ARLINGTON COUNTY, VIRGINIA

AGREEMENT NO. 18-117-9 AMENDMENT NUMBER 5

This Amendment Number 5 is made on ______ by the County and amends **Agreement Number 18-117-9** ("Main Agreement") dated August 19, 2019 between **Rummel, Klepper & Kahl, LLP** ("Contractor") and the **County Board of Arlington County, Virginia** ("County").

The County and the Contractor agree to amend the Main Agreement as follows:

- Exhibit A Federal & State Required Certifications FIRM DATA SHEET is hereby renamed Exhibit D – Federal & State Required Certifications FIRM DATA SHEET and added to Clause 1: <u>CONTRACT DOCUMENTS</u>.
- 2. Exhibit B INTENT TO PERFORM AS A DBE SUBCONTRACTOR FOR A CONTRACT AWARD is hereby renamed Exhibit F INTENT TO PERFORM AS A DBE SUBCONTRACTOR FOR A CONTRACT AWARD and added to Clause 1: <u>CONTRACT DOCUMENTS</u>.
- 3. MODIFY EXHIBIT C PRIME CONTRACTOR, SUB-CONSULTANT HOURLY BILLABLE RATES, REIMBURSABLE EXPENSES BY ADDING ALL TRAFFIC DATA SERVICES, LLC TO THE LIST OF SUB-CONSULTANTS, which is incorporated into and made a part of this Amendment.
- 4. ADD Task Order No. 13, entitled "On-Street Parking Occupancy Studies", attached hereto and made part hereof, for a period of 121 consecutive calendar days upon execution of Task Order No. 13.

The Contractor shall provide the services as described in the attached Scope of Work and in the attached Contractor's fee proposal letter dated February 25, 2022.

Task Order No. 13 shall have a Not-to-Exceed amount of \$143,231.40.

Upon execution of Task Order No.13 by the County and the Contractor, this Task Order will constitute as the Notice to Proceed.

All other terms and conditions of the Main Agreement remain in effect.

WITNESS these signatures:

THE COUNTY BOARD OF ARLINGTON

RUMMEL, KLEPPER & KAHL, LLP

COUNTY, VIRGINIA

AUTHORIZED:

AUTHORIZED:

1 Agreement No. 18-117-9 Amendment No. 5 Task Order No. 13

SIGNATURE: Dr. Sharon, T. Lewis	SIGNATURE:			
NAME: DR. SHARON T LEWIS	NAME: <u>Miriam Kronish</u>			
TITLE: <u>PURCHASING AGENT</u> 3/2/2022 DATE:	TITLE: DATE:			

EXHIBIT D

Federal & State Required Certifications FIRM DATA SHEET

Funding: (S=State F=Federal)

Project No.:_____ Division: _____ EOI Due Date: _____

The prime consultant is responsible for submitting the information requested below on all firms on the project team, both <u>prime</u> and <u>all</u> sub-consultants. All firms are to be reported on <u>one</u> combined sheet unless the number of firms requires the use of an additional sheet. Failure to submit all of the required data will result in the Expression of Interest not being considered.

Firm's Name, Address and DBE and/or SWAM Certification Number	Firm's DBE/SWAM Status *	Firm's Age	Firm's Annual Gross Receipts
All Traffic Data Services, LLC 9660 West 44th Avenue Wheat Ridge, CO 80033	Ν	20 years	\$6,000,000

* YD = DBE Firm Certified by DMBE

N = DBE/SWAM Firm Not Certified by DMBE

NA = Firm Not Claiming DBE/SWAM Status

YS = SWaM Firm Certified by DMBE. Indicate whether small, woman-owned, or small business. DMBE is the Virginia Department of Small Business and Supplier Diversity

<u>CERTIFICATION REGARDING DEBARMENT-LOWER TIER COVERED TRANSACTIONS</u> (To be completed by a Sub-consultant)

Project: _____

- 1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.
- 2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

The undersigned makes the foregoing statements to be filed with the proposal submitted on behalf of the offeror for contracts to be let by the Commonwealth Transportation Board.

Chief Operating Officer Title Signature

December 23, 2021

All Traffic Data Services, LLC

Name of Firm

EXHIBIT C-



Here are ATDs 2022 Rates. Please let me know if you need anything else and we look forward to working with you.

Parking Studies (Depending on Size, either billed hourly or based per number of block faces per study hour where the term block face relates to one side of a street block)

Block Faces per Study Hour = 0 to 100

Technician-\$62.50 per hour

Project Manager \$75.00 per hour

Data Manager \$90 per hour

Block Faces pe Study Hour = 101 to 450

\$6.25 per block face

Block Faces per Study Hour = 451 to 900

\$7.00 per block face

Block Faces per Study Hour = 901 to 1,200

\$9.00 per block face

Block Faces per Study Hour = Greater than 1,200

\$12.00 per block face

Thanks

Eric Boivin

CEO

Arlington County Contract Number: 18-117-9 Task Order Number TBD

On-Street Parking Occupancy Studies

SIGNATURE AND APPROVALS

RK&K offers the following work plan to perform traffic engineering services for on-street parking occupancy studies in Arlington County, Virginia. This work will be performed for the Arlington County Department of Environmental Services, Transportation Engineering & Operations Bureau.

The work plan outlines two data collection methodologies for Ballston area and three methodologies for all other study areas.

Arlington County chose "Option 1 - Reduced Frequency" which includes a census for Ballston and reduced frequency stratified sampling for all other areas. The costs of services are as follows:

Total	\$ 143,231.40
Direct Expenses	\$ 5,000.00
Task 3 – Additional Neighborhoods Study	\$ 95,765.06
Task 2 – Ballston Study	\$ 27,146.18
Task 1 – Project Management	\$ 15,320.16

Rummel, Klepper & Kahl, LLP

Stuart M. Samberg, P.E., PTOE Senior Manager, Traffic 2/25/2022

Date

APPROVED

02/28/2022

Date

Marietta Gelfort Project Officer, Principal Planner, DES

WORK PLAN

TASK 1 – PROJECT MANAGEMENT

RK&K has appointed Scott Crumley, PE, PTOE as the Project Manager (PM) who will serve as the primary point of contact between the County and the RK&K team. The PM and key consultant staff identified by the PM will participate in a kick-off meeting (Deliverable 1.1) held virtually following the notice to proceed. At the kick-off meeting, RK&K staff will provide a general work schedule (Deliverable 1.2) identifying deliverables and review periods. RK&K expects the total duration of this task to be approximately five (5) months from February 2022 through June 2022.

