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HALPINE VIEW
TRAFFIC IMPACT STUDY
MONTGOMERY COUNTY, MARYLAND

Prepared for:
Halpine Park LLC
c/o Grady Management, Inc.

Prepared by:
Wells & Associates, Inc.
Nancy Randall AICP
170 Jennifer Road, Suite 260
Annapolis, MD 21401

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INTRODUCTION

This report summarizes the results of a Local Area Transportation Review (LATR) and Policy Area Mobility Review (PAMR) study for Halpine View in accordance with the M-NCPPC PAMR/LATR standards. The Halpine View project is located east of Twinbrook Parkway, south of Veirs Mill Road in the North Bethesda Policy Area of Montgomery County, Maryland, as shown in Figure 1. The site is currently developed with 564 apartment dwelling units, which as part of the pre-application concept plan are proposed to be replaced by 2206 apartment units, of which 200 will be senior housing units and 9,350 square feet of retail space. Figure 2 shows the proposed site concept plan.

Although this report was done as part of an optional submission with the pre-application concept plan, the traffic analysis was conducted in accordance with the M-NCPPC 2010 LATR and PAMR guidelines and the scoping agreement with M-NCPPC staff in order to analyze impacts and review mitigation measures. Appendix A contains a copy of the scoping agreement and copies of the correspondence sent to M-NCPPC staff and the supporting documents.

The study area includes the following intersections:

1. Twinbrook Parkway/Parklawn Drive
2. Twinbrook Parkway/Fishers Lane
3. Twinbrook Parkway/Ardennes Avenue
4. Twinbrook Parkway/Halpine Road/Alderbrook Court,
5. Twinbrook Parkway/Besley Court/Pier Drive,
6. Twinbrook Parkway/Parking Lot entrance,
7. Twinbrook Parkway/Dowgate Court,
8. Twinbrook Parkway/Veirs Mill Road
9. Veirs Mill Road/Atlantic Avenue
10. Veirs Mill Road/Edmonston Drive
11. Veirs Mill Road/Aspen Hill Road
12. Veirs Mill Road/Robindale Drive
13. Aspen Hill Road/Parkland Drive
14. Norbeck Road/Baltimore Road
15. Baltimore Road/Parkvale Road
16. Twinbrook Parkway/Baltimore Road

Tasks undertaken in this study included the following:

1. Review of the Halpine View development plans, other background data.

2. Meetings and conversations with Montgomery County staff.

3. A field reconnaissance of existing roadway and intersection geometrics, traffic controls, traffic signal phasing, and pedestrian accommodations and controls.

4. Turning movement vehicular and pedestrian counts of existing weekday morning and evening peak period volumes at the study intersections.

5. Analysis of existing critical lane volumes at each of the study intersections.

6. Forecasts of background future traffic volumes based on existing traffic counts and approved but unbuilt background developments.

7. Calculation of background critical lane volumes at each study intersection based on background traffic forecasts, existing lane use and traffic controls, and with and without the programmed roadway improvement of Montrose Parkway East.

8. Estimation of the number of weekday AM and PM peak hour trips that will be generated by the Halpine View development using standard M-NCPPC rates.

9. Identification of total future traffic forecasts based on background traffic forecasts plus site traffic assignments.

10. Calculation of total future critical lane volumes at each study intersection based on total future traffic forecasts and existing lane use and traffic controls with and without the programmed roadway improvement of Montrose Parkway East.

Sources of data for this analysis included the M-NCPPC's Local Area Transportation Review (LATR) and Policy Area Mobility Review (PAMR) Guidelines; traffic counts conducted by Wells & Associates; the Institute of Transportation Engineers (ITE); M-NCPPC files; the Maryland State Highway Administration (SHA); and Grady Management, Inc.

The conclusions of this study are as follows:

1. All sixteen (16) of the existing study intersections are currently operating within their policy area congestion standards.

2. Based on the data provided by the M-NCPPC, there are eight (8) pipeline projects in the study area. These pipeline projects will add 2,362 vehicle trips during the AM peak hour and 2,645 vehicle trips during the PM peak hour to the area road network.

3. With the projected volumes generated by the background developments, fifteen (15) of the sixteen (16) existing study intersections will continue to operate with acceptable CLVs during both the AM and PM peak hours. The intersections of Twinbrook Parkway/Veirs Mill Road will operate with a CLV of 1,741 during the AM peak hour and 1,632 during the PM peak hour without Montrose Parkway East and will operate with a CLV of 1,665 during the AM peak hour and 1,632 during the PM peak hour with Montrose Parkway East exceeding the policy area congestion standard of 1,550.

4. Based on the M-NCPPC rates for mid-rise residential dwelling units and retail (without grocery), the proposed redevelopment of the site will add 600 new external AM peak hour trips and 717 new external PM peak hour trips.

5. With the addition of the net new external trips that would be generated by the Halpine View development, the level of service at two (2) of the sixteen (16) study intersections will exceed the policy area CLV congestion standards. The intersections of Twinbrook Parkway/Veirs Mill Road and Twinbrook Parkway/Halpine Road/Alderbrook Court (future Street A) will require mitigation to offset the impact of the proposed project.

6. The recommended mitigation for the intersection of Alderbrook Court/Halpine Road/Twinbrook Parkway is to provide a second outbound lane on future Street A/Alderbrook Court. This would result in a left/thru lane and a separate right turn lane. The recommended improvement to the intersection of Veirs Mill Road/Twinbrook Parkway is to change the existing lane use on the northbound Twinbrook Parkway approach to provide a left turn lane, a shared left thru lane, and a double right turn lane. This improvement will mitigate only 100% of the sites impact, not the required 150%. Therefore, additional mitigation of the sites impact will be required.

7. Based on the location of the property there are several options to mitigate the site impact including: (1)the installation of signals at the intersection of Twinbrook Parkway/Alderbrook Ct (Street A) and at the intersection of Twinbrook Parkway/Twinbrook Recreation Center/Street D - both of these would include countdown pedestrian signals, handicap ramps, and crosswalk installation; (2) construct a connection from the site to the proposed hiker-biker trail connection to Rock Creek Park; and (3) other mitigation measures coordinated with M-NCPPC and DOT staff to mitigate any remaining portion of the 62 trips.

