



Transit Needs Assessment

This chapter examines the transit need that exists in the Central Kenai region. Transit need and transit demand are terms that should be thought of separately. Need exists when transit service may not be available. Demand is generally thought of as deriving from various levels or types of service.

It remains difficult to quantify the existing transit need for a region. Chapter V uses three methodologies to examine the amount of need and demand. The first methodology examines the difference in household trips by vehicle access. The remaining methodologies attempt to quantify demand by using trip rates related to both program trips and general public service trips.

MOBILITY GAP METHODOLOGY

The mobility gap methodology is used to identify what amount of service is required to provide an equal amount of mobility to households that have access to vehicles and those that do not. The National Personal Transportation Survey (NPTS) provides data that allow for calculations to be made relating to trip rates. Separate trip rates are generated for various regions throughout the United States to account for any locational inequities. Trip rates are also separated by general density and other factors such as age.

Alaska is part of Division Nine, the Pacific Region. Trip rates for zero-vehicle households in rural areas of the Pacific Region were determined to be 3.3 daily trips. For rural households with at least one vehicle, the trip rate was 5.8 daily trips. The mobility gap is calculated by subtracting the daily trip rate of zero-vehicle households from the daily trip rate of households with at least one vehicle. Thus, the mobility gap is represented as 2.5 household trips per day. This means that households that have access to a vehicle take 2.5 more daily trips on average.

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To calculate the transit need for each block group, the number of zero-vehicle households is multiplied by the mobility gap number. Table V-1 shows this information broken out by census block group. In total, 2,154 daily trips need to be provided via transit to make up for the gap in mobility.

These numbers were updated to reflect potential growth over the next ten years. Table V-2 shows the mobility gap table updated to 2020 demographics. The number of trips that would need to be provided to make up for the gap in mobility in 2020 is estimated at 2,325 trips. This is a modest increase of 171 trips over this time span.

**Table V-1
Kenai Mobility Gap 2010**

Tract	Block Group	Location	2010 Population	2010 Households	No Vehicle	One Plus Vehicle	Mobility Gap	Daily Transit Need
2	1	Nikiski	1,670	604	30	575	2.5	74
2	2	Nikiski	857	311	6	305	2.5	15
2	3	Nikiski	1,956	660	24	636	2.5	59
2	4	Salamatof	889	197	-	197	2.5	0
4	1	Sterling	2,946	1,039	27	1,013	2.5	67
4	2	Sterling	2,291	832	14	818	2.5	36
4	3	Funny River	822	354	14	340	2.5	34
5	1	Ridgeway	1,181	411	14	397	2.5	36
5	2	Ridgeway	862	334	14	320	2.5	36
5	3	Soldonta	2,527	955	127	829	2.5	316
5	4	Soldonta	1,678	704	72	633	2.5	179
6	1	Kenai	1,347	587	124	462	2.5	310
6	2	Kenai	1,114	427	6	421	2.5	16
6	3	Kenai	1,127	407	33	373	2.5	83
6	4	Kenai	756	279	14	265	2.5	36
6	5	Kenai	1,770	606	42	564	2.5	106
6	6	Kenai	1,061	407	7	399	2.5	18
7	1	Kalifornsky	2,549	939	20	919	2.5	49
7	2	Kalifornsky	1,601	545	-	545	2.5	0
7	3	Kalifornsky	1,658	571	9	562	2.5	23
7	4	Kalifornsky	1,455	570	24	546	2.5	59
7	5	Kalifornsky/Kasilof	1,003	380	8	372	2.5	19
7	6	Cohoe	1,539	588	18	569	2.5	46
8	1	Ninilchik	1,395	583	29	553	2.5	74
8	2	Anchor Point	691	228	2	226	2.5	5
8	3	Anchor Point	789	310	21	289	2.5	52
8	4	Anchor Point	713	262	15	247	2.5	37
9	1	Diamond Ridge	313	116	1	115	2.5	3
9	2	Diamond Ridge	229	90	3	86	2.5	8
10	1	Homer	4,187	1,702	96	1,606	2.5	240
10	2	Homer	1,672	673	47	627	2.5	117
TOTAL			44,651	16,670	862	15,809	-	2,154

Source: LSC, 2010.