It is the job of the PM to maintain quality control and assurance on project delivery. If for any reason, RK&K has any concerns with project risk (timeline, budget, or resource constraints), the County PM will be notified.

The RK&K PM will develop a monthly update (Deliverable 1.3) that will be sent out via e-mail to the County PM. This update will include at a minimum: an ongoing meetings/coordination log, actual project schedule updates, comparison with the baseline project schedule, and any relevant project matters (either ongoing, or which have occurred since the previous monthly progress report).

RK&K staff will also participate in bi-weekly (every other week) virtual meetings with the County PM and relevant stakeholders. RK&K will handle setting up the meetings, sending invitations, and producing meeting notes within three (3) business days of the meeting (Deliverable 1.4).

Additional communication may take place via phone call or email, as needed. As with the bi-weekly meetings, RK&K will handle setting up the meetings, sending invitations, and producing meeting notes within three (3) business days of the event (Deliverable 1.5).

Task 1 will be ongoing through the duration of the project.

Task 1 Deliverables

RK&K will provide the following deliverables:

- 1.1 Virtual Kick-off Meeting
- 1.2 Work Schedule
- 1.3 Monthly Update E-mails
- 1.4 Bi–monthly calls and meeting notes
- 1.5 Additional calls as needed

TASK 2 – BALLSTON AREA RPP ON-STREET PARKING OCCUPANCY STUDY

Data Collection Process Options

RK&K is proposing to use one of two methodologies for data collection in the Ballston Area. The first methodology would be for a complete census count of facilities in Ballston. This would involve collecting data for all 171 facilities. The second methodology would be to do a sample size of 105 facilities selected at random from the 171 facilities in this area. This is the sample size needed to provide statistics with a 90% confidence interval with a maximum of 5% margin of error. The first methodology (census) requires

more data collection and will provide a more robust data set to ensure sufficient data granularity is obtained for any analysis needs that may arise. The second methodology (sampling) requires fewer segments but would not be as robust when stratified by type of facility as needed. Given that data has not been collected in the Ballston area, **RK&K recommends the first methodology (census) for the Task 2 data collection effort.** A cost comparison is shown in Attachment A for reference.

Data Collection Preparation

The first step will be to develop a detailed Parking Data Collection Plan (Deliverable 2.1) which will identify the block faces and specify details about how the data will be collected (e.g. anticipated routes, durations in each neighborhood, production rate, backend data processing). Data will be collected on each facility at 2-hour intervals between 8AM and 10PM on one weekday (Tuesday, Wednesday, or Thursday) and one weekend day (assumed to be Saturday, but can be Sunday upon request from the County), which equates to a total of 14 readings per facility. RK&K will create all maps and files necessary to plan and manage the data collection. Arlington will provide an ESRI compatible shapefile with information about the facilities within the Ballston area. The data collection plans will be developed to answer the questions Arlington outlined in the Request for Price Proposal (Attachment C).

Parking Data Collection

RK&K will enlist the support of All Traffic Data Services, LLC, (ATD) to use License Plate Radar (LPR) technology to collect parking data in accordance with the detailed Parking Data Collection Plan. The data to be collected will include the license plates of parked vehicles and GPS coordinates of each vehicle. The raw data will be provided to Arlington (Deliverable 2.2). RK&K will monitor data during the collection process to ensure that collection efforts are accurately collecting data and that the data collection will provide the required confidence intervals and margins of error. RK&K will propose alterations to the data collection plan during the data collection as needed to ensure desired outcomes occur. It is anticipated that data collection will occur in April and May 2022.

Parking Data Analysis

RK&K will analyze the data collected in accordance with the requirements laid out in the Request for Price Proposal (Attachment C). RK&K will prepare a draft and final summary of the analysis (Deliverable 2.3). It is anticipated that this summary will initially be developed as a report and that when completed a PowerPoint presentation will be developed.

Task 2 Deliverables

RK&K will provide the following deliverables:

- 2.1 Parking Data Collection Plan
- 2.2 Raw Parking Data as outlined in the Request for Price Proposal (Attachment C)
- 2.3 Parking Data Analysis Summary and Presentation

TASK 3 – ON-STREET PARKING OCCUPANCY STUDIES FOR CLARENDON/VIRGINIA SQUARE, COLUMBIA PIKE, VIRGINIA HOSPITAL CENTER, AND RICHMOND HIGHWAY/AURORA HIGHLANDS NEIGHBORHOODS

Data Collection Process Options

RK&K is proposing to use one of three methodologies for data collection for these neighborhoods. The first methodology (Recommended) would use a stratified sampling process with facilities stratified by type (unmanaged or residential permit parking (RPP)) in each neighborhood. The second methodology (Option 1) uses the same sampling technique but at a reduced frequency to reduce cost. The third methodology (Option 2) utilizes systematic sampling of the facilities in each neighborhood. For all three

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methodologies, all facilities in the Columbia Pike Neighborhood that were converted from RPP to unmanaged in 2021 (total of 25) would be counted due to limited cost savings. The first methodology requires more data collection and will provide a more robust data set that will ensure sufficient data granularity is obtained for any analysis needs that may arise. The second methodology has the main drawbacks of not capturing some quick-turnover parking that may occur on the weekends in between the collection periods (especially near businesses) and having less accuracy regarding average parking duration. However, with so much data collected in recent years, the reduced frequency would still provide the County with sufficient data to assess parking occupancy and duration on RPP and unmanaged street blocks and how parking varies. The third methodology requires fewer segments but may not be as robust when stratified by type of facility as needed. Despite a slightly higher cost, **RK&K recommends the first methodology(stratified sampling) for the Task 3 data collection effort because the increased level of detail for analysis needs.** A cost comparison is shown in Attachment A and the table below details the segments needed byneighborhood for each option.