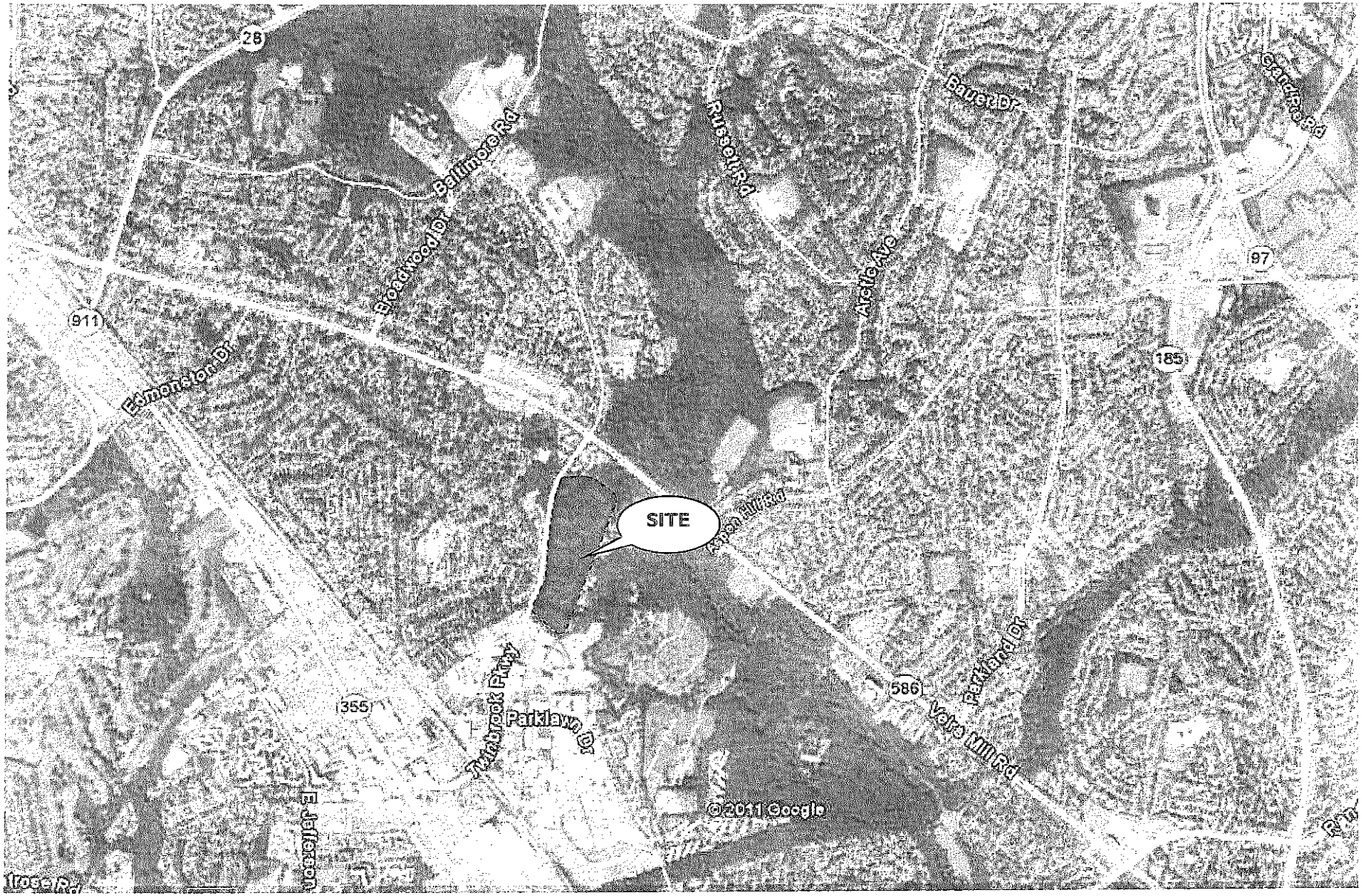

Figure 1
Site Location

North

Halpine View
Rockville, MD

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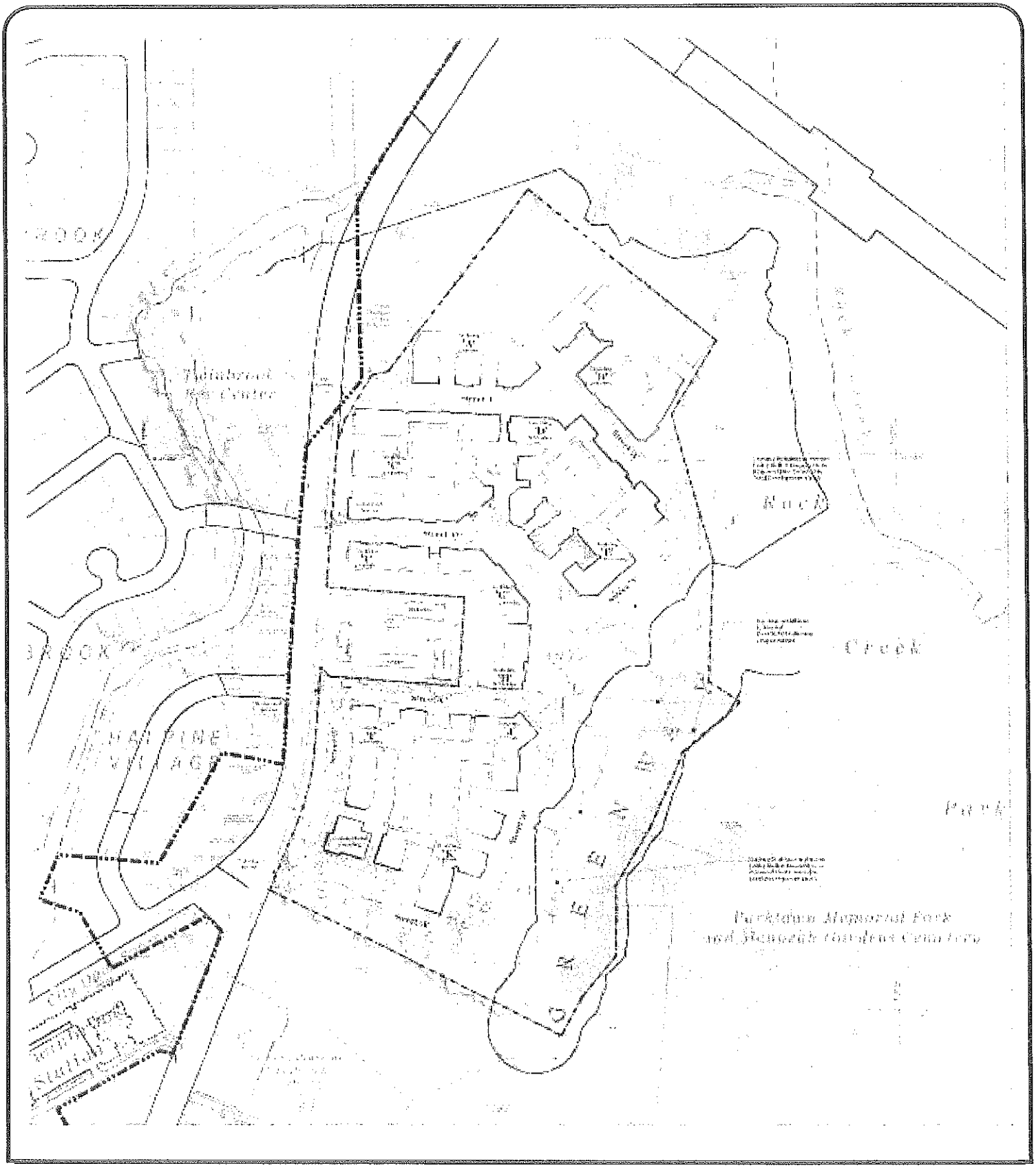