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**Table V-2
Kenai Mobility Gap 2020**

Tract	Block Group	Location	2020 Population	2020 Households	No Vehicle	One Plus Vehicle	Mobility Gap	Daily Transit Need
2	1	Nikiski	1,802	652	32	620	2.5	80
2	2	Nikiski	925	336	7	329	2.5	17
2	3	Nikiski	2,110	712	25	686	2.5	63
2	4	Salamatof	960	212	-	212	2.5	0
4	1	Sterling	3,179	1,121	29	1,093	2.5	72
4	2	Sterling	2,472	898	16	882	2.5	39
4	3	Funny River	887	382	15	367	2.5	37
5	1	Ridgeway	1,274	444	16	428	2.5	39
5	2	Ridgeway	930	360	16	345	2.5	39
5	3	Soldonta	2,726	1,031	137	894	2.5	341
5	4	Soldonta	1,811	760	77	683	2.5	193
6	1	Kenai	1,453	633	134	499	2.5	335
6	2	Kenai	1,202	461	7	454	2.5	17
6	3	Kenai	1,216	439	36	403	2.5	89
6	4	Kenai	816	301	16	286	2.5	39
6	5	Kenai	1,910	654	46	608	2.5	114
6	6	Kenai	1,145	439	8	431	2.5	20
7	1	Kalifornsky	2,751	1,013	21	992	2.5	53
7	2	Kalifornsky	1,728	588	-	588	2.5	0
7	3	Kalifornsky	1,789	616	10	607	2.5	25
7	4	Kalifornsky	1,570	615	26	590	2.5	64
7	5	Kalifornsky/Kasilof	1,083	410	8	402	2.5	21
7	6	Cohoe	1,661	634	20	614	2.5	50
8	1	Ninilchik	1,505	629	32	597	2.5	79
8	2	Anchor Point	746	245	2	243	2.5	5
8	3	Anchor Point	852	334	22	312	2.5	56
8	4	Anchor Point	770	283	16	267	2.5	40
9	1	Diamond Ridge	338	125	1	124	2.5	3
9	2	Diamond Ridge	247	97	4	93	2.5	9
10	1	Homer	4,518	1,837	104	1,733	2.5	259
10	2	Homer	1,804	727	50	676	2.5	126
TOTAL			48,178	17,987	930	17,057	-	2,325

Source: LSC, 2010.

RURAL TRANSIT DEMAND

A methodology developed as part of a Transit Cooperative Research Program (TCRP) project exists that allows us to forecast transit demand for market segments of the population.

Program Trips

Program trips are trips that occur because of the presence of specific social service programs including Head Start, day habilitation services, and senior living centers.

Census information was gathered on various segments of the population, including individuals of specific ages and by type of disability. These populations, for each block group, are then used to forecast the number of participants in a specific program. The TCRP methodology has a trip rate for each type of program that allows us to calculate the approximate number of trips that will be provided. Table V-3 shows the total number of estimated annual one-way program trips as 128,252. This equates to approximately 503 daily trips on public transit.

Table V-3 Kenai Area Estimated Program-Related Transit Demand		
Program Type	Estimated # of Participants	Annual One-Way Trips
Developmental Services		
<i>Adult</i>	83 pp	29,548
<i>Case Management</i>	49 pp	1,940
<i>Pre-school -- 3 to 5 yrs (est.)</i>	22 pp	4,959
Head Start	52 pp	13,692
Job Training (est.)	158 clients	21,627
Mental Health Services (est.)	21 clients	7,275
<i>Case Management (est.)</i>	237 clients	1,504
Nursing Home	31 pp	279
Senior Nutrition (est.)	77 pp	20,299
Sheltered Workshop* (est.)	52 pp	20,072
Group Home* (est.)	18 pp	7,058
TOTAL PROGRAM TRIPS		128,252
<i>Source: Demand estimates based on the methodology presented in "TCRP Report 3: Workbook for Estimating Demand for Rural Passenger Transportation," and 2000 US Census Bureau.</i>		
<i>*Note: Est. = Best Estimation Technique used from 2000 US Census Bureau.</i>		

Non-Program Trips

TCRP rural demand methodology has established a system of estimating demand for non-program trips. This method uses the general population, elderly population, mobility-limited population, and low-income population to determine total demand. The methodology uses assumed vehicle-miles to generate a service factor that is then used to calculate demand by market segment.

Table V-4 presents this information for each block group within the study area. The table shows general public trips, mobility-limited trips, and elderly trips. This methodology estimates the current non-program demand at 64,120 trips annually. This estimate thus predicts 251 daily one-way non-program trips within the area.

These numbers were also forecasted based on 2020 demographics. When looking at the future demographics, the annual estimated demand becomes approximately 69,180 trips. This represents an increase of 20 trips daily. Table V-5 shows this information.