Number Number of Total		Sample Size Needed			
Neighborhood	of RPP Facilities	Unmanaged Facilities	Number of Facilities	Stratified by Facility Type (recommended and reduced frequency	Systematic Sampling of All Facilities
Clarendon	278	201	479	239	173
Columbia Pike	188	830	1018	290	215
Virginia Hospital	82	283	365	171	156
Richmond Highway	187	61	248	147	130
Columbia Pike changes in 2021	0	25	25	25	25
Total of all areas	735	1,375	2,110	872	699

Data Collection Preparation

The first step will be to develop a detailed Parking Data Collection Plan (Deliverable 3.1) which will identify the block faces and specify details about how the data will be collected (e.g. anticipated routes, durations in each neighborhood, production rate, backend data processing). For both the recommended and systematic data collection, data will be collected on each facility at 2-hour intervals between 8AM and 10PM on one weekday (Tuesday, Wednesday, or Thursday) and one weekend day (assumed to be Saturday but can be Sunday upon request from the County), which equatesto a total of 14 readings per facility. RK&K will create all maps and files necessary to plan and manage the data collection. Arlington will provide an ESRI compatible shapefile with information about the facilities within the various neighborhoods. The data collection plans will be developed to answer the questions Arlington outlined in the Request for Price Proposal (Attachment C).

The reduced frequency option would use stratified sampling, and data would be collected for 3-hour periods between 8AM and 8PM on one weekday as well as between 8AM and 8PM on one weekend day (or other 12-hour window), which equates to 4 weekend and 4 weekday readings per facility, a total of 8 readings per facility. This option is not recommended, but another cost comparison is shown in Attachment A for the County's consideration as requested.

Parking Data Collection

RK&K will enlist the support of All Traffic Data Services, LLC, (ATD) to use License PlateRadar (LPR) technology to collect parking data in accordance with the detailed Parking Data Collection Plan. RK&K will use a proportionate sample size methodology based on the proportion of facilities in each of the occupancy levels (0-60%, 60-85%, Greater than 85%). This is being done to ensure that the occupancy rate information is not skewed to one group and thus ensure that the sample is reflective of the neighborhood. The raw data will be provided to Arlington (Deliverable 3.2). RK&K will monitor data during the collection process to ensure that collection efforts are accurately collecting data and that the data collection will provide the required confidence intervals and margins of error. RK&K will propose alterations to the datacollection plan during the data collection as needed to ensure desired outcomes occur. It is anticipated that data collection will occur in April and May 2022.

Parking Data Analysis

RK&K will analyze the data collected in accordance with the requirements laid out in the Request for Price Proposal (Attachment C). RK&K will prepare a separate draft and final summary of the analysis for each neighborhood (Deliverable 2.3). It is anticipated that this summary will initially be developed as a report and that when completed a PowerPoint presentation will be developed.

Task 3 Deliverables

RK&K will provide the following deliverables:

- 3.1 Parking Data Collection Plan for each neighborhood
- 3.2 Raw Parking Data as outlined in the Request for Price Proposal (Attachment C)
- 3.3 Parking Data Analysis Summary and Presentation

RK&K PROJECT TEAM:

The following team members are contemplated for this assignment. This list includes only the principal team members for this assignment; additional staff may be utilized as needed to complete the assignment. Principal team members will not be substituted without prior notification to Arlington County Department of Environmental Services, Transportation Engineering & Operations Bureau; however, all other team members are subject to substitution as needed for the timely completion of the assignment.

- Contract Manager, Quality Assurance: Stuart Samberg, PE, PTOE
- Project Manager: Scott Crumley, PE, PTOE

SCHEDULE:

RK&K's services will be required immediately after the issuance of the task order award and Notice to Proceed authorization. The embedded schedule timeframes noted above will be integrated into a complete project schedule after notice to proceed is provided.

DELIVERABLES:

RK&K will provide all deliverables in an electronic format agreed upon wih the County. RK&K will provide a draft submission of deliverables to the County for review and comment. County staff will return one set of reconciled comments to RK&K. RK&K will review and incorporate comments and related changes into a final submission.

ATTACHMENTS:

- A. Data Collection Methodology Cost Comparison
- B. Hour & Fee Estimates
- C. Request for Price Proposal

November 15, 2021

ATTACHMENT A Data Collection Methodology Cost Comparison

November 15, 2021

		Recommended Methodology						Or	otion 1 - Reduc	ed Frequen	icy		C	ption 2 - Syste	matic Sampl	ing ³
Task	Sub Task	Study Area		Price Pr	oposal				Price Pro	posal				Price Pr	roposal	
Task	505 1058	Study Alea	Labor	ATD Labor	Direct Costs	Total		RK 🗙 K Labor	ATD Labor	Direct Costs	Total		Labor	Direct Costs	Direct Costs	Total
1	A & B		\$ 15,320.16	\$ -	\$ 5,000	\$ 20,320	.16	\$ 15,320.16	\$ -	\$ 5,000	\$ 20,320.10	\$ 1	5,320.16	\$ 5,000.00	\$5,000	\$ 20,320.16
				Cen	sus				Censu	IS				Samp	oling	
	N	IETHODOLOGY		Every 2	Hours 1				Every 2 H	lours				Every 2	Hours ⁴	
2	А		\$ 2,385.88	\$-	\$ -	\$ 2,385	.88	\$ 2,385.88	\$-	\$ -	\$ 2,385.88	\$	2,385.88	\$-	\$ -	\$ 2,385.88
	В	Ballston	\$ 5,199.64	\$ 14,962.50	\$-	\$ 20,162	. 4	\$ 5,199.64	\$ 14,962.50	\$ -	\$ 20,162.14	\$	5,199.64	\$ 9,187.50	\$-	\$ 14,387.14
	С		\$ 4,598.16	\$-	\$ -	\$	16	\$ 4,598.16	\$-	\$ -	\$ 4,598.16	\$	3,575.48	\$ -	\$ -	\$ 3,575.48
				Stratified	Sampling				Stratifie	d Sampling	,			Systematic	Sampling	
	N	ETHODOLOGY		Every 2	Hours 1				Every 3 H	ours ²				Every 2	Hours ⁵	
	А	All Neighborhoods	\$ 9,460.06	\$-	\$-	\$ 9,46	.06	\$ 9,460.06	\$-	\$ -	\$ 9,460.06	\$	9,460.06	\$-	\$-	\$ 9,460.06
		Columbia Pike Corridor	\$ 8,137.20	\$ 27,562.50	\$-	\$ 35,699	70	\$ 7,411.92	\$ 17,640.00	\$ -	\$ 25,051.92	\$	7,923.26	\$ 21,000.00	\$-	\$ 28,923.26
3	P	Clarendon/VA Square	\$ 6,432.92	\$ 20,912.50	\$-	\$ 27,345.	12	\$ 5,707.64	\$ 13,384.00	\$ -	\$ 19,091.64	\$	6,218.98	\$ 15,137.50	\$ -	\$ 21,356.48
	D	VA Hospital Center	\$ 4,601.50	\$ 14,962.50	\$-	\$ 19,564	.00	\$ 4,088.49	\$ 9,576.00	\$ -	\$ 13,664.49	\$	4,387.56	\$ 13,650.00	\$ -	\$ 18,037.56
		Richmond Highway/ Aurora Highland	\$ 4,090.16	\$ 12,862.50	\$-	\$ 16,952.	66	\$ 3,577.15	\$ 8,232.00	\$-	\$ 11,809.15	\$	3,876.22	\$ 11,375.00	\$-	\$ 15,251.22
	С	All Neighborhoods	\$ 17,877.40	\$-	\$-	\$ 17,877	.40	\$ 16,687.80	\$-	\$ -	\$ 16,687,30	\$ 1	7,580.00	\$ -	\$ -	\$ 17,580.00
		Total Cost	RK&K Labor	ATD Labor	Direct Costs	Total		Labor	ATD Labor	Direct Costs	Total		Labor	ATD Labor	Direct Costs	Total
			\$ 78,103.08	\$ 91,262.50	\$ 5,000	\$ 174,365	.58	\$ 74,436.90	\$ 63,794.50	\$ 5 ,000	\$ 143,231.40	\$ 7	5,927.24	\$ 70,350.00	\$5,000	\$ 151,277.24

On-Street Parking Occupancy Studies - Alrington County Attachment A - Data Collection Methodology Cost Comparison Ovember 15, 2021

Notes:

1) For this methodology, each facility would be counted every two hours between 8am and 10pm on one weekday and one weekend This equates to 7 times per day for 2 days - a total of 14 readings per facility

All 171 facilities in Ballston would be counted. A stratified sampling of facilities would be counted in other neighborhoods, including: 315 in Columbia Pike, 239 in Clarendon, 171 in VA Hospital, and 147 in Richmond Highway (1,043 total).

2) For this methodology, each facility under Task 3 would be counted every three hours between 8am and 8pm (or other 12-hour window) This equates to 4 times per day for 2 days - a total of 8 readings per facility.

All 171 facilities in Ballston would be counted. A stratified sampling of facilities would be counted in other neighborhoods, including: 315 in Columbia Pike, 239 in Clarendon, 171 in VA Hospital, and 147 in Richmond Highway (1,043 total).

3) For this methodology, each facility would be counted every two hours between 8am and 10pm on one weekday and one weekend This equates to 7 times per day for 2 days - a total of 14 readings per facility.

A sampling of 105 facilities in Ballston would be counted. A systematic sampling of facilities would be counted in other neighborhoods, including: 240 in Columbia Pike, 173 in Clarendon, 156 in VA Hospital, and 130 in Richmond Highway (804 total).

November 15, 2021

4) Not recommended because Ballston was not counted previously and cost savings would be minimal.

5) Not recommended because stratified sampling provides more robust data set to ensure sufficient data granularity.

November 15, 2021

ATTACHMENT B Hour & Fee Estimates

November 15, 2021

RKK

ATTACHMENT B

HOUR AND FEE ESTIMATE

Task Order No. 19241.XXX - On-Street Parking Occupancy Studies - Option 1 - Reduced Frequency

								N	ovember 15, 2021
					RK	&К			
SubTask	Task Description	Project Manager	Traffic Engineer	Senior Engineer	Junior Engineer	Clerical / Administrative			Total
Number	Assigned Personnel	S. Samberg S. Crumley	J. Parker M. Klik	R. Mora S. Bharadwaj P. Cureton	Y.Wang B. Phillips	L. Strickler A. Kohlman			Estimated Hours
1	Project Management		-			_			
	Virtual Kick-Off Meeting	4	4	12					20
	Work Schedule	4	4	4					12
	Monthly Update Emails (assumed 7)		2	8					10
	Bi-Weekly Calls (Assumed 14)	8	4	8					20
	Additional Calls as needed (Assumed 7)	8	2	8					18
	Hours Subtotal for Task 1	24	16	40	0	0	0	0	80
2	Ballston Area Study								
	Data Collection Prep		4	8	4				16
	Data Collection		8	16	12				36
	Parking Data Analysis		4	20	8				32
	Hours Subtotal for Task 2	0	16	44	24	0	0	0	84
3	Studies for other Neighborhoods								
	Data Collection Prep		16	30	18				64
	Data Collection								
	Columbia Pike Corridor		8	28	16				52
	Clarendon / VA Square		6	22	12				40
	VA Hospital		5	16	7				28
	Richmond Highway		5	14	5				24
	Parking Data Analysis		20	72	20				112
	Hours Subtotal for Task 3	0	60	182	78	0	0	0	320
	Estimated Hours Per Payroll Classification - Base	24	92	266	102	0	0	0	484
	Percent of Hour By Classification		19.0%	55.0%	21.1%	0.0%	0.0%	0.0%	100%

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RKK

ATTACHMENT B

HOUR AND FEE ESTIMATE (continued)

	Task Order No. 19241.XXX - On	-Street Parking	Occupancy Stu	dies - Option 1	- Reduced Free	luency		
							Nove	ember 15, 2021
					RK&K			
SubTask Number	Task Description	Project Manager	Traffic Engineer	Senior Engineer	Junior Engineer	Clerical / Administrative		Total Estimated
	Assigned Personnel	S. Samberg J. Parker S. Bharadwaj B. Phillips B. Phillips		Y.Wang B. Phillips	L. Strickler A. Kohlman		Hours	
1	Project Management	24	16	40	0	0		80
2	Ballston Area Study	0	16	44	24	0		84
3	Studies for other Neighborhoods	0	60	182	78	0		320
Estimated Hours P	er Payroll Classification - Base	24	92	266	102	0		484
Approved Fully Loa	aded (Including Profit) Hourly Rates	\$ 262.44	\$ 192.10	\$ 148.70	\$ 106.97	\$ 89.50		
Estimated Fee Per Payroll Classification (rounded)		\$6,298.56	\$17,673.20	\$39,554.20	\$10,910.94	\$0.00	\$0.00	\$74,436.90
Estimated Payroll - Base					\$74,436.90			
Direct Cost - Other RK&K		\$5,000.00						
Total Base Fee	2				\$79,436.90			

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November 15, 2021
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	Task Order No. 19241.XXX - On-Street Parking Occupancy Studies - Option 1 - Reduced Frequency February 9, 2022									
SubTask Number 1			ALL TRAFFIC DATA							
	Task Description	Technician	Project Manager	Data Manager	Number of Block Faces = 101 to 450	Number of Block Faces = 451 to 900	Number of Block Faces = 901 to 1,200	Number of Block Faces = Greater than 1,200		
	Project Management									
2	Ballston Area Study				171					
3	Studies for other Neighborhoods					872				
Number	of Collection Hours				14	8				
Estimated Units Per 0	Classification	0	0	0	2394	6976	0	0		
Approved Fully Loade	ed Rates	\$ 62.50	\$ 75.00	\$ 90.00	\$ 6.25	\$ 7.00	\$ 9.00	\$ 12.00		
Estimated Fee Per Payroll Classification (rounded)		\$0.00	\$0.00	\$0.00	\$14,962.50	\$48,832.00	\$0.00	\$0.00		
Estimated Payroll - B		\$63,794.50								
Total Base Fee \$63,794.50										

	Project Labor Task Value Summary - Base Contract									
			RK&K	All Traffic	Data Services	TOTAL				
Subtask Number	Task Description	Total Estimated Hours	Total Estimated Fee	Total Estimated Units	Total Estimated Fee	Total Estimated Fee				
1	Project Management	80	\$15,320.16	0	\$0.00	\$15,320.16				
2	Ballston Area Study	84	\$12,183.68	2394	\$14,962.50	\$27,146.18				
3	Studies for other Neighborhoods	320	\$46,933.06	6976	\$48,832.00	\$95,765.06				
	Direct Cost		\$5,000.00		\$0.00	\$5,000.00				
	GRAND TOTALS	484	\$79,436.90	9370	\$63,794.50	\$143,231.40				

November 15, 2021

		Project Labo	r Task Value Summary	- Base Contract			
			RK&K	All Traffic	Data Services	TOTAL	
Subtask Number	Task Description	Total Estimated Hours	Total Estimated Fee	Total Estimated Units	Total Estimated Fee	Total Estimated Hours	Total Estimated Fee
1	Project Management	80	\$15,320.16	0	\$0.00	80	\$15,320.16
2	Ballston Area Study	84	\$12,183.68	2394	\$14,962.50	2478	\$27,146.18
3	Studies for other Neighborhoods	320	\$46,933.06	6976	\$48,832.00	7296	\$95,765.06
	Direct Expenses		\$5,000.00		\$0.00		\$5,000.00
	GRAND TOTALS	484	\$79,436.90	9370	\$63,794.50	9854	\$143,231.40

November 15, 2021

Attachment C Request for Price Proposal



Division of Transportation

Transportation Engineering & Operations Bureau 2100 Clarendon Boulevard, Suite 900, Arlington, VA 22201 TEL 703-228-3735 FAX 703-228-7548 www.arlingtonva.us

August 25, 2021

REQUEST FOR PRICE PROPOSAL

On-Street Parking Occupancy Studies

Multi-Modal Traffic Engineering, Operations, Intelligent Transportation Systems Planning, Project Management Services, Contract No. 18-117-9 Task Order #12

Overview

This Request for a Price Proposal is to execute optional services listed in the contract No. 18-117-9 (section IV.6) Parking and Curbside Management Services, dated August 19, 2019.

The intention of this project is to gather on-street parking data that will support County Staff with the following:

- 1. Monitor on-street parking occupancy and parking duration on Residential Permit Parking (RPP)restricted and unmanaged street blocks throughout the County.
- 2. Understand how occupancy and parking duration vary throughout the day between RPP restricted streets within a study area and between RPP restricted streets in different study areas.
- 3. Understand how occupancy and parking duration vary throughout the day between unmanaged streets within a study area and between unmanaged streets in different study areas.
- 4. Understand the relationship (if any) between RPP program changes adopted by the Board in February 2021 and on-street parking demand and duration on RPP restricted streets.
- 5. Establish statistical parameter, such as mean or proportion, with a minimum of 90% certainty.
- 6. Achieve a degree of certainty (min. 90%) whether changes in occupancy and/or duration can be attributed to changes in the RPP program.

The Consultant shall gather data that will support understanding current on-street parking demand and changes to parking patterns. In addition, County Staff is interested in gauging the impact of RPP policy changes effective since July 1st, 2021 on parking demand. This project should, therefore, include a field data collection phase implemented throughout different areas of the County at different times during the day and the week, as well as a statistical data analysis phase focused on analyzing the collected field data to determine statistical parameters outlined in sections 2.C. and 3.C. Data Analysis.

The contractor shall provide a proposal that outlines and prices each subtask under Tasks 1-3. The contractor shall use Attachment A for the price proposal. The contractor shall outline and price each considered data collection method (census and/or sampling design) for both Task 2 and 3 to allow County Staff to choose the most appropriate approach to achieving the goals of this project while conserving financial resources.

County Staff anticipates that this type of project will be repeated to both monitor changes to on-street parking occupancy and expand monitoring efforts to areas of the County that previously have not been studied.

Background

As part of the Residential Permit Parking (RPP) Program Review (2017-2021), the County tasked a contractor with collecting data about parking to support the review since parking demand and capacity are major factors in granting RPP restrictions. For this, County Staff laid out parking-count data collection areas (Table 1) that incorporated streets with four types of parking management:

<u>RPP-restricted parking</u>, which allow only parkers with RPP permits and passes to park during hours of enforcement.

<u>Metered parking</u>, where parkers must pay for parking during certain hours to promote efficient use of the spaces, and where parkers may not stay longer than the maximum time posted (usually 2 hours or 4 hours). <u>Time-limited parking</u>, where parkers may not stay longer than the maximum time posted (usually 2 hours or 4 hours) during certain hours to promote efficient use of the spaces, but where no payment is required. <u>Unmanaged parking</u>, where parkers may stay up to 10 days, the point at which a vehicle is considered abandoned and may be towed.

Collected data included:

- The exact locations of street curbs (facilities) with RPP-restricted parking around the County and the number of parking spaces on these facilities.
- The exact locations of street curbs (facilities) for all management types within four study areas, and the number of parking spaces on these facilities.
- The number and parking duration of vehicles parked along the facilities in four areas of the County on weekdays and Saturdays during specified hours (see Attachment B for RPP and unmanaged facility data).

Table 1: Between 2017 and 2019, the County collected LPR on-street parking demand data in four study areas (Attachment C)

Study Area	Columbia Clarendon/VA		VA Hospital	Richmond Hwy/Aurora
Sluuy Areu	Pike	Square	Center	Highlands
Year	2017	2018	2018	2019
Data Collection Dates	Weekday: May 11, 16, 18, 31; June 1 Weekend: May 13, 20, 21; June 3, 4	Weekday: Oct 16 Weekend: Oct 20 (re-collected since May data not complete)	Weekday: May 9 Weekend: May 12	Weekday: April 24 Weekend: April 27
Data Collection Times	8am-1am (hourly)	8am-1am (once within 2-hour window)	8am-1am (once within 2- hour window)	8am-1am (hourly)
Estimated total number of studied street blocks	676	471	302	473

Arlington County does not demarcate individual parking spaces in most cases; the number of parking spaces on any given facility was and is calculated as the length in feet of the legal parking areas divided by 20 feet,

rounding down. The data was collected in the spring, avoiding spring break, Federal holidays, inclement weather and special events that closed streets and may change normal driving behavior. Repeating data collection in the same season minimized the chance the differences in parking between study areas would be due to changes in the season. Unfortunately, equipment problems during the May 2018 data collection required a repeat around Clarendon/Virginia Square in October. Similar equipment problems occurred during Saturday evening data collection in one portion of the Virginia Hospital Center area, but that data was not recollected.

Counting took place using license plate recognition (LPR) equipment on one mid-week day (Tuesday, Wednesday, or Thursday) and on one Saturday (or Sunday for Columbia Pike) for each block face since parking patterns vary between the middle of the work week and the weekend. The County requested data collection between 8 AM and 1 AM. Counts took place on each block face once per hour between these hours, except for the data from 2018 when counts were reduced to once every two hours, in order to reduce costs.

In addition to the LPR-based data collection, in the spring 2018 and 2019, the County also tasked the contractor with collecting hourly counts manually for seven days between 8 AM and 1 AM. These counts were taken so that County Staff could compare data from a longer data-collection period with the LPR-based data to see how well the LPR-based data reflects parking patterns over a longer period of days. Since comparison was important, the contractors manually collected hourly counts for seven days during the same weeks as the LPR data collection or within a few weeks of each other. The results of the comparative analysis indicated that there was no statistically significant difference in vehicle counts taken via LPR equipment versus manual collection; any sample differences were attributed to random variability at 95% confidence level. Based on these findings, staff concluded that parking occupancy data collected on single days was generally representative of the parking occupancy that would be found on other days in the same few weeks of the year.

There are RPP restricted streets outside of the areas mentioned in Table 1 for which County Staff has not yet collected any demand data. County Staff wishes to expand the data-collection areas in the future as resources become available. As part of this project, County Staff seeks to expand the previous study areas to include the Ballston area.

Terminology

Curb Facility:	A section of street curb with a certain utilization management type, e.g. metered, RPP restricted, unmanaged, time-limited, loading, no parking, etc.
Parking Occupancy:	The number of parking spaces on a given block or curb facility that are taken up by parked cars.
Occupancy Range:	The parking occupancy of each facility is grouped into one of three percentage ranges: 0-60%, 61-85%, and >85%. AC staff uses peak occupancy to group facilities when analyzing beyond individual collection time slots (e.g. morning/evening, daily, weekly). Ranges represent the <u>Arlington County Master Transportation Plan</u> on-street occupancy policy levels of 60% and 85%, where 60% on-street occupancy is the threshold at or below which the removal of off-street surface parking in excess of zoning requirements is encouraged and 85% represents the ideal on-street occupancy rate in high-demand areas.
Occupancy Range Proportion:	Proportion of facilities that fall within the three occupancy ranges. Since measures of central tendency can obscure changes in the distribution of the

occupancies on the streets being studied, proportions can provide additional insight into demand patterns.

Street Block:Based on Arlington County GIS Department street network shapefile, the
block number applies to both sides of a street. It relates to the range of
address numbers on the block. E.g. 900 block of N Daniel Street includes
addresses ranging from 901 to 938 N Daniel St. A block number may or
may not apply until another street intersection is reached.

Scope of Work

County Staff requests a price proposal (Attachment A) to execute Three (3) tasks and related sub-tasks as listed below. The proposal should have a price associated with each task and subtask.

County may or may not move forward with a task or subtask due to price proposed or the availability of funds.

Task One (1)

1.A. Project Management and Communication

The Consultant shall appoint a Project Manager (PM) who shall serve as the primary point of contact between the County and the Consultant team. Consultant PM shall be responsible for managing their team's work, keeping the project work on schedule and within the project budget.

The Consultant PM shall provide a concise monthly progress report to the County PM to include at a minimum: an ongoing meetings/coordination log, actual project schedule updates, comparison with the baseline project schedule, and any relevant project matters (either ongoing, or which have occurred since the previous monthly progress report).

All communications with the County shall flow through and from the Consultant PM to the County PM. Following meetings or conference calls, the Consultant shall summarize the discussion, issues, and decisions and shall distribute them within 72 hours to the County PM for concurrence.

The Consultant shall develop a baseline project schedule to be discussed and refined at the kick-off meeting.

1.B. Meetings and Coordination

The following meetings (held digitally or at the County offices with essential Consultant Staff only) shall be expected between the Consultant and County Staff:

- i. A Microsoft Teams or in-person kickoff meeting to discuss overall project administration and expectations.
- ii. Telephone or Microsoft Teams calls and email coordination with project stakeholders and other consultants, as requested by the County PM, to clarify any project team questions or concerns. At a minimum, the County expects a telephone or Microsoft Teams conversation between the County PM and Consultant PM providing a brief project update once every two weeks.

Task Two (2)

The Consultant shall execute a census or sampling design data collection and analysis of on-street parking occupancy and duration of vehicles parked along RPP restricted curb facilities in the Ballston area (Attachment C). The Ballston area has 112 street blocks which are fully or partially RPP restricted; these blocks contain 171 RPP-restricted curb facilities. County Staff requests a price proposal (Attachment A) to execute the sub-tasks listed below for each data collection strategy suggested.