Figure 2
Site Plan

North

Halpine View
Rockville, MD

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BACKGROUND DATA

Public Road Network

Rockville Pike (MD 355) and Veirs Mill Road, Norbeck Road and Aspen Hill Road provide regional access to Halpine View. Twinbrook Parkway provides local access. The existing lane use and traffic control at each study intersection is shown on Figure 3.

Twinbrook Parkway extends from Baltimore Road southward crossing Veirs Mill Road and terminates at Rockville Pike, where it becomes Rollins Avenue. Near the site, Twinbrook Parkway is a four-lane roadway with a posted speed limit of 30 mph.

Veirs Mill Road (MD 586) extends from Rockville Pike at E. Jefferson Street (MD 28) southeast to Georgia Avenue (MD 97) in Wheaton. Veirs Mill Road is generally a four-lane median-divided roadway, with turn lanes at the study intersections with varying posted speed limits ranging between 35 and 45 MPH. The intersections of Veirs Mill Road with Robindale Drive, Aspen Hill Road and Twinbrook Parkway are all signalized.

Aspen Hill Road extends from Veirs mill Road eastward to Georgia Avenue and is generally a two-lane roadway with on-street parking. The roadway has a posted speed limit of 30 MPH. Turn lanes are provided at the major intersections and the intersection of Aspen Hill Road and Veirs Mill Road is signalized.

Parklawn Drive east of Veirs Mill Drive is generally a north-south roadway that intersects with Twinbrook Parkway to the north and Randolph Road to the South. It is a four-lane roadway with a posted speed of 30 MPH. The intersection of Parklawn Drive and Twinbrook Parkway is signalized.

Existing Traffic Counts

Wells & Associates conducted counts of existing vehicular and pedestrian traffic on Thursday, February 10 and Tuesday, February 15, 2011. The existing lane use and traffic controls for the study intersections are shown on Figure 3. The AM and PM peak hour vehicular volumes are shown on Figure 4. The AM and PM pedestrian peak hour volumes are shown on Figure 5. Copies of the intersection turning movement counts and pedestrian counts are contained in Appendix B.

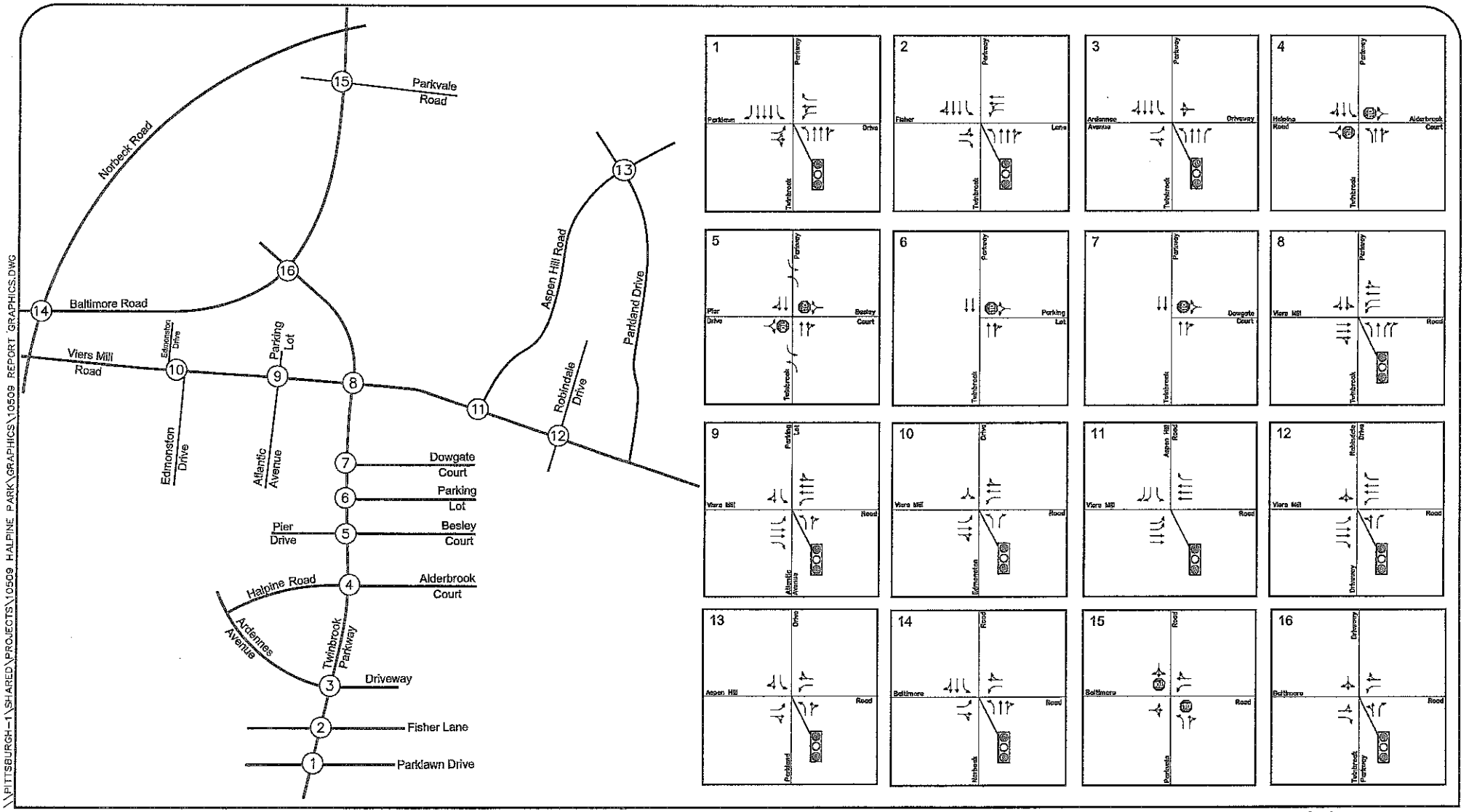

Figure 3
Existing Intersection Lane Use and Traffic Control

AM PEAK HOUR
PM PEAK HOUR
000/000

North

JCP

Halpine View
Rockville, MD

Wells + Associates, Inc.

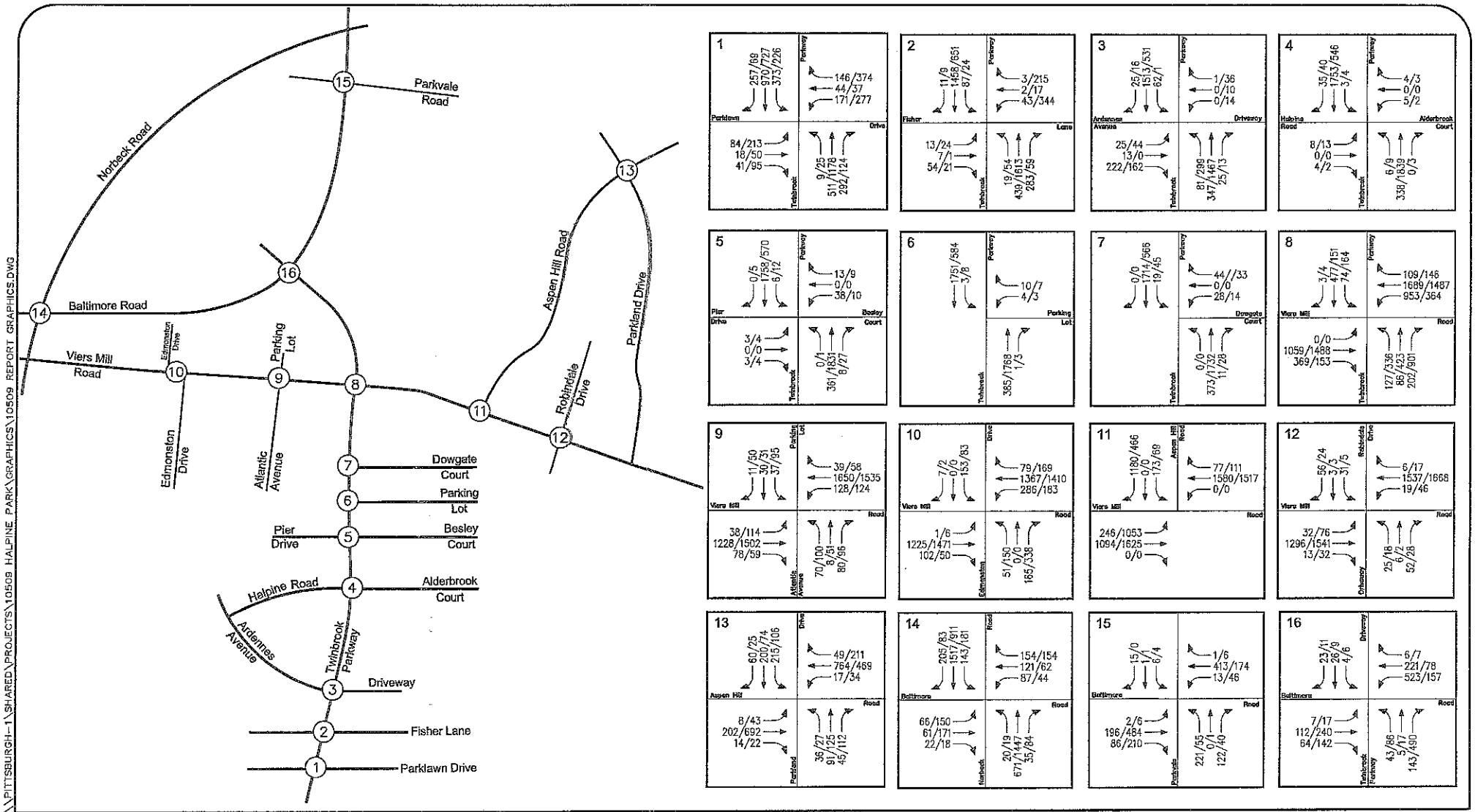

Figure 4
Existing Vehicular Traffic Volume

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Halpine View
Rockville, MD

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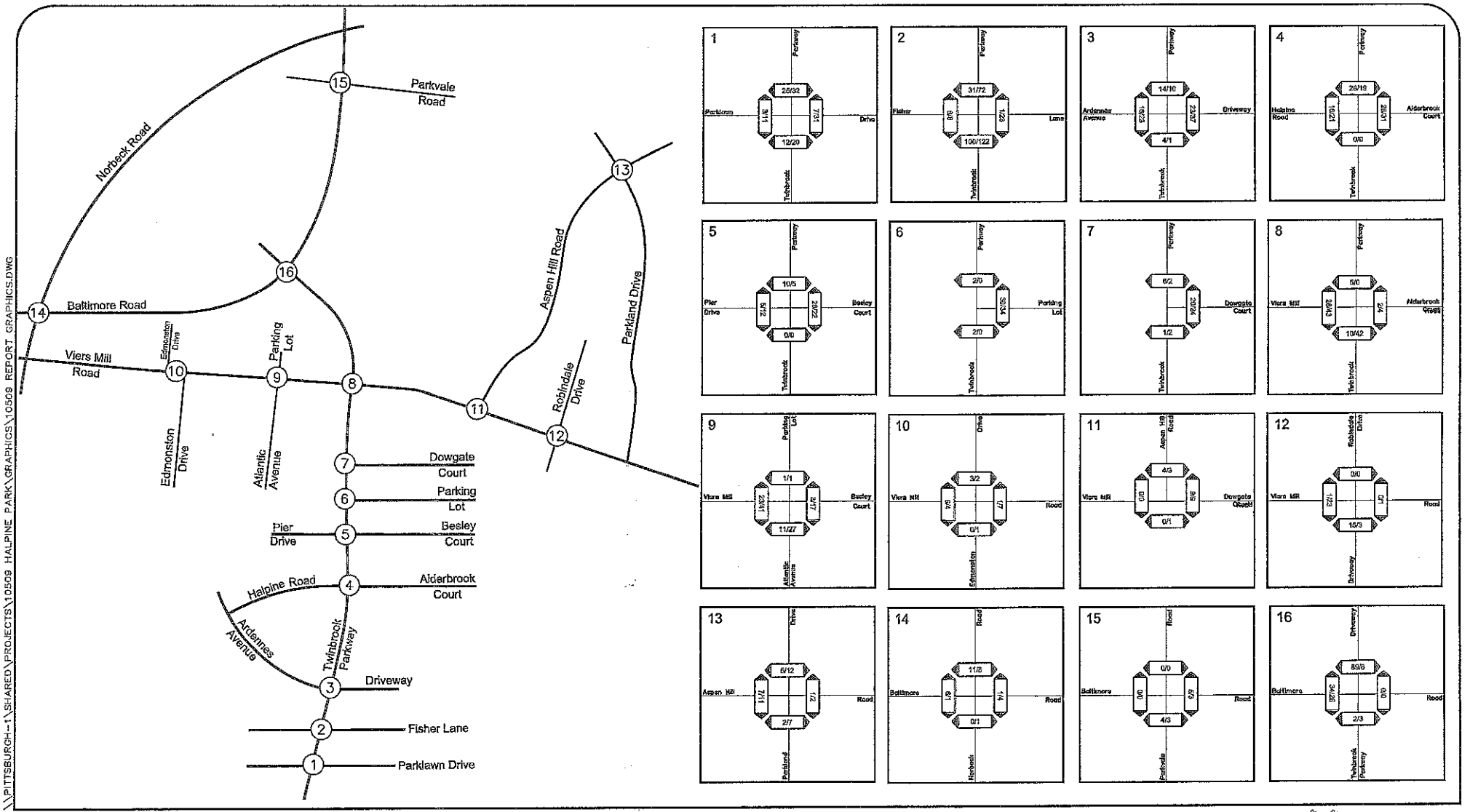

Figure 5
Existing Pedestrian Traffic Counts

AM PEAK HOUR
PM PEAK HOUR
000/000

North

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Rockville, MD

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ANALYSIS

Congestion Standard

The proposed Halpine View development is located in the North Bethesda policy area and adjacent to Twinbrook, Aspen Hill and Rockville City policy areas of Montgomery County. Therefore, the congestion standard for the study intersections varies depending upon which policy area the intersection is located. The critical lane volume standards for each of the study intersections are noted in the scoping letter from MNCPPC in Appendix A and shown on the Level of Service Tables.

Existing Intersection Critical Lane Volumes

Existing AM and PM peak hour intersection critical lane volumes (CLV) were computed at sixteen (16) of the existing study intersections based on the existing lane usage and traffic control shown on Figure 3, the existing traffic volumes shown on Figure 4, and M-NCPPC intersection capacity analysis procedure. The results are presented in Appendix C, and summarized in Table 1.

Table 1 indicates that all of the existing study intersections currently operate within their congestion standards.

Table 1
Halpine View
Existing Intersection Level of Service Summary

Intersection	Congestion Standard	Existing AM	Existing PM
1: Twinbrook Parkway/Parklawn Drive	1800	834	1206
2: Twinbrook Parkway/Fisher Lane	1800	622	859
3: Twinbrook Parkway/Ardennes Avenue	1800	791	883
4: Twinbrook Parkway/Alderbrook Ct. (Street A)	1550	975	1000
5: Twinbrook Parkway/Besley Ct. (Street C)	1550	986	1005
6: Twinbrook Parkway/Driveway	1550	928	937
7: Twinbrook Parkway/Dowgate Ct. (Street E)	1550	980	1058
8: Twinbrook Parkway/Veirs Mill Road	1550	1454	1457
9: Veirs Mill Road/Atlantic Avenue	1500	904	1162
10: Veirs Mill Road/Edmonston Drive	1500	1200	1229
11: Veirs Mill Road/Aspen Hill Road	1550	1210	1188
12: Veirs Mill Road/Robindale Drive	1475	962	1010
13: Aspen Hill Road/Parkland Drive	1475	1172	1091
14: Norbeck Road/Baltimore Road	1500	1274	1358
15: Parkvale Road/Baltimore Road	1475	659	806
16: Twinbrook Drive/Baltimore Road	1500	738	526

Note: Number indicates the critical lane volume in vehicles.

Planned Improvements

Montgomery County Department of Transportation has funded the Capital Improvement Project of Montrose Parkway East that will extend Montrose Parkway from MD 355 to the east side of Veirs Mill Road. The roadway, south of Twinbrook Parkway is anticipated to divert approximately 23 percent of the Average Daily Traffic volume on Twinbrook Parkway that travels to and from Veirs Mill Road from the south. Based on this anticipated diversion, we have reduced the existing volume at the intersection of Twinbrook Parkway/Veirs Mill Road. The reduction, as a conservative measure, assumed that only 15 percent of the existing northbound right turn volume on Twinbrook Parkway and 15 percent of the westbound left turn volume from Veirs Mill Road would be diverted to Montrose Parkway East. The reduction in traffic volume was then flowed through the affected study intersections. A copy of the Montrose East project lists documents are contained in Appendix A.

Pipeline Development Traffic

As requested by M-NCPPC staff, the following eight (8) development projects were included in this traffic analysis:

1. Rock Creek Wood - 30 Townhouse units,
2. Uniwest (Thompson's Property) - 150,000 SF of general office space,
3. Fishers Lane (Spring Lake Park) – 255,380 SF of general office space and 1,200 SF retail space,
4. Parklawn North - 519,000 SF of general office space,
5. Twinbrook Commons East - 1,146 high-rise apartment units and 44,585 SF retail space.
6. Twinbrook Commons West - 325,000 SF of office space, 80,000 SF retail space and 450 garden apartment units,
7. Boland Campus Development - 69,500 SF of office space,
8. Pike Center – 7,710 SF of retail space.

Traffic estimates were prepared for these projects based on the approved development programs as provided by M-NCPPC staff and previously approved transportation studies, using the 8th Edition trip generation rates published by the Institute of Transportation Engineers (ITE), and the Maryland-National Capital Park and Planning Commission (M-NCPPC) trip generation rates. Information from the previously approved traffic studies, including internal reductions

and other trip generation information, is included in Appendix A. The location of each of these projects are shown on Figure 6.

As summarized in Table 2, the pipeline projects are expected to generate 2,362 AM peak hour trips and 2,645 PM peak hour trips upon full build-out and occupancy. The traffic that will be generated by the pipeline projects listed above was assigned to the road network based on previously approved traffic studies and the M-NCPPC LATR guidelines for traffic distribution. The combined approved development traffic forecasts are shown on Figure 7 and individual assignments are contained in the forecasting worksheets in Appendix D.

Table 2
Halpine View
Background Development

Development	Land Use	Amount	Unit	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total
1 Rock Creetk Wood	Townhouse	30	DU	2	12	14	17	8	25
2 Uniwest (Thompson's Property)	General Office	150,000	GSF	215	32	247	40	196	236
3 Fisher Lane (Spring Lake Park)	Total Approved Office	444,915	GSF	651	97	748	112	549	661
	Office Space Currently Built	189,535	GSF	273	41	314	50	243	293
	Remaining Office Space	255,380	GSF	378	56	434	62	306	368
	General Retail	1,200	GLA	1	1	2	4	4	8
4 Parklawn North	General Office	519,000	GSF	625	93	718	107	524	631
5 Twinbrook Commons East[1]	Total Approved High Rise Apts	1146	DU	60	180	240	171	110	281
	Apartments Currently Built	279	DU	16	48	64	46	29	75
	Remaining Apartment Units	867	DU	44	132	176	125	81	206
	Total Approved Retail	140,000	GLA	117	108	225	469	432	901
	Retail Space currently built	95,415	GLA	87	80	167	348	321	669
	Remaining Retail Space	44,585	GLA	20	18	38	79	73	153
6 Twinbrook Commons West[1]	Garden Apartments	450	DU	26	102	128	98	51	149
	General Office	325,000	GSF	331	50	381	58	284	342
	General Retail	80,000	GLA	50	47	97	202	187	389
7 Boland Campus Development	Total Approved Office	94,290	GSF	132	20	152	27	129	156
	Office Space Currently Built	24,790	GSF	30	4	34	10	46	56
	Remaining Office Space	69,500	GSF	102	16	118	17	83	100
8 Pike Center	Total Approved Retail	81,007	GLA	110	102	212	441	408	849
	Retail Space currently built	73,297	GLA	103	95	198	412	380	792
	Remaining Retail Space	7,710	GLA	5	4	9	19	19	38
Total Background Development Trip Generation				**1,799**	**563**	**2,362**	**828**	**1,816**	**2,645**

Note: Trip calculations based on Montgomery County trip gene Trip calculations based on Montgomery County trip generation rates and ITE Trip Generation, 8th Edition
1. Trip geneartion includes 30% reduction for metro and internal trips.
2. Trip generation as per approved study with 18% reduction in trips for Metro. See Appendix A for informatin.