Table V-4
2010 Estimated Non-Program Transit Need using the TCRP Method
Kenai Area

Area Description (Towns)	Census Tract	Census Block Group	Estimated Annual Passenger-Trip Demand					Estimated Daily Transit Demand		Daily Demand Density (Trips per Sq. Miles per Day)
			Elderly	Mobility- Limited	Elderly + Mobility- Limited	Low- Income	Total Annual Demand	#	%	
Nikiski	2	1	790	340	1,130	1,330	2,460	10	3.8%	0.58
Nikiski	2	2	900	140	1,040	80	1,120	4	1.7%	0.01
Nikiski	2	3	1,170	390	1,560	1,180	2,740	11	4.3%	0.50
Salamatof	2	4	520	160	680	330	1,010	4	1.6%	0.12
Sterling	4	1	2,080	790	2,870	1,960	4,830	19	7.5%	0.06
Sterling	4	2	1,230	300	1,530	710	2,240	9	3.5%	0.52
Funny River	4	3	1,470	90	1,560	150	1,710	7	2.7%	0.00
Ridgeway	5	1	1,230	70	1,300	380	1,680	7	2.6%	0.44
Ridgeway	5	2	510	180	690	610	1,300	5	2.0%	1.90
Soldotna	5	3	1,950	570	2,520	1,210	3,730	15	5.8%	4.64
Soldotna	5	4	1,700	760	2,460	400	2,860	11	4.5%	2.24
Kenai	6	1	1,190	270	1,460	990	2,450	10	3.8%	6.08
Kenai	6	2	480	210	690	650	1,340	5	2.1%	2.71
Kenai	6	3	990	100	1,090	670	1,760	7	2.7%	1.93
Kenai	6	4	440	40	480	150	630	2	1.0%	0.23
Kenai	6	5	990	320	1,310	930	2,240	9	3.5%	1.88
Kenai	6	6	740	170	910	200	1,110	4	1.7%	0.44
Kalifornsky	7	1	1,180	590	1,770	930	2,700	11	4.2%	0.92
Kalifornsky	7	2	1,010	270	1,280	770	2,050	8	3.2%	1.05
Kalifornsky	7	3	430	140	570	650	1,220	5	1.9%	0.34
Kalifornsky	7	4	1,410	280	1,690	650	2,340	9	3.6%	0.35
Kalifornsky/Kasilof	7	5	470	160	630	910	1,540	6	2.4%	0.28
Cohoe	7	6	1,080	330	1,410	900	2,310	9	3.6%	0.11
Ninilchik	8	1	1,740	390	2,130	1,090	3,220	13	5.0%	0.03
Anchor Point	8	2	440	170	610	520	1,130	4	1.8%	0.06
Anchor Point	8	3	730	190	920	490	1,410	6	2.2%	0.26
Anchor Point	8	4	460	120	580	480	1,060	4	1.7%	0.15
Diamond Ridge	9	1	130	40	170	100	270	1	0.4%	0.07
Diamond Ridge	9	2	180	10	190	110	300	1	0.5%	0.04
Homer	10	1	3,870	810	4,680	2,040	6,720	26	10.5%	5.15
Homer	10	2	1,710	220	1,930	710	2,640	10	4.1%	1.67
Totals			33,220	8,620	41,840	22,280	64,120	251	100%	34.75

Source: 2000 Census, Alaska Department of Labor and Workforce Development-Research and Analysis, LSC 2010.