2.A. Parking Data Collection Preparation

The Consultant shall use data provided by County Staff (Attachment B) to identify the precise block faces for which data collection is required in the Ballston area. The Consultant shall then create a plan for the data collection from those block faces to be able to calculate the values in sub-section 2.C. The Consultant shall be responsible for creating all maps or other files needed to plan and manage the data collection.

1) County Staff shall provide the latest available Environmental Systems Research Institute (ESRI) shapefiles describing the

- i. Ballston study area,
- ii. street network,
- iii. curb facilities of the study area where RPP restrictions are in effect,
- iv. other shapefiles as requested and as available.
- 2) The Consultant shall develop a data collection strategy (census or sampling design) to answer the following questions:
 - i. What is the on-street parking occupancy and duration on RPP restricted facilities by:
 - weekday and Saturday and collection time
 - ii. What is the average on-street parking occupancy and duration on RPP restricted facilities by:
 - weekday and Saturday
 - study area
 - study area and collection time
 - study area on a weekday and Saturday
 - study area on a weekday and Saturday and collection time
 - iii. What is the occupancy range (0-60%, 61-85%, or > 85%) RPP restricted facilities fall into by:
 - weekday and Saturday and collection time
 - iv. What is the average occupancy range (0-60%, 61-85%, or > 85%) RPP restricted facilities fall into by:
 - weekday and Saturday
 - study area
 - study area and collection time
 - study area on a weekday and Saturday
 - study area on a weekday and Saturday and collection time

If applicable:

- v. What is the proportion of RPP facilities with on-street parking occupancy ranges 0-60%, 61-85%, and > 85% by:
 - weekday and Saturday and collection time
- vi. What is the proportion of RPP facilities with average on-street parking occupancy ranges 0-60%, 61-85%, and > 85% by:
 - By weekday and Saturday
 - study area
 - study area and collection time
 - study area on a weekday and Saturday
 - study area on a weekday and Saturday and collection time

Questions i.-vi. should be answered with a minimum 90% confidence level and a maximum 5% margin of error.

3) The Consultant shall outline a variety of potential data collection strategies for the parameters of interest (2.C.), providing a minimum of two designs (either different sampling or census and sampling strategies).

For sampling designs (if applicable), the data collection strategies should additionally outline:

- i. Type of sampling method(s) (e.g. Systematic Sampling, Stratified Sampling, etc.)
- ii. Confidence level and Margin of error
- iii. Sample Size
- iv. Sampling Timeframe (number of weekdays and Saturdays, collection hours)
- 4) The Consultant shall make a recommendation on a data collection strategy to accomplish the goals of Task 2, outlining both pros and cons of the strategy, including cost.
- 5) Based on the quantity of data to be collected, the Consultant may propose a plan of collection that segments the study area over multiple days.

2.B. Parking Data Collection

 Using License Plate Reader (LPR) technology, the Consultant shall drive a predetermined route, to be developed by the Consultant, to record the license plates of vehicles parked on the facilities to be studied and the global positioning system (GPS) coordinates of each vehicle recorded. For each studied facility, data shall be collected on one mid-week day (Tuesday, Wednesday, or Thursday) and on one Saturday.

2.C. Data Analysis

i.

- 1) The Consultant shall use the data collected in Sub-Task 2.B. to calculate the following values
 - for each RPP facility, day and collection hour:
 - a) Parking occupancy
 - b) Parking duration
 - ii. for the study area and data collection timeframe:
 - a) Population or Sample Mean Occupancy, as applicable
 - b) Population or Sample Mean Parking Duration, as applicable

If Arlington County resources allow, the Consultant shall use data collected in Sub-Task 2.B. to calculate:

- iii. for each study area and data collection timeframe:
 - a) Population or Sample Proportions of Occupancy Ranges (0-60%, 61-85%, >85%)
- 2) The Consultant shall summarize the analysis results, answering the questions outlined in Sub-Task 2.A, where applicable.

Task Three (3)

The Consultant shall execute a census or sampling design data collection and analysis of on-street parking occupancy and duration of vehicles parked along RPP restricted and unmanaged curb facilities for four areas of the County (Table 2; Attachment C). The study areas contain a total of 1354 street blocks which are fully or partially RPP restricted or unmanaged; these blocks contain a total of 2135 RPP restricted or unmanaged facilities. County Staff requests a price proposal (Attachment A) to execute the sub-tasks listed below for each of the areas described in the Table 2 for each data collection strategy suggested.

Study Area	Columbia Pike Corridor	Clarendon/VA Square	VA Hospital Center	Richmond Hwy/ Aurora Highland	Total
Number of RPP blocks	117	192	65	132	506
Number of Unmanaged blocks	511	135	194	41	882
Number of RPP Facilities	188	278	82	187	735
Number of Unmanaged Facilities	855	201	283	61	1,401

 Table 2: Task 3 Study Areas for 2021 Occupancy Data Collection

3.A. Parking Data Collection Preparation

The Consultant shall use data provided by County Staff (Attachment B) to identify the precise block faces for which data collection is required. The Consultant shall then create a plan for collecting data from those block faces to be able to calculate the values in sub-section 3.C. The Consultant shall be responsible for creating all maps or other files needed to plan and manage data collection.

- 1) County Staff shall provide the latest available Environmental Systems Research Institute (ESRI) shapefiles describing the:
 - i. four study areas in table 2,
 - ii. street network,
 - iii. curb facilities of the study areas where RPP restrictions are in effect,
 - iv. curb facilities of the study areas that are unmanaged,
 - v. historical occupancy and duration data for RPP and unmanaged facilities for the four study areas described in table 2,
 - vi. other shapefiles as requested and as available.
- 2) The Consultant shall develop a data collection strategy for each study area (census or sample design) to answer the following questions:
 - i. What is the on-street parking occupancy and duration on RPP restricted and unmanaged facilities by:
 - weekday and Saturday and collection time?
 - ii. What is the average on-street parking occupancy and duration on RPP restricted and unmanaged facilities by:

- weekday and Saturday?
- study area?
- study area and collection time?
- study area on a weekday and Saturday?
- study area on a weekday and Saturday and collection time?
- iii. Is there a statistically significant change between historical (Attachment B) and current onstreet parking occupancy and/or duration by?
 - facility on a weekday and Saturday?
 - study area and management type?
 - study area, management type, and collection time?
 - study area and management type on a weekday and Saturday?
 - study area and management type on a weekday and Saturday and collection time?
- iv. What is the occupancy range (0-60%, 61-85%, or > 85%) RPP restricted and unmanaged facilities fall into by:
 - weekday and Saturday and collection time
- v. What is the average occupancy range (0-60%, 61-85%, or > 85%) RPP restricted and unmanaged facilities fall into by:
 - weekday and Saturday
 - study area
 - study area and collection time
 - study area on a weekday and Saturday
 - study area on a weekday and Saturday and collection time

If applicable:

- vi. What is the proportion of facilities with on-street parking occupancy ranges 0-60%, 61-85%, and > 85% by:
 - management type on a weekday and Saturday and collection time
- vii. What is the proportion of facilities with average on-street parking occupancy ranges 0-60%, 61-85%, and > 85% by:
 - study area and management type
 - study area, management type, and collection time
 - study area and management type on a weekday and Saturday
 - study area and management type on a weekday and Saturday and collection time
- viii. Is there a statistically significant change between historical and current on-street parking occupancy range proportions by:
 - study area on a weekday and Saturday and collection time (see Attachment B for historical occupancy ranges)

Question i.-viii. should be answered with a minimum 90% confidence level and a maximum 5% margin of error.

3) The Consultant shall outline a variety of potential data collection strategies for the parameters of interest (3.C.) for each study area, providing a minimum of two designs (either different sampling, or census and sampling strategies).

For sampling designs (if applicable), the data collection strategies should additionally outline:

i. Type of sampling method(s) (e.g. Systematic Sampling, Stratified Sampling, etc.)

- ii. Confidence level and Margin of error
- iii. Sample Size
- iv. Sampling Timeframe (number of weekdays and Saturdays, collection hours)
- 4) The Consultant shall make a recommendation on a data collection strategy for each study area to accomplish the goals of Task 3, outlining both pros and cons of the strategy, including cost.
- 5) Based on the quantity of data to be collected, the Consultant may propose a plan of collection that segments the study area over multiple days.

3.B. Parking Data Collection

 Using License Plate Reader (LPR) technology, the Consultant shall drive a predetermined route, to be developed by the Consultant, to record the license plates of vehicles parked on the facilities to be studied and the global positioning system (GPS) coordinates of each vehicle recorded. For each studied facility, data shall be collected on one mid-week day (Tuesday, Wednesday, or Thursday) and on one Saturday.

3.C. Data Analysis

i.

- 1) The Consultant shall use the data collected in Sub-Task 3.B. to calculate the following values
 - for each facility, day and collection hour:
 - a) Parking occupancy
 - b) Parking duration
 - ii. for each study area, management type, and data collection timeframe:
 - a) Population or Sample Mean Occupancy, as applicable
 - b) Population or Sample Mean Parking Duration, as applicable

If Arlington County resources allow, the Consultant shall use data collected in Sub-Task 3.B. to calculate:

- iii. for each study area, management type, and data collection timeframe:
 - b) Population or Sample Proportions of Occupancy Ranges (0-60%, 61-85%, >85%)
 - c) Differences of Mean (comparison of current and historical data)
 - d) Differences of Proportions (comparison of current and historical data)
- 2) The Consultant shall summarize the analysis results for each study area, answering the questions outlined in Sub-Task 3.A.

Deliverables

All deliverables shall be submitted at one time in the electronic format (e.g., PDF, Microsoft Excel, ESRI shapefile, ESRI MXD file) agreed upon between the Consultant and the County

In all cases, Consultant will first provide a draft submission of the deliverables for County Staff review and comment. County Staff will submit one set of reconciled comments to the Consultant. The Consultant will then incorporate comments and related changes into a final submission.

Upon completion of data analysis for Tasks Two (2) and Three (3) above, the Consultant will provide the following:

- 1) Metadata documentation for all tabular data describing:
 - i. Column Headers and descriptions
 - ii. Field names and descriptions

- 2) All original license-plate records in tabular format with the facility number, GPS location (Latitude, Longitude), date, and time (EST) of the read.
- 3) A line shapefile that describes each curb facility with attributes defining:
 - i. Study Area
 - ii. Management Type
 - iii. Parking supply
 - iv. Derived duration
 - v. Number of vehicles parked per time interval
 - vi. Derived occupancy per time interval
- 1) Matched facilities table (quality check). Create a facilities match between historic and current data using the Excel function MATCH(lookup_value, lookup_array, [match_type]) to ensure all facilities newly sampled have a match to historic data for before and after comparison.
- 4) A Box and Whisker plot for
 - i. each area and manage type by day.
 - ii. each area and manage type by day and collection hour.
 - The plot shall illustrate important statistical quantities of the data (Mean, Median, quartiles, outliers).
- 5) Outlier table (quality check). Consultant shall confirm that capacity and vehicle counts are correct for each outlier and indicate the quality check within a column of the Outlier table.
- 6) Time Series Graph (Pivot table graph format) displaying on-street occupancy over different data collection times identifying trends and variability in on-street occupancy by:
 - i. Study area
 - ii. Manage type (RPP and unmanaged)
 - iii. Weekday and Saturday
 - iv. Block
 - v. Facility
- 7) A summary of the results of the statistical analysis of estimating population mean of RPP restricted and unmanaged facilities for each study area, where applicable.
- 8) A summary of the results of the statistical hypothesis testing (e.g. differences of mean, difference of proportion), where applicable.

DocuSign Envelope ID: 480C3B3C-9427-45BC-AF7F-76B8B275D2F7 Attachment A: Price Proposal

Task	Subtask	Study Area	Price Proposal
1	A. & B.		
2	А.		
	B.	Ballston	
	C.		
3	A.	Columbia Pike Corridor	
		Clarendon/VA Square	
		VA Hospital	
		Richmond Hwy/ Aurora Highland	
	B.	Columbia Pike Corridor	
		Clarendon/VA Square	
		VA Hospital	
		Richmond Hwy/ Aurora Highland	
	C.	Columbia Pike Corridor	
		Clarendon/VA Square	
		VA Hospital	
		Richmond Hwy/ Aurora Highland	