7,000 to 10,000		X	50.727	-	302,908	=	
If 10,000 to 12,000		X	113.010	-	925,740	=	

If over 12,000   Use Exponential Method (See Appendix)

SERVICE FACTOR   (R)/1,000,000   0.001100

FORM B-3b
ESTIMATION OF NON-PROGRAM DEMAND SERVICE FACTOR
CURRENT YEAR

PERSONS WITH MOBILITY LIMITATIONS

Service Factor:

Vehicle-Miles Available
Per Square Mile
Item (N) on Form B-2a

	(N)							(T)
If less than 4,000	2 70	X	1.570	+	1,010	=		1434
If 4,000 to 7,000		X	5.823	-	16,003	=		(T)
If 7,000 to 10,000		X	17.700	-	99,140	=		(T)
If 10,000 to 12,000		X	42.590	-	348,040	=		(T)

If over 12,000   Use Exponential Method (See Appendix)

SERVICE FACTOR   (T)/1,000,000   0.001434

FORM B-3c
ESTIMATION OF NON-PROGRAM DEMAND SERVICE FACTOR
CURRENT YEAR

PERSONS RESIDING IN FAMILIES BELOW POVERTY LEVEL

Service Factor:

Vehicle-Miles Available
Per Square Mile
Item (Q) on Form B-2a

	(Q)						(V)
If less than 4,000	*270*	X	2.450	+	525	=	*1187*
If 4,000 to 7,000		X	8.828	-	24,988	=	
If 7,000 to 10,000		X	45.647	-	282,717	=	
If 10,000 to 12,000		X	99.520	-	821,450	=	
If over 12,000	Use Exponential Method (See Appendix)						

SERVICE FACTOR   (V)/1,000,000   *0.001187*

FORM B-3d
ESTIMATION OF NON-PROGRAM DEMAND SERVICE FACTOR
FUTURE YEAR

PERSONS AGE 60 OR OVER

Service Factor:

Vehicle-Miles Available
Per Square Mile
Item (K) on Form B-2b

	(K)						(R)
If less than 4,000	368	X	2.682	+	376	=	1362
If 4,000 to 7,000		X	13.693	-	43,668	=	(R)
If 7,000 to 10,000		X	50.727	-	302,908	=	(R)
If 10,000 to 12,000		X	113.010	-	925,740	=	(R)

If over 12,000   Use Exponential Method (See Appendix)

SERVICE FACTOR   (R)/1,000,000   0.001362

FORM B-3e
ESTIMATION OF NON-PROGRAM DEMAND SERVICE FACTOR
FUTURE YEAR

PERSONS WITH MOBILITY LIMITATIONS

Service Factor:

Vehicle-Miles Available
Per Square Mile
Item (N) on Form B-2b

	(N)							(T)
If less than 4,000	*305*	X	1.570	+	1,010	=		*1486*
If 4,000 to 7,000		X	5.823	-	16,003	=		(T)
If 7,000 to 10,000		X	17.700	-	99,140	=		(T)
If 10,000 to 12,000		X	42.590	-	348,040	=		(T)

If over 12,000   Use Exponential Method (See Appendix)

SERVICE FACTOR   (T)/1,000,000   *0.001486*

FORM B-3f
ESTIMATION OF NON-PROGRAM DEMAND SERVICE FACTOR
FUTURE YEAR

PERSONS RESIDING IN FAMILIES BELOW POVERTY LEVEL

Service Factor:

Vehicle-Miles Available
Per Square Mile
Item (Q) on Form B-2b

	(Q)						(V)
If less than 4,000	305	X	2.450	+	525	=	1272
If 4,000 to 7,000		X	8.828	-	24,988	=	
If 7,000 to 10,000		X	45.647	-	282,717	=	
If 10,000 to 12,000		X	99.520	-	821,450	=	

If over 12,000   Use Exponential Method (See Appendix)

SERVICE FACTOR   (V)/1,000,000 0.001272

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FORM B-4
COMPUTATION OF FUTURE DEMAND
CHANGE FROM EXISTING SERVICE

POPULATION AGE 60 OR OVER

From Surveys
or Form B-5
Current Ridership

From Form A-1
Future Population

From Form B-3d
Future Service Factor

Forecast Ridership

	From Form A-1 Future Population	From Form B-3d Future Service Factor	
9444	X (*6800* / From Form A-1 Current Population *6000*)	X (*0.001362* / From Form B-3a Current Service Factor *0.001100*)	= *11,693*

POPULATION WITH MOBILITY LIMITATIONS

	From Form A-1 Future Population	From Form B-3e Future Service Factor	
1083	X (*500* / From Form A-1 Current Population *500*)	X (*0.001486* / From Form B-3b Current Service Factor *0.001434*)	= *1122*

POPULATION RESIDING IN FAMILIES WITH INCOME BELOW THE POVERTY LEVEL

	From Form A-1 Future Population	From Form B-3f Future Service Factor	
8247	X (*4900* / From Form A-1 Current Population *4900*)	X (*0.001272* / From Form B-3c Current Service Factor *0.001187*)	= *8837*

TOTAL FORECAST NON-PROGRAM RIDERSHIP   *21,652*