**Table V-5
2020 Estimated Public Transit Need using the TCRP Method
Kenai Area**

Area Description (Towns)	Census Tract	Census Block Group	Estimated Annual Passenger-Trip Demand					Estimated Daily Transit Demand		Daily Demand Density (Trips per Sq. Miles per Day)
			Elderly	Mobility- Limited	Elderly + Mobility- Limited	Low- Income	Total Annual Demand	#	%	
Nikiski	2	1	860	370	1,230	1,430	2,660	10	3.8%	0.62
Nikiski	2	2	970	150	1,120	90	1,210	5	1.7%	0.01
Nikiski	2	3	1,260	420	1,680	1,270	2,950	12	4.3%	0.53
Salamatof	2	4	560	170	730	360	1,090	4	1.6%	0.13
Sterling	4	1	2,240	860	3,100	2,110	5,210	20	7.5%	0.07
Sterling	4	2	1,320	330	1,650	770	2,420	9	3.5%	0.56
Funny River	4	3	1,590	100	1,690	160	1,850	7	2.7%	0.00
Ridgeway	5	1	1,330	70	1,400	410	1,810	7	2.6%	0.47
Ridgeway	5	2	560	190	750	650	1,400	5	2.0%	2.04
Soldotna	5	3	2,100	610	2,710	1,310	4,020	16	5.8%	5.00
Soldotna	5	4	1,830	820	2,650	430	3,080	12	4.5%	2.41
Kenai	6	1	1,290	290	1,580	1,060	2,640	10	3.8%	6.55
Kenai	6	2	510	230	740	700	1,440	6	2.1%	2.91
Kenai	6	3	1,060	110	1,170	720	1,890	7	2.7%	2.08
Kenai	6	4	480	50	530	170	700	3	1.0%	0.26
Kenai	6	5	1,060	350	1,410	1,010	2,420	9	3.5%	2.03
Kenai	6	6	800	180	980	220	1,200	5	1.7%	0.48
Kalifornsky	7	1	1,280	630	1,910	1,000	2,910	11	4.2%	1.00
Kalifornsky	7	2	1,080	290	1,370	830	2,200	9	3.2%	1.13
Kalifornsky	7	3	470	150	620	700	1,320	5	1.9%	0.37
Kalifornsky	7	4	1,520	300	1,820	700	2,520	10	3.6%	0.38
Kalifornsky/Kasilof	7	5	510	170	680	980	1,660	7	2.4%	0.30
Cohoe	7	6	1,170	360	1,530	970	2,500	10	3.6%	0.11
Ninilchik	8	1	1,880	430	2,310	1,170	3,480	14	5.0%	0.03
Anchor Point	8	2	470	180	650	560	1,210	5	1.7%	0.06
Anchor Point	8	3	790	210	1,000	520	1,520	6	2.2%	0.28
Anchor Point	8	4	490	130	620	520	1,140	4	1.6%	0.17
Diamond Ridge	9	1	150	40	190	110	300	1	0.4%	0.07
Diamond Ridge	9	2	200	20	220	120	340	1	0.5%	0.04
Homer	10	1	4,180	870	5,050	2,200	7,250	28	10.5%	5.56
Homer	10	2	1,850	230	2,080	760	2,840	11	4.1%	1.79
Totals			35,860	9,310	45,170	24,010	69,180	271	100.0%	37.45

Source: 2000 Census, Alaska Department of Labor and Workforce Development-Research and Analysis, LSC 2010.

GREATEST TRANSIT NEED

The “greatest transit need” is defined as those portions of the study area with the highest percentage of zero-vehicle households and elderly, disabled, and below-poverty populations. This information was used to develop the transit service plan and identify the appropriate service district boundaries.

Methodology

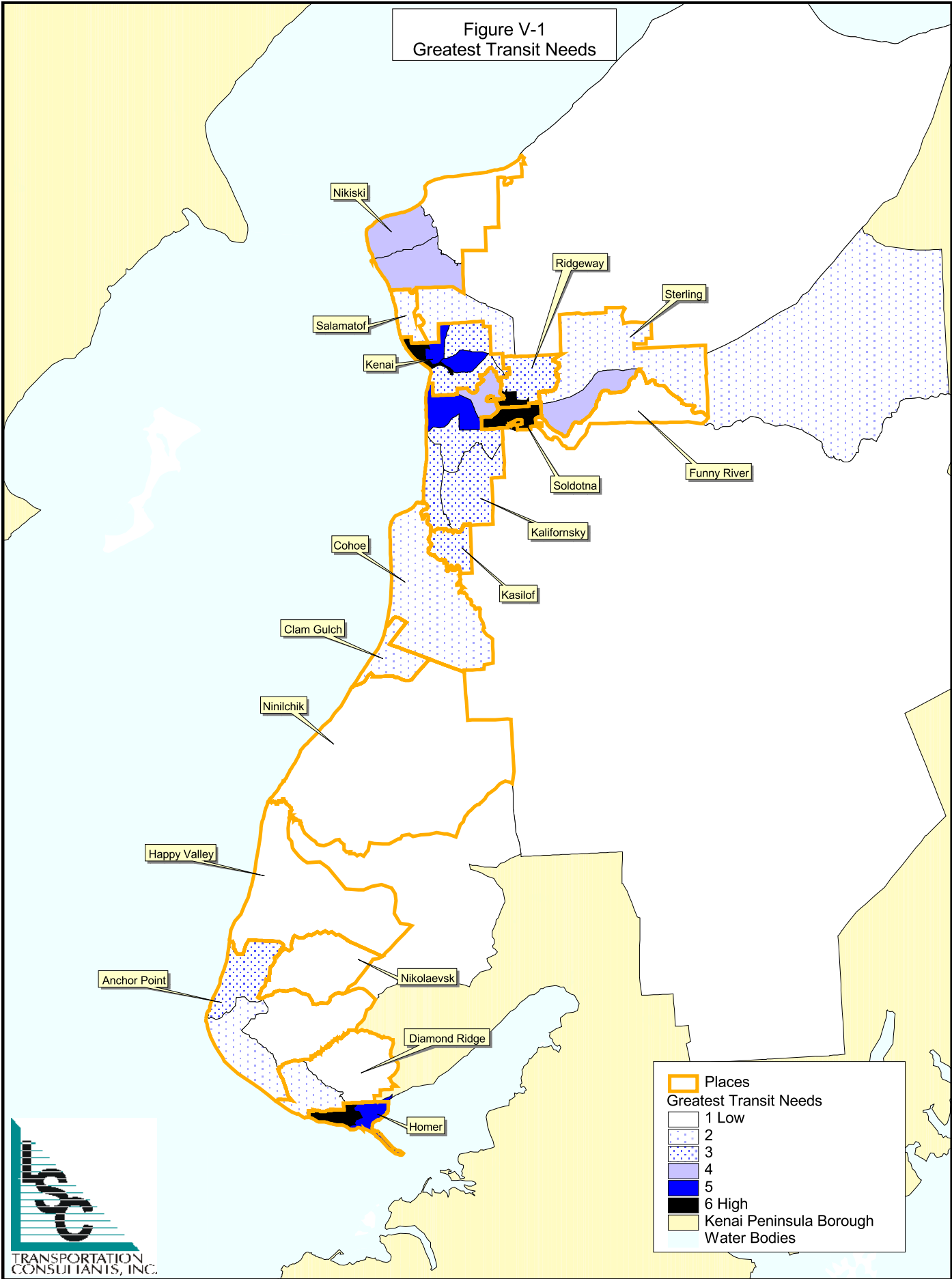
The data included in Chapter III were used to calculate the greatest transit need. The categories used for the calculation were zero-vehicle households, elderly population, disabled population, and below-poverty population. Using these categories, LSC developed a “transit need index” to determine the greatest transit need. The percentage of the population for each US Census block group within each category was calculated, placed in numerical order, and divided into six segments. Six segments were chosen to reflect a reasonable range. Each segment contained an approximately equal number of US Census block groups to provide equal representation.

The US Census block groups in the segment with the lowest density were given a score of one. The block groups in the segment with the next density were given a score of two, and so on. The blocks groups in the segment with the highest percentages were given a score of six. This scoring was completed for each of the categories (zero-vehicle households, elderly population, disabled population, and below-poverty population). After each of the block groups was scored for the four categories, the four scores were added up to achieve an overall score. Table V-6 presents the ranked scores for each US Census block group in the study area. The scores range from four (lowest need) to 24 (highest need). Figure V-1 also shows the information graphically.

Results

The results allow us to rank which census block groups need transit the most. The areas that show the highest transit need based on this methodology are located in Soldotna, western Homer, and western Kenai. On the map, they are shaded the darkest. Other areas of Kenai, Homer, and all of Nikiski also show a rather high transit need.

