

KFH GROUP, INC.

Legislative Report - J00H01.01

Study of Paratransit Services for Dialysis

Final Report

October 31, 2013

Prepared for:

Maryland Transit Administration
Maryland Department of Transportation

Legislative Report – J00H01.01

Study of Paratransit Services for Dialysis *Final Report*

BACKGROUND

In the most recent session of the Maryland General Assembly, a bill was introduced regarding funding for public transit services to meet the growing demand for door-to-door transportation to dialysis centers. The Joint Committee expressed concern about the adequacy of funding for public transit services to meet this growing need. In lieu of legislation, the legislature's Joint Committee requested the Maryland Department of Transportation, Maryland Transit Administration (MTA), conduct the study in consultation with the Department of Health and Mental Hygiene, the Maryland Association of Counties, and the Transportation Association of Maryland. The purpose of this study was to estimate both 1) the demand for paratransit to dialysis centers, and 2) the funding that would be required if public transit agencies were to meet that demand.

DIALYSIS TRANSPORTATION - THE NEED

United States

Nationwide, it is estimated that the number of people needing kidney dialysis is growing at a rate of 10% annually. Usually dialysis treatments are required three times a week, Monday through Saturday. Thus, access to reliable transportation to and from treatment centers is essential to the health of these persons.

The National Institute of Health estimated that, at the end of 2009, over 870,000 people had end-stage renal disease (ESRD) in the United States. From 1980 – 2009, the prevalent rate for ESRD increased nearly 600%.¹ At the end of 2009, almost 400,000 ESRD patients were being treated with some form of dialysis, mostly in clinic settings.

Maryland

It appears that approximately 8,800 Marylanders have ESRD and could require dialysis treatment. Of these, it is estimated that approximately 8,300 people receive dialysis at one of the 114 dialysis centers in the State. Further, it is estimated that this number is growing at a rate of 3-4% annually.

¹ National Kidney and Urologic Diseases Informational Clearinghouse (NKUDIC), National Institute of Diabetes and Digestive and Kidney Diseases. November 2012.

According to the 2011 annual report by the Mid-Atlantic Renal Coalition (MARC), on December 30, 2011, 8,834 Maryland residents had ESRD². Table 1 presents the prevalence of ESRD by jurisdiction using zip code data (slightly lower).

Table 1: ESRD PREVALENCE RATE BY JURISDICTION (2011)

County	Number of Dialysis Patients	Jurisdiction Population	Prevalence Rate	Jurisdiction Pop. as % of State	Dialysis Patients as % of State Patient Pop.
Allegany	89	74,012	0.12%	1.3%	1.0%
Anne Arundel	587	550,488	0.11%	9.4%	6.7%
Baltimore City	1,137	817,455	0.14%	13.9%	13.0%
Baltimore County	2,092	621,342	0.34%	10.6%	24.0%
Calvert	93	89,628	0.10%	1.5%	1.1%
Caroline	35	32,718	0.11%	0.6%	0.4%
Carroll	84	167,217	0.05%	2.8%	1.0%
Cecil	67	101,696	0.07%	1.7%	0.8%
Charles	200	150,592	0.13%	2.6%	2.3%
Dorchester	58	32,551	0.18%	0.6%	0.7%
Frederick	170	239,582	0.07%	4.1%	1.9%
Garrett	26	29,854	0.09%	0.5%	0.3%
Harford	227	248,622	0.09%	4.2%	2.6%
Howard	204	299,430	0.07%	5.1%	2.3%
Kent	17	20,191	0.08%	0.3%	0.2%
Montgomery	792	1,004,709	0.08%	17.1%	9.1%
Prince George's	2,167	881,138	0.25%	15.0%	24.8%
Queen Anne's	36	48,595	0.07%	0.8%	0.4%
Saint Mary's	126	108,987	0.12%	1.9%	1.4%
Somerset	33	26,253	0.13%	0.4%	0.4%
Talbot	44	38,098	0.12%	0.6%	0.5%
Washington	160	149,180	0.11%	2.5%	1.8%
Wicomico	203	100,647	0.20%	1.7%	2.3%
Worcester	87	51,578	0.17%	0.9%	1.0%
Statewide	8,734	5,884,563	0.15%	100.0%	100.0%

Source: 2011 Annual Report, Mid Atlantic Renal Coalition (MARC)

Kidney dialysis is provided at a variety of locations including local hospitals and independent dialysis centers. Table 2 lists the number of dialysis centers by jurisdiction in the State (Appendix A provides a complete list of centers). It is interesting to note that there are dialysis centers in all jurisdictions except Caroline and Queen Anne's counties.

² Mid-Atlantic Renal Coalition, 2011 Annual Report, ESRD Network 5, June 2012.

Table 2: DIALYSIS CENTERS

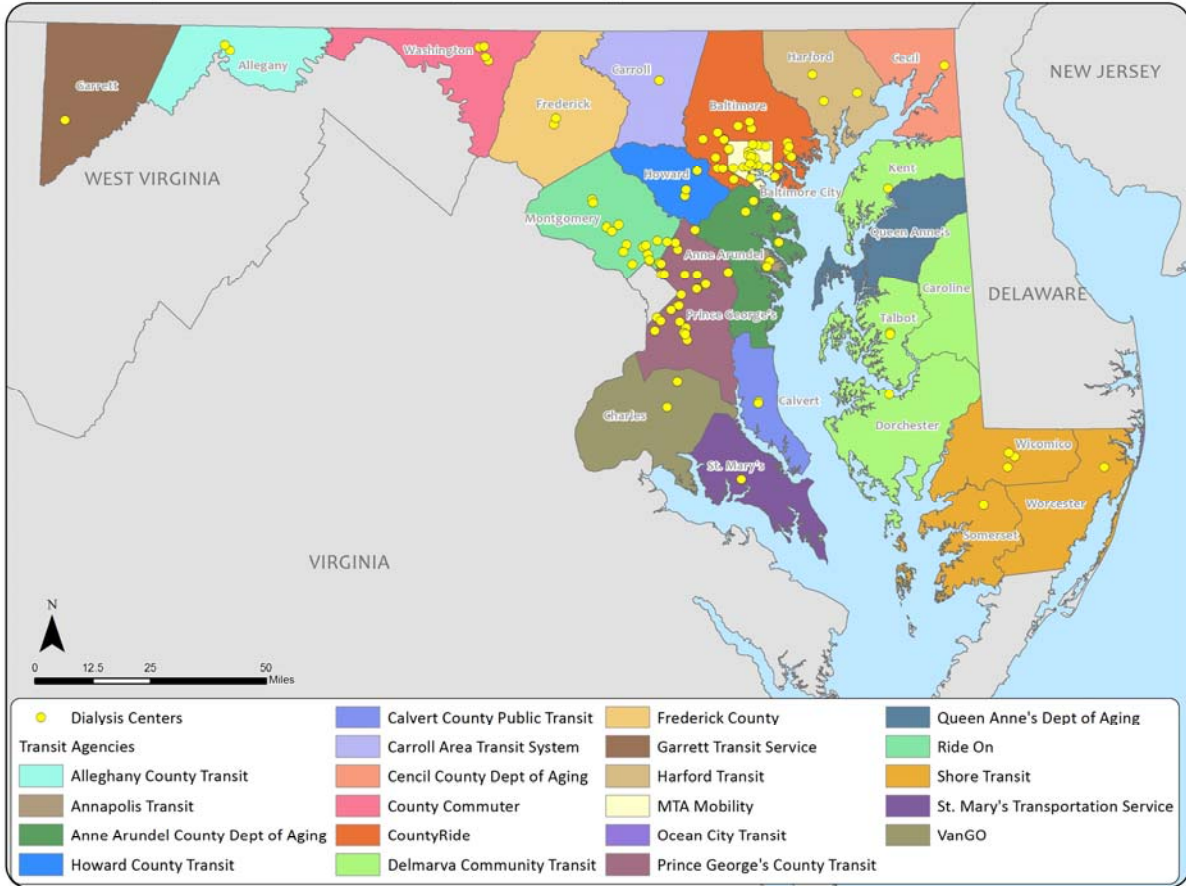
Jurisdiction	Number of Centers
Allegany County	2
Anne Arundel County	6
Baltimore City	19
Baltimore County	18
Calvert County	2
Caroline County *	0
Carroll County	1
Cecil County	1
Charles County	2
Dorchester County	1
Frederick County	2
Garrett County	1
Harford County	3
Howard County	3
Kent County	1
Montgomery County	15
Prince George's County	25
Queen Anne's County *	0
Somerset County	1
St. Mary's County	1
Talbot County	2
Washington County	4
Wicomico County	3
Worcester County	1
TOTAL	114