Figure V-1
Greatest Transit Needs



**Table V-6
2010 Greatest Transit Need Scores by Census Block Group**

Census Tract	Census Block Group	Area Description (Towns)	Land Area (sq.mi.)	Zero-Vehicle Households			Total # of Hhlds	Total Number of Elderly 60 & over			Mobility-Limited Population			Below-Poverty Population			Overall Score (4-24)	Final (1-6)	Total Population (Persons) #
				#	Density (hhlds per sq. mi.)	rank		#	#	Density (persons per sq. mi.)	rank	#	Density (persons per sq. mi.)	rank	#	Density (persons per sq. mi.)			
2	1	Nikiski	17	30	1.77	4	604	116	6.90	3	66	3.97	4	260	15.51	4	15	4	1,670
2	2	Nikiski	850	6	0.01	1	311	131	0.15	1	27	0.03	1	16	0.02	1	4	1	857
2	3	Nikiski	22	24	1.09	4	660	170	7.85	4	77	3.55	4	231	10.69	4	16	4	1,956
2	4	Salamatof	33	0	0.00	1	197	76	2.29	2	30	0.92	3	66	1.99	2	8	2	889
4	1	Sterling	303	27	0.09	2	1,039	302	1.00	2	155	0.51	2	383	1.27	2	8	2	2,946
4	2	Sterling	17	14	0.85	3	832	178	10.47	4	59	3.47	4	139	8.18	4	15	4	2,291
4	3	Funny River	1,782	14	0.01	1	354	214	0.12	1	17	0.01	1	29	0.02	1	4	1	822
5	1	Ridgeway	15	14	0.96	4	411	179	11.99	4	13	0.90	3	74	4.96	3	14	3	1,181
5	2	Ridgeway	3	14	5.37	5	334	74	27.60	5	34	12.65	6	118	43.70	6	22	6	862
5	3	Soldotna	3	127	40.17	6	955	282	89.43	6	110	34.93	6	235	74.76	6	24	6	2,527
5	4	Soldotna	5	72	14.28	6	704	248	49.42	6	147	29.43	6	78	15.59	4	22	6	1,678
6	1	Kenai	2	124	78.58	6	587	173	109.35	6	53	33.39	6	192	121.79	6	24	6	1,347
6	2	Kenai	2	6	3.20	5	427	68	35.20	5	40	20.80	6	126	65.06	6	22	6	1,114
6	3	Kenai	4	33	9.27	5	407	143	39.99	5	20	5.51	5	130	36.51	5	20	5	1,127
6	4	Kenai	11	14	1.37	4	279	64	6.06	3	8	0.78	3	30	2.84	2	12	3	756
6	5	Kenai	5	42	9.06	5	606	144	30.73	5	63	13.48	6	183	39.13	5	21	5	1,770
6	6	Kenai	10	7	0.73	3	407	108	10.91	4	33	3.36	4	39	3.99	3	14	3	1,061
7	1	Kalifornsky	11	20	1.72	4	939	172	15.03	5	114	9.98	5	181	15.83	4	18	5	2,549
7	2	Kalifornsky	8	0	0.00	1	545	146	19.06	5	53	6.87	5	150	19.57	5	16	4	1,601
7	3	Kalifornsky	14	9	0.65	3	571	63	4.48	3	28	1.96	4	127	9.06	4	14	3	1,658
7	4	Kalifornsky	26	24	0.91	3	570	205	7.85	4	54	2.06	4	127	4.88	3	14	3	1,455
7	5	Kalifornsky/Kasilof	22	8	0.36	3	380	69	3.20	3	31	1.42	4	177	8.23	4	14	3	1,003
7	6	Cohoe	86	18	0.21	3	588	157	1.83	2	64	0.75	3	176	2.05	2	10	2	1,539
8	1	Ninilchik	449	29	0.07	2	583	253	0.56	1	77	0.17	2	213	0.47	1	6	1	1,395
8	2	Anchor Point	79	2	0.03	1	228	63	0.81	1	33	0.42	2	102	1.30	2	6	1	691
8	3	Anchor Point	22	21	0.96	4	310	106	4.90	3	38	1.74	4	95	4.39	3	14	3	789
8	4	Anchor Point	27	15	0.55	3	262	66	2.46	2	23	0.84	3	94	3.49	3	11	2	713
9	1	Diamond Ridge	16	1	0.08	2	116	20	1.24	2	8	0.51	2	20	1.26	2	8	2	313
9	2	Diamond Ridge	32	3	0.10	2	90	27	0.84	1	3	0.09	1	22	0.70	1	5	1	229
10	1	Homer	5	96	18.81	6	1,702	561	109.74	6	157	30.78	6	398	77.82	6	24	6	4,187
10	2	Homer	6	47	7.50	5	673	249	40.09	6	42	6.80	5	138	22.27	5	21	5	1,672
STUDY AREA TOTAL:			3,882	862	5.2%		16,670	4,825	10.8%		1,677	3.8%		4,351	9.7%				44,651

Source: 2000 Census, Alaska Department of Labor and Workforce Development-Research and Analysis, LSC 2010.

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DEMOGRAPHIC-BASED NEEDS IDENTIFICATION

The above technical methods provide a good barometer for transit need. The data present an estimate of potential need of the residents of the study area. The mobility gap methodology allows us to see the upper threshold of potential need by examining the relationship between vehicle access and trips. While this model shows that over 2,000 trips would need to be provided daily to bridge the gap in mobility, it should be seen as the highest potential need. The TCRP methodology for public transit trips presents a more realistic daily demand of 251 trips.