** No dialysis center within jurisdiction.*

Currently, many Maryland residents that require dialysis treatments rely on public transit to access those services. These dialysis patients rely on general demand response services, fixed routes, and ADA complementary paratransit services provided by public transit operators throughout the State. For the purposes of this report, the research team considered as “paratransit” as a broad term that encompasses the demand response and ADA complementary paratransit services provided by public transit agencies and human service agencies in the State. These services are funded by a combination of State, federal transit and local funds, all of which are being stretched to meet the needs of residents of the State.

Figure 1 presents the location of dialysis centers in the State along with the transit systems that provide paratransit services in each jurisdiction.

Figure 1: Dialysis Centers and Transit Agencies in Maryland



STUDY OBJECTIVES

The objective of this study was to 1) estimate the demand for paratransit trips for dialysis patients in each jurisdiction and, 2) project the funding required to ensure the local public transit agencies are able to meet that demand.

Research Tasks

The research involved gathering data on current dialysis patients and trips. This included surveying the 114 dialysis centers in the State to determine:

- Current number of dialysis patients,
- Whether the staff knows how patients currently travel to and from the center, and

- Whether (and how) the center facilitates or assists in arranging transportation services for its patients, either through scheduling assistance, courtesy phone, or other means.

After calling to determine the most appropriate person to contact at each center, the research team conducted telephone interviews with staff at each center (the survey question are included in Appendix B). The team was able to gather information from 102 or 90% of the centers, which was used to estimate the number of dialysis patients traveling to the centers daily along with their mode of transportation. Table 3 presents the center response rate by jurisdiction.

Table 3 - DIALYSIS CENTERS SURVEYED

	Number of Centers	Number of Centers that Responded	Survey Response Rate
Allegany County	2	2	100%
Anne Arundel County	6	5	83%
Baltimore City	19	17	89%
Baltimore County	18	18	100%
Calvert County	2	2	100%
Caroline County *	0	0	0%
Carroll County	1	1	100%
Cecil County	1	1	100%
Charles County	2	2	100%
Dorchester County	1	1	100%
Frederick County	2	2	100%
Garrett County	1	1	100%
Harford County	3	3	100%
Howard County	3	3	100%
Kent County	1	1	100%
Montgomery County	15	9	60%
Prince George's County	25	23	92%
Queen Anne's County *	0	0	0%
Somerset County	1	0	0%
St. Mary's County	1	1	100%
Talbot County	2	2	100%
Washington County	4	4	100%
Wicomico County	3	3	100%
Worcester County	1	1	100%
TOTAL	114	102	89%

* No dialysis center within jurisdiction.

The data gathering effort also included collecting information on the paratransit services provided by the Locally Operated Transit Systems (LOTS) as well as the ADA Complementary paratransit services provided directly by MTA (Mobility) in the Baltimore Region and by WMATA (Metro Access) in the Washington suburbs of Maryland. Information from the public transit operators included:

- number of paratransit dialysis trips currently provided,
- current cost of those trips,
- constraints on those trips (do they have to turn down trip requests to dialysis? If so, how many?), and
- average cost per paratransit trip.

The research team sent a paper survey to the LOTS and made follow-up calls where needed (the survey is presented in Appendix B). Additional ADA paratransit data was collected directly from Mobility and MetroAccess.

RESEARCH RESULTS

As outlined above, the research was conducted to answer three main questions:

1. **Number of Dialysis Patients/Trips** - *How many dialysis patients travel to Maryland dialysis centers? How is this likely to increase in the future?*
2. **Number of Dialysis Trips on Public Paratransit** - *How many dialysis patients rely on public transit currently? How many paratransit trips are provided by public transit agencies? How many additional trips would be provided now and in the future if additional funding/resources were available (latent demand)?*
3. **Cost of Additional Trips** - *What would it cost to provide these additional trips?*

Number of Dialysis Patients/Trips

Research Question - How many patients travel to Maryland dialysis centers? How is this likely to increase in the future?

Based on the interviews with the dialysis centers, it is estimated that 8,300 patients currently travel to dialysis centers in Maryland³. Table 4 presents the number of dialysis patients by jurisdiction as reported by the centers along with an estimate of the number of dialysis patients in all centers (including those that declined to be interviewed). It is noted that Table 4 includes patients treated at centers located in each jurisdiction and not the number of dialysis patients that reside in the jurisdiction (patients living in one jurisdiction can travel to another dialysis center for treatment).

³ The 102 centers (out of 114) report that they serve 7,433 patients. Assuming a similar patient to center ratio for the centers that declined to be interviewed, this results in an estimate of 8,307 dialysis patients.

Table 4: NUMBER OF PATIENTS REPORTED BY DIALYSIS CENTERS (2013)

County	Number of Patients Reported by Dialysis Centers Located in Jurisdiction
Allegany	93
Anne Arundel**	319
Baltimore City**	1,268
Baltimore County	1,274
Calvert	157
Caroline*	0
Carroll	200
Cecil	94
Charles	113
Dorchester	105
Frederick	164
Garrett	75
Harford	188
Howard	90
Kent	60
Montgomery**	590
Prince George's**	1,945
Queen Anne's*	0
Somerset	122
St. Mary's**	0
Talbot	94
Washington	262
Wicomico	132
Worcester	88
Total Reported by Centers Interviewed	7,433
Estimated Patients at All Centers	8,307

Source: Dialysis Centers

*No dialysis center within the County

** No response from some dialysis centers

To help answer the question about how the number of dialysis trips is growing, Table 5 presents the ESRD prevalence rates from April 2009 to April 2012.⁴ The table shows that persons with ESRD in Maryland increased from 7,992 in April 2009 to 8,728 in April 2012; a three year growth rate of 9% and an annual growth rate of 3.6%.

Table 5: ESRD PREVALANCE BY JURIDICATION

County	ESRD PREVALANCE BY MONTH			
	April 2012	July 2011	July 2010	April 2009
Allegany	89	87	96	89
Anne Arundel	587	591	553	542
Baltimore City	1,137	1,112	1,056	985
Baltimore County	2,092	2,062	1,957	1,920
Calvert	93	91	95	84
Caroline	35	31	27	27
Carroll	84	93	100	80
Cecil	67	74	82	80
Charles	200	196	199	187
Dorchester	58	66	62	62
Frederick	170	165	150	156
Garrett	26	24	28	28
Harford	227	241	230	212
Howard	204	191	181	150
Kent	17	17	20	17
Montgomery	792	772	786	741
Prince George's	2,167	2,129	2,044	2,025
Queen Anne's	30	39	36	30
Somerset	33	29	21	34
St. Mary's	126	112	123	115
Talbot	44	40	43	40
Washington	160	138	144	137
Wicomico	203	197	120	159
Worcester	87	89	88	92
TOTAL	8,728	8,586	8,241	7,992

Source: 2011 Annual Report, Mid Atlantic Renal Coalition (MARC) Zip Code Reports

⁴ MARC data for April 2012 by zip code.

The graphic in Figure 2 shows a broader timeframe - the increase in ESRD prevalence from 2004 to 2012.

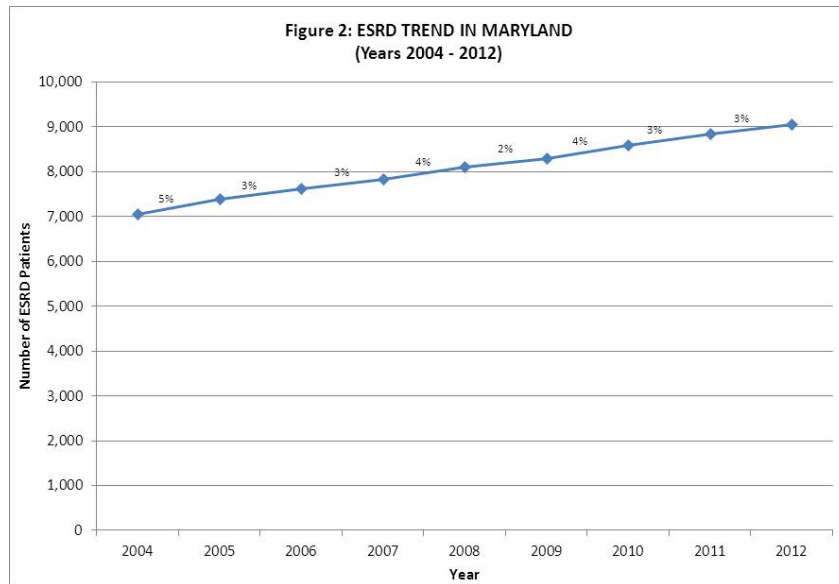
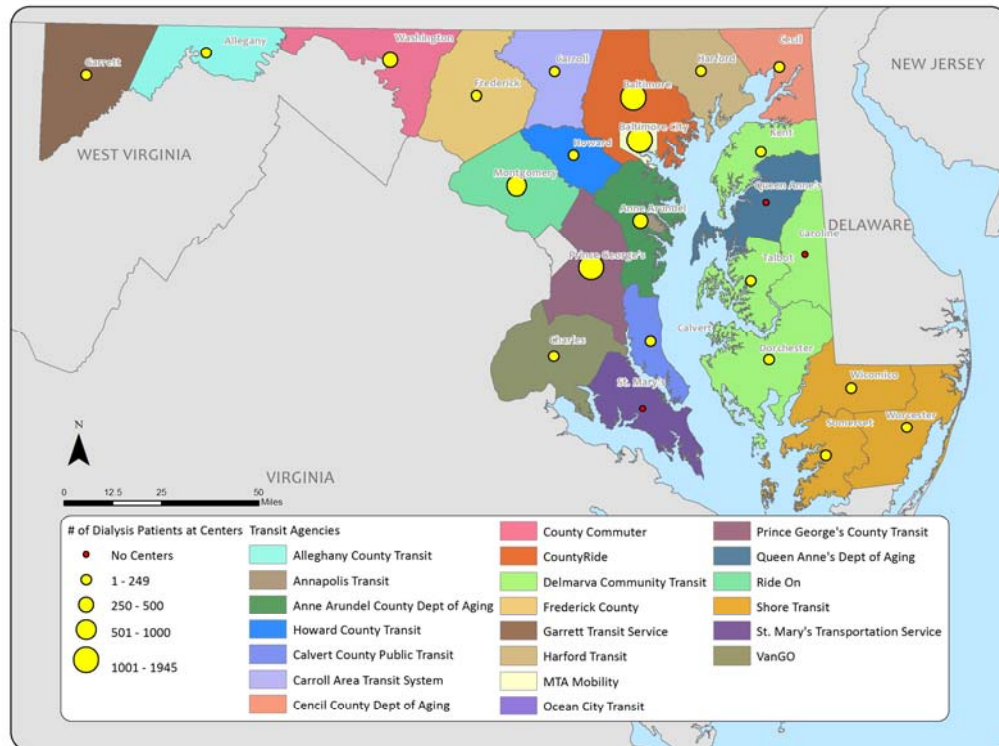


Figure 3 presents the location of dialysis patients in the State along with the transit systems providing paratransit services in each jurisdiction.

Figure 3: Dialysis Patients, by Jurisdiction, in Maryland



Based on the trends presented above, it is estimated that the need for dialysis services will grow 2-4% annually or 28% from 8,300 patients in 2012 to over 10,600 patients in 2020. Table 6 presents a projection of the number of 2020 patients by jurisdiction.

Table 6: ESTIMATED NUMBER OF DIALYSIS PATIENTS (2012 and 2020)

County	Number of Persons with ESRD ¹	Estimated Number of Dialysis Patients 2012	Estimated Number of Dialysis Patients 2020
Allegany	89	86	110
Anne Arundel	587	565	723
Baltimore City	1,137	1,094	1400
Baltimore County	2,092	2,012	2575
Calvert	93	89	114
Caroline*	35	34	43
Carroll	84	81	103
Cecil	67	64	82
Charles	200	192	246
Dorchester	58	56	71
Frederick	170	163	209
Garrett	26	25	32
Harford	227	218	279
Howard	204	196	251
Kent	17	16	21
Montgomery	792	762	975
Prince George's	2,167	2,084	2668
Queen Anne's*	36	35	44
St. Mary's	126	121	155
Somerset	33	32	41
Talbot	44	42	54
Washington	160	154	197
Wicomico	203	195	250
Worcester	87	84	107
Total	8,734	8,300	10,624

* No dialysis center within the County

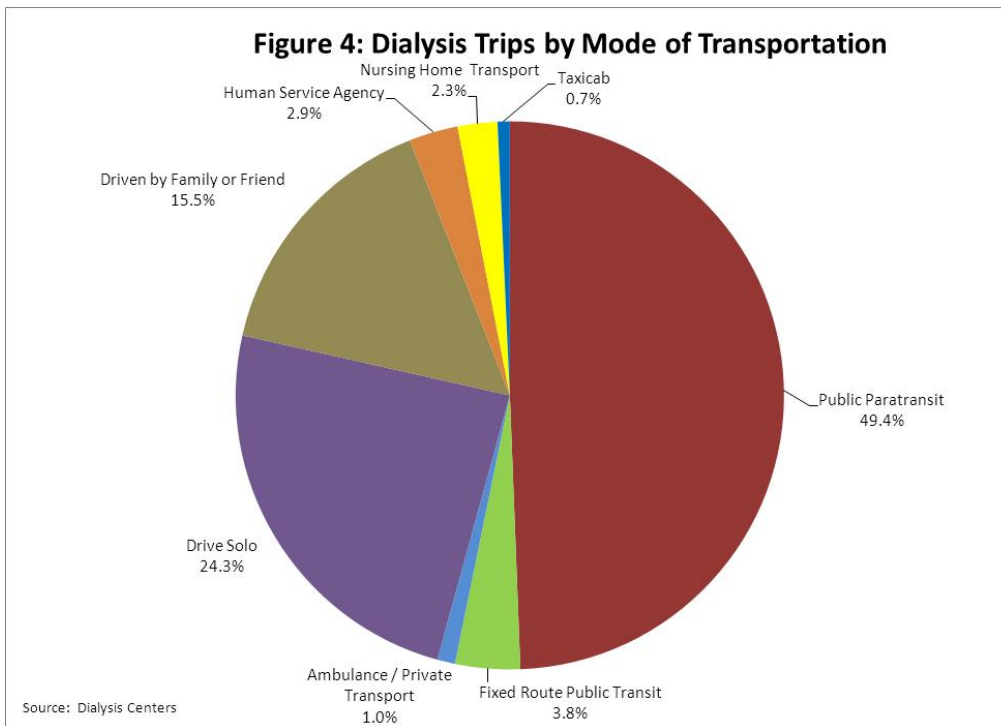
¹Mid Atlantic Renal Coalition (MARC) data by zip code

Number of Potential Dialysis Trips on Public Transit

Research Questions - How many dialysis patients rely on public transit currently? How many additional trips would be provided now, and in the future, if additional funding/resources were available (latent demand)?

Estimating the number of current and future dialysis trips on public transit required a two-pronged approach. First, responses from the dialysis center survey were used to determine how patients currently travel to/from their dialysis appointments - self, family, and friends, public transportation (including ADA paratransit), cabs, and Medicaid transportation. Specifically, we looked at how many currently ride public transit paratransit services to dialysis. Second, the study team used the information gathered from the LOTS and ADA paratransit providers on how many trips they currently provide to dialysis to reconcile the two estimates and estimate the demand for dialysis trips in the future.

The number of annual trips to dialysis centers is 2.6 million trips (8,300 patients taking 312 annual trips). When asked about the mode of transportation used by their patients (see Figure 4), the dialysis centers report that 49% of the trips to their centers, almost 1.3 million trips annually, are taken on public paratransit. Clearly, these trips include both paratransit provided by transit systems and trips provided by other paratransit operators, most notably the vendors operating Medical Assistance transportation (Non-Emergency Medicaid Transportation - NEMT).



The current number of paratransit trips provided to dialysis by the public transit operators in the State is estimated at over 443,000 annual trips. Table 7 presents this data by jurisdiction. Other human service paratransit services provide the remaining 836,000 annual trips.

Table 7: DIALYSIS PARATRANSIT TRIPS AND COST BY JURISDICTION

Jurisdiction	FY13		Total Cost
	Dialysis Paratransit	Cost per Paratransit Trip	
Allegany County	2,144	\$41.31	\$88,569
Anne Arundel County *	31,978	\$25.34	\$892,058
Baltimore City **	165,316	\$35.82	\$8,108,961
Baltimore County	2,317	\$45.00	\$104,265
Calvert County	2,750	\$30.15	\$82,913
Caroline County	1,456	\$18.49	\$26,921
Carroll County	797	\$11.85	\$9,444
Cecil County	857	\$13.19	\$11,304
Charles County	17,160	\$52.66	\$903,646
Dorchester County	5,616	\$18.49	\$103,840
Frederick County	9,742	\$29.58	\$288,168
Garrett County	2,343	\$12.43	\$29,123
Harford County	4,040	\$25.55	\$103,222
Howard County	4,738	\$34.27	\$162,371
Kent County	1,248	\$18.49	\$23,076
Montgomery County	37,950	\$52.02	\$1,974,159
Prince George's County***	119,253	\$35.39	\$5,640,879
Queen Anne's County	2,300	\$40.00	\$92,000
Somerset County	3,927	\$21.64	\$84,976
St. Mary's County	8,376	\$17.83	\$149,344
Talbot County	4,368	\$18.49	\$80,764
Washington County Transit	3,279	\$17.53	\$57,481
Wicomico County	7,552	\$21.64	\$163,414
Worcester County	3,625	\$21.64	\$78,439
TOTAL	443,131		\$19,259,337

Source: LOTS and MetroAccess and MTA Mobility

* Includes both Annapolis Transit and Anne Arundel County Department of Aging & Disabilities.

Cost per trip represents an average of both agencies.

** Includes both Mobility and CAR. Cost per trip represents an average of both Mobility and CAR. □

*** Includes both MetroAccess and Prince George's County paratransit

Cost of Public Transit Paratransit Dialysis Trips

Research Questions - What does it cost to provide the additional public transit paratransit trips to dialysis now? What would it cost in the future?

Based on available data on the number of paratransit dialysis trips provided by the State's public transit systems and the average cost of a paratransit trip at each transit system, it is estimated that public transit operators in the State currently spend \$19M annually to provide paratransit services to dialysis centers. (Table 7 provided this information by jurisdiction). This estimate does not include expenses incurred by other public agencies/programs to provide paratransit services to dialysis, such as those provided by Medical Assistance (Medicaid) and other human service agencies.

Latent and Future Demand

The public transit operators in the State are not able to provide all trips currently needed or requested by patients going to dialysis centers. The study estimates the future need for paratransit to dialysis in two pieces:

- **Current Latent Demand** - The trips (and related costs) that are not being met because transit systems do not currently have the funding or resources available to meet all dialysis trip needs.
- **Future Demand** - The increase in paratransit trips required to meet the travel needs of the increased number of dialysis patients expected by 2020.

Latent Demand and Cost

The latent demand for paratransit services resulting from public paratransit capacity and funding constraints is estimated at 75,000 trips. Latent demand (unmet needs) includes:

- The transit systems report that they have to deny about 22,000 trips annually (assumes all of these would be on paratransit).
- Some transit systems do not operate services at the hours, or days of the week when patients need to go to dialysis (e.g., on Saturdays). It is estimated that an additional 53,000 dialysis trips are not possible on public transit because of service span/days issues (108,000 trips but assuming only 49% would be on paratransit).

An additional \$2.1M will be needed annually (in 2013 dollars) to provide these trips. Table 8 presents an estimate of the latent demand and cost of providing these services by jurisdiction.

Table 8: LATENT DEMAND FOR PARATRANSIT BY PUBLIC TRANSIT PROVIDERS

Jurisdiction	Estimated Latent Demand (2013)				
	Trips Infeasible on Public Paratransit due to Service Constraints*	Denied Trips*	Total Unmet Trips	Total Additional Trips on Paratransit	Total Cost of Additional Paratransit Trips
Allegany	5,884	107	5,992	2,991	\$123,538
Anne Arundel	20,339	1,599	21,938	11,565	\$293,061
Baltimore City	0	0	0	0	\$0
Baltimore County	0	8,382	8,382	8,382	\$377,174
Calvert	1,279	138	1,417	764	\$23,044
Caroline**	0	73	73	73	\$1,346
Carroll	12,664	40	12,704	6,245	\$74,006
Cecil	6,140	43	6,183	3,052	\$40,250
Charles	1,279	858	2,137	1,485	\$78,190
Dorchester	6,524	281	6,805	3,478	\$64,299
Frederick	11,513	487	12,000	6,128	\$181,277
Garrett	4,605	117	4,722	2,374	\$29,505
Harford	9,978	202	10,180	5,091	\$130,078
Howard	6,524	237	6,761	3,434	\$117,670
Kent	3,838	62	3,900	1,943	\$35,923
Montgomery	0	1,898	1,898	1,898	\$98,708
Prince George's	0	5,963	5,963	5,963	\$211,018
Queen Anne's**	0	115	115	115	\$4,600
Saint Mary's***	0	196	196	196	\$3,501
Somerset	0	419	419	419	\$9,063
Talbot	0	218	218	218	\$4,038
Washington	8,826	164	8,990	4,489	\$78,691
Wicomico	4,861	378	5,239	2,759	\$59,714
Worcester	4,093	181	4,275	2,187	\$47,327
Statewide	108,348	22,157	130,505	75,247	\$2,086,021

*According to Dialysis Centers or Transit Systems

**Counties don't have dialysis centers

***Dialysis center in county did not respond

Increase in Demand to 2020

By 2020, the number of Marylanders receiving dialysis is projected to grow by 2,300 dialysis patients to over 10,600; these new patients will require over 718,000 additional trips to dialysis centers. It is estimated that half these trips would be on paratransit (352,000 annual trips). Assuming that other human service agency paratransit services continue to increase their services proportionately, public transit operators will need to provide approximately 145,000 additional paratransit trips annually. In the event that other public agencies are unable to serve additional clients, public transit agencies could

be expected to provide their share of the 352,000 new trips needed - or an additional 207,000 annual trips.

The estimated incremental cost to public transit agencies of providing all current latent and future paratransit trips to dialysis is estimated at \$6M annually (in 2013 dollars). Table 9 presents the estimated number of future paratransit trips by jurisdiction and the additional cost (in 2013 dollars) by jurisdiction. Again, these estimates assume that other human service agencies continue services at commensurate levels and are able to provide a similar share of the trips needed.

Table 9: ESTIMATED ADDITIONAL DIALYSIS PARATRANSIT DEMAND ON PUBLIC TRANSIT (2020)

Jurisdiction	Additional Public Paratransit in 2020	
	Paratransit Dialysis Trips	Dialysis Paratransit Trips
Allegany County	1,438	\$59,390
Anne Arundel County *	12,192	\$340,114
Baltimore City **	46,288	\$2,278,195
Baltimore County	2,996	\$134,807
Calvert County	984	\$29,668
Caroline County	428	\$7,915
Carroll County	1,972	\$23,366
Cecil County	1,094	\$14,435
Charles County	5,221	\$274,914
Dorchester County	2,546	\$47,079
Frederick County	4,444	\$131,445
Garrett County	1,321	\$16,416
Harford County	2,557	\$65,324
Howard County	2,288	\$78,412
Kent County	893	\$16,520
Montgomery County	11,157	\$580,403
Prince George's County***	35,060	\$1,667,742
Queen Anne's County	676	\$27,048
St. Mary's County	2,400	\$42,797
Somerset County	1,217	\$26,331
Talbot County	1,284	\$23,745
Washington County Transit	2,175	\$38,128
Wicomico County	2,887	\$62,476
Worcester County	1,627	\$35,215
TOTAL	145,146	\$6,021,882

* Includes both Annapolis Transit and Anne Arundel County Department of Aging & Disabilities.

** Includes both Mobility and CAR. Cost per trip represents an average of both agencies.

*** Includes both Prince George's County Transit and MetroAccess. Cost per trip represents an average of both agencies.

Total Demand and Cost

The total cost to public transit agencies of providing all current, latent and future paratransit dialysis trips in 2020 is estimated at \$27M; an increase of \$8M annually. It is anticipated that this will require providing an additional 663,000 trips annually. Table 10 presents a summary of all unmet trip needs. This represents a 42% increase in current funding used by public transit operators for paratransit trips to dialysis (from \$19M to \$27M).

Table 10: TOTAL ESTIMATED DIALYSIS PARATRANSIT DEMAND IN 2020

Jurisdiction	Current Paratransit Dialysis Trips Needed on Public Transit		Total Estimated Future Trips/Cost (2020)	
	Total Dialysis Paratransit Trips	Total Cost of Dialysis Paratransit Trips	Total Dialysis Paratransit Trips	Total Cost of Dialysis Paratransit Trips
Allegany County	5,135	\$212,107	6,572	\$271,497
Anne Arundel County *	43,543	\$1,214,680	55,735	\$1,554,794
Baltimore City **	165,316	\$8,108,961	211,604	\$10,387,156
Baltimore County	10,699	\$481,455	13,695	\$616,262
Calvert County	3,514	\$105,956	4,498	\$135,624
Caroline County	1,529	\$28,268	1,957	\$36,182
Carroll County	7,042	\$83,451	9,014	\$106,817
Cecil County	3,909	\$51,553	5,003	\$65,988
Charles County	18,645	\$981,836	23,865	\$1,256,750
Dorchester County	9,094	\$168,139	11,640	\$215,218
Frederick County	15,870	\$469,446	20,314	\$600,890
Garrett County	4,717	\$58,628	6,037	\$75,044
Harford County	9,131	\$233,300	11,688	\$298,624
Howard County	8,172	\$280,041	10,460	\$358,453
Kent County	3,191	\$58,998	4,084	\$75,518
Montgomery County	39,848	\$2,072,867	51,005	\$2,653,270
Prince George's County***	125,216	\$5,923,283	160,276	\$7,591,025
Queen Anne's County	2,415	\$96,600	3,091	\$123,648
St. Mary's County	8,572	\$152,845	10,973	\$195,641
Somerset County	4,346	\$94,038	5,562	\$120,369
Talbot County	4,586	\$84,803	5,871	\$108,547
Washington County Transit	7,768	\$136,172	9,943	\$174,300
Wicomico County	10,311	\$223,129	13,198	\$285,605
Worcester County	5,812	\$125,766	7,439	\$160,981
TOTAL	518,379	21,446,321	663,525	\$27,468,203

* Includes both Annapolis Transit and Anne Arundel County Department of Aging & Disabilities.

Cost per trip represents an average of both agencies.

** Includes both Mobility and CAR. Cost per trip represents an average of both agencies. □

*** Includes both Prince George's County Transit and MetroAccess. Cost per trip represents an average of both agencies.

In the event that other paratransit services in the State are unable to serve any additional new clients, the increase for public transit operators could be as great as \$14M for a total of \$33M annually (in 2013 dollars). This represents almost a 75% increase over the current \$19M spend by public transit operators to provide paratransit dialysis centers in the State.

Study Limitations and Implications

These demand and cost projections are based on a number of assumptions:

1. Prevalence rates and incidence rates for new people needing dialysis services will continue to increase at approximately 3% annually in future years.
2. Current standard of health care for dialysis patients will continue into the future.
3. Current utilization patterns at dialysis centers will remain the same.
4. Trip patterns (trip length and the related cost per trip) will remain the same.

These assumptions may or may not reflect future conditions and limit somewhat the demand and cost projections provided in the report. The actual demand and costs will vary up or down depending on the accuracy of these assumptions.

The incidence rates for new patients may be affected by changes to health care and lifestyle in future years. For example, better primary/preventive care may prevent or delay the progression of kidney disease/diabetes/hypertension before dialysis is required.

The current utilization of center-based dialysis may not continue as the standard of care for dialysis patients. For example, it may be possible to provide more home-based dialysis in future years, particularly if the cost of more expensive home-based dialysis can be offset by the additional cost of paratransit costs.

SUMMARY OF RESULTS

Table 11 provides a summary of the estimated dialysis paratransit trips needed on public transit systems in Maryland and the cost to provide those services. As shown, the current 443,000 dialysis paratransit trips by public transit agencies would increase to 518,000 annual trips if the transit systems had the resources (funding/vehicles) to expand their capacity to meet these needs. This number would increase further in 2020 to 664,000 annual trips as the number of dialysis patients grows over time.

The current cost to public transit systems of providing paratransit to dialysis centers would need to increase from \$19M annually to \$21M in order to expand to meet current demand. In order to meet the needs of new dialysis patients in 2020, the cost would

increase to over \$27M annually (an increase over existing funding of \$8M or 43%). In the event that other human service programs in the State are unable to provide their clients with additional paratransit services, the additional cost to public transit operators could be as high as \$14M (in 2013 dollars) bringing the their total to over \$35M annually. This represents an increase of 83% increase over the current \$19M currently spent by public transit operators.

Table 11: SUMMARY OF PARATRANSIT DIALYSIS TRIP NEEDS AND COST

	Year	
	2013	2020
Number of Persons on Dialysis	8,800	11,300
Number of Dialysis Center Patients	8,300	10,600
Annual Paratransit Trips to Dialysis Centers (all patients)	2,600,000	3,300,000
Estimated Trips to Dialysis Centers (all providers)	1,274,000	1,617,000
Current Trips on Public Transit	443,000	
Estimated Public Transit Trips to Meet Unmet Needs	518,000	
Projected Paratransit Trips by Public Transit Operators*		664,000
Projected Paratransit Trips by Public Transit Operators if Other Agencies Do Not Increase Services*		870,000
Annual Paratransit Cost by Public Transit Operators (2013 dollars)		
Current Public Transit Operator Cost for Paratransit to Dialysis	\$19,259,000	
Estimated Public Transit Operator Paratransit Cost to Service Unmet Needs	\$21,446,000	
Projected Public Transit Operator Cost for Paratransit*		\$27,468,000
Projected Public Transit Operator Cost for Paratransit if Other Agencies Do Not Increase Services*		\$35,300,000

* To meet unmet needs and future increases in number of patients

Definitions

Chronic kidney disease (CKD): any chronic conditions that causes reduced kidney function over a period of time.

End-stage renal disease (ESRD): total and permanent kidney failure. When the kidneys fail, the body retains fluid and harmful wastes build up. A person with ESRD needs treatment to replace the work of the failed kidneys.

Incidence: the number of new cases of a disease in a given time period.

Prevalence: the number of existing cases of a disease at a given point in time.

APPENDIX A

Dialysis Centers in Maryland

APPENDIX A: MARYLAND DIALYSIS CENTERS

COUNTY	NAME	ADDRESS	CITY	STATE
Allegany	IDF - Allegany Center	939 Fredrick St	Cumberland	MD
Allegany	Western Maryland Regional Dialysis Center	12502 Willowbrook Rd , Suite 250	Cumberland	MD
Anne Arundel	BMA - South Annapolis	304 Harry S Truman Pkwy, Suites H-K	Annapolis	MD
Anne Arundel	Davita - Harbor Park Dialysis	111 Cherry Hill Rd	Baltimore	MD
Anne Arundel	Davita - Pasadena	8894 Fort Smallwood Rd, Suite 15	Pasadena	MD
Anne Arundel	FMC - Anne Arundel	2032 Industrial Dr	Annapolis	MD
Anne Arundel	Glen Burnie Dialysis	120 N Langley Rd	Glen Burnie	MD
Anne Arundel	IDF - Arundel Center	804 Landmark Dr, Suite 112	Glen Burnie	MD
Anne Arundel	US Renal Care - Chesapeake	305 College Pky	Arnold	MD
Baltimore	Advanced Dialysis Center - Randallstown	9109 Liberty Rd	Randallstown	MD
Baltimore	Baltimore County Dialysis Facility	3689 A Offutt Rd	Randallstown	MD
Baltimore	Charing Cross Dialysis	5730 Executive Dr, Suites 124-130	Catonsville	MD
Baltimore	Community Dialysis Centers Inc	2707 Rolling Rd, Suites 104-105	Baltimore	MD
Baltimore	Davita - Catonsville	1581 Sulphur Spring Rd, Suite 112	Baltimore	MD
Baltimore	Davita - Dundalk	14 Commerce St	Dundalk	MD
Baltimore	Davita - Falls Road	10753 Falls Rd, Suite 115	Lutherville	MD
Baltimore	Davita - North Rolling Road Dialysis	1108 N Rolling Rd	Baltimore	MD
Baltimore	Davita - Owings Mills	10 Crossroads Dr, Suite 110	Owings Mills	MD
Baltimore	Davita - White Square	1 Nashua Ct, Suite E	Baltimore	MD
Baltimore	Dulaney Towson Dialysis Center	113 West Rd	Towson	MD
Baltimore	FMC - Greater Baltimore	1840 York Rd, Suite A1	Lutherville	MD
Baltimore	FMC Of Porter Dialysis - Pikesville	115 Mchenry Ave, Suite D	Pikesville	MD
Baltimore	FMC Of Porter Dialysis - Rosedale	9411 Philadelphia Rd, Suite A	Rosedale	MD
Baltimore	FMC Of Porter Dialysis - White Marsh	8013 Corporate Dr, Suite K	Nottingham	MD
Baltimore	Fresenius Medical Care Essex Dundalk, LLC	110 Stemmers Run Rd	Essex	MD
Baltimore	Good Samaritan Hospital At Cromwell Center	8710 Emge Rd	Baltimore	MD
Baltimore	Kidney Home Center	2245 Rolling Run Dr	Windsor Mill	MD
Baltimore	Manor Care Dialysis	6600 Ridge Rd	Baltimore	MD
Baltimore	Northwest Dialysis Center	2245 Rolling Run Dr, Suite 1	Baltimore	MD
Baltimore	Pikesville Dialysis	1500 Reisterstown Rd, Suite 220	Pikesville	MD
Baltimore City	Bertha Sirk Dialysis Center	5820 York Rd, Suite 10	Baltimore	MD
Baltimore City	BMA - Baltimore	733 W 40Th St, Suite 101	Baltimore	MD
Baltimore City	Bon Secours Hospital - Renal Dialysis Unit	2000 W Baltimore St	Baltimore	MD
Baltimore City	Davita - Baltimore Geriatric & Rehab Center	4940 Eastern Ave	Baltimore	MD
Baltimore City	Davita - J.B. Zachary	333 Cassell Dr, Suite 2300	Baltimore	MD
Baltimore City	Davita - Maryland (Bond St)	409 N Caroline St	Baltimore	MD
Baltimore City	Davita Dialysis - Mercy	315 N Calvert St, Suite 300	Baltimore	MD
Baltimore City	Downtown Dialysis Center	821 N Eutaw St, Suite 401	Baltimore	MD
Baltimore City	FMC Of Porter Dialysis - Dundalk	1107 N Point Blvd, Suite 201	Dundalk	MD
Baltimore City	Good Samaritan Hosp - Dialysis Unit	5009 Frankford Ave	Baltimore	MD
Baltimore City	Good Samaritan Hosp - Dialysis Unit	5601 Loch Raven Blvd	Baltimore	MD
Baltimore City	Greenspring Dialysis Center	4701 Mt Hope Dr, Suite C	Baltimore	MD
Baltimore City	Harford Road Dialysis Center	5800 Harford Rd	Baltimore	MD
Baltimore City	IDF - Chestnut Square Dialysis Ctr	3303 Chestnut Ave	Baltimore	MD
Baltimore City	IDF - Parkview Center	840 Hollins St	Baltimore	MD
Baltimore City	Johns Hopkins Outpatient Care (Jhoc)	200 N Wolfe St	Baltimore	MD
Baltimore City	Seton Drive Dialysis	4800 Seton Dr	Baltimore	MD
Baltimore City	Treet Dialysis Inc	920 E 25Th St	Baltimore	MD
Baltimore City	Union Memorial Hospital Dialysis Unit	201 E University Pkwy	Baltimore	MD
Baltimore City	US Renal Care - North Baltimore	2700 North Charles St	Baltimore	MD
Baltimore City	US Renal Care - West Baltimore	22 S Athol Ave	Baltimore	MD

APPENDIX A: MARYLAND DIALYSIS CENTERS

COUNTY	NAME	ADDRESS	CITY	STATE
Calvert	IDF - Calvert Center	225 W Dares Beach Rd	Prince Frederick	MD
Calvert	Renal Carepartners - Prince Frederick	205 Steeple Chase Dr, Suite 201	Prince Frederick	MD
Carroll	Carroll County Dialysis Facility	193 Stoner Ave, Suite 120	Westminster	MD
Cecil	FMC - Elkton	216 S Bridge St	Elkton	MD
Charles	FMC - Laplata	10210 Laplata Rd	La Plata	MD
Charles	FMC - Waldorf	3510 Old Washington Rd, Suite 300	Waldorf	MD
Dorchester	Cambridge Dialysis Center	300 Byrn St	Cambridge	MD
Frederick	Catocin Dialysis	405 West 7Th St	Frederick	MD
Frederick	Davita - Frederick	140 Thomas Johnson Dr, Suite 100	Frederick	MD
Garrett	IDF - Garrett Dialysis Center	888 Memorial Dr	Oakland	MD
Harford	Aberdeen Dialysis	780 W Bel Air Ave	Aberdeen	MD
Harford	Davita - Belair	2225 Old Emmorton Rd, Suite 100	Bel Air	MD
Harford	Forest Landing Dialysis	2220 Commerce Ave, Suite 1	Forest Hill	MD
Howard	Davita - Cedar Lane	6334 Cedar Ln	Columbia	MD
Howard	Davita - Howard County	5999 Harpers Farm Rd, Suite E110	Columbia	MD
Howard	Ellicott City Dialysis Center Llc	3419 Plum Tree Dr, Suites 103-106	Ellicott City	MD
Kent	Total Renal Care - Chestertown	100 Brown St	Chestertown	MD
Montgomery	Advanced Dialysis Center - Rockville	299 Hurley Ave	Rockville	MD
Montgomery	BMA - Bethesda	6420 Rockledge Dr, Suite 1100	Bethesda	MD
Montgomery	BMA - Rockville	7524 Standish Pl Ste 100-B	Rockville	MD
Montgomery	BMA - Wheaton	11160 Viers Mill Rd	Wheaton	MD
Montgomery	Davita - Rockville	14915 Broschart Rd, Suite 100	Rockville	MD
Montgomery	Davita - Silver Spring	8412 Georgia Ave	Silver Spring	MD
Montgomery	FMC - Silver Spring	12120 Plum Orchard Rd, Suite 140	Silver Spring	MD
Montgomery	Germantown Dialysis	20111 Century Blvd, Suite C	Germantown	MD
Montgomery	Holy Cross Hospital - Renal Dialysis Unit	1500 Forest Glen Rd	Silver Spring	MD
Montgomery	Montgomery Renal Center, Llc	12401 Middlebrook Rd, Suite 160	Germantown	MD
Montgomery	Renal Treatment Center - Wheaton	11941 Georgia Ave	Wheaton	MD
Montgomery	Selim Downtown Dialysis	8630 Fenton St, Suite 238	Silver Spring	MD
Montgomery	Springbrook Dialysis Center	12325 New Hampshire Ave	Silver Spring	MD
Montgomery	US Renal Care - Chevy Chase	3 Bethesda Metro Center, Suite B005	Bethesda	MD
Montgomery	US Renal Care - Rockville	11800A Nebel St	Rockville	MD
Prince Georges	ARA - Adelphi	1801 Metzertott Rd	Adelphi	MD
Prince Georges	BMA - Camp Springs	3700A St Barnabas Rd	Suitland	MD
Prince Georges	BMA - Fort Washington	12780 Old Fort Rd	Fort Washington	MD
Prince Georges	Calverton Dialysis	4780 Corridor Place, Suite C	Beltsville	MD
Prince Georges	Davita - Lakeside	10401 Hospital Dr, Suite G-02	Clinton	MD
Prince Georges	Davita - Landover	1200 Mercantile Ln, Suite 105	Largo	MD
Prince Georges	Davita - Southern Maryland	9211 Stuart Ln	Clinton	MD
Prince Georges	District Heights Dialysis	5701 Silver Hill Rd	District Heights	MD
Prince Georges	FMC - Fort Foote	8507 Oxon Hill Rd	Fort Washington	MD
Prince Georges	FMC - Prince Georges County Dialysis	7558 Annapolis Rd, Suite C-1	Lanham	MD
Prince Georges	FMC - Surratts	8949 Woodyard Rd	Clinton	MD
Prince Georges	FMC - Takoma Park	6495 New Hampshire Ave, Suite LI-100	Hyattsville	MD
Prince Georges	Holy Cross Dialysis Center - Woodmore	11721 Woodmore Rd, Suite 190	Mitchellville	MD
Prince Georges	Kidney Care Of Largo	1300 Mercantile Ln, Suite 194	Largo	MD
Prince Georges	Kidney Care Of Laurel	14631 Laurel Bowie Rd, Suite 100	Laurel	MD
Prince Georges	Quality Care Dialysis - Southern Maryland	6357 Old Branch Ave	Camp Springs	MD

APPENDIX A: MARYLAND DIALYSIS CENTERS

COUNTY	NAME	ADDRESS	CITY	STATE
Prince Georges	RAI - Baltimore-Beltsville	10701 Baltimore Ave	Beltsville	MD
Prince Georges	RAI - Chillum-Hyattsville	2426 Chillum Rd	Hyattsville	MD
Prince Georges	RAI - Old Alexandria-Clinton	7201 Old Alexandria Ferry Rd	Clinton	MD
Prince Georges	RAI - Silver Hill	5652 Silver Hill Rd	District Heights	MD
Prince Georges	Renal Advantage Inc - Oxon Hill	5410 Indian Head Hwy	Oxon Hill	MD
Prince Georges	Renal Care Of Bowie, Llc	4861 Telsa Dr, Suite H	Bowie	MD
Prince Georges	Renal Care Of Lanham	4451 Parliament Pl, Suite R	Lanham	MD
Prince Georges	Renal Care Of Seat Pleasant, Llc	6274 Central Ave	Seat Pleasant	MD
Prince Georges	Rivertowne Dialysis Center	6192 Oxon Hill Rd	Oxon Hill	MD
Prince Georges	Takoma Park Dialysis	1502 University Blvd E	Hyattsville	MD
Prince Georges	Universal Dialysis Center	3804 Bladensburg Rd	Cottage City	MD
Prince Georges	US Renal Care - Hyattsville	4920 Lasalle Rd	Hyattsville	MD
Saint Marys	BMA - Leonardtown	40865 Merchants Ln	Leonardtown	MD
Somerset	FMC - Princess Anne	12185 Elm St	Princess Anne	MD
Talbot	Advanced Dialysis Center - Easton	610 E Dutchmans Ln	Easton	MD
Talbot	Davita - Easton	402 Marvel Ct	Easton	MD
Washington	FMC - Hagerstown	12931 Oak Hill Ave	Hagerstown	MD
Washington	FMC - Robinwood	11110 Medical Campus Rd, Suite 149	Hagerstown	MD
Washington	Washington County Dialysis	1136 Opal Ct	Hagerstown	MD
Washington	Western Maryland Center - Renal Division	1500 Pennsylvania Ave	Hagerstown	MD
Wicomico	Deers Head Center	351 Deers Head Hospital Rd	Salisbury	MD
Wicomico	FMC - North Salisbury	1314 Belmont Ave, Suite 304	Salisbury	MD
Wicomico	FMC - Salisbury	1340 South Division St, Suite 302	Salisbury	MD
Worcester	Davita - Berlin Dialysis	314 Franklin Ave, Suite 306	Berlin	MD

APPENDIX B

Dialysis Center and Transit System Survey

DIALYSIS CENTER TRANSPORTATION SURVEY

Center: _____ County: _____

1. What are the days and hours of your center?

2. Number of shifts? _____

a. Shift 1 hours: _____

b. Shift 2 hours: _____

c. Shift 3 hours (if applicable): _____

d. Shift 4 hours (if applicable): _____

3. How many dialysis clients do you currently have? _____

a. Percentage of clients in Shift 1: _____

b. Percentage of clients in Shift 2: _____

c. Percentage of clients in Shift 3 (if applicable): _____

d. Percentage of clients in Shift 4 (if applicable): _____

4. How many stations does your center have? _____

5. Does your center provide home dialysis?

a. Yes

b. No

If Yes, how many clients do you currently provide home dialysis for? _____

6. What percentage of your dialysis clients arrive at the center by:

a. Driving themselves: _____

b. Driven by a friend and family: _____

c. Door-to-door public transit: _____

d. Fixed-route public transit: _____

e. Human service agency: _____

f. Other:

i. Description: _____

ii. Percentage: _____

7. Do you operate a transportation service to bring clients to the center?

a. Yes

b. No

If No, do you assist clients in arranging for transportation? Yes No

If Yes, what percentage of your clients do you assist in arranging transportation?

8. What percentage growth in the number of clients do you anticipate in the next couple of years?

9. Comments/Concerns/Issues Regarding Dialysis Transportation:

LOTS DIALYSIS TRANSPORTATION SURVEY

LOTS: _____

1. What are the days and hours of your paratransit service?

2. How many dialysis trips did your paratransit service provide in FY13?

3. How many dialysis trips did your paratransit service provide in the last 2 fiscal years?

a. FY12: _____

b. FY11: _____

4. Have you had to turn down any dialysis trip requests? (circle one)

a. Yes

b. No

If Yes, approximately how many and what was the reason?

5. What is your average cost per paratransit trip?

6. Do you provide dialysis trips under Medicaid? (circle one)

a. Yes

b. No

If Yes, approximately how many? _____

7. Comments/Concerns/Issues Regarding Dialysis Transportation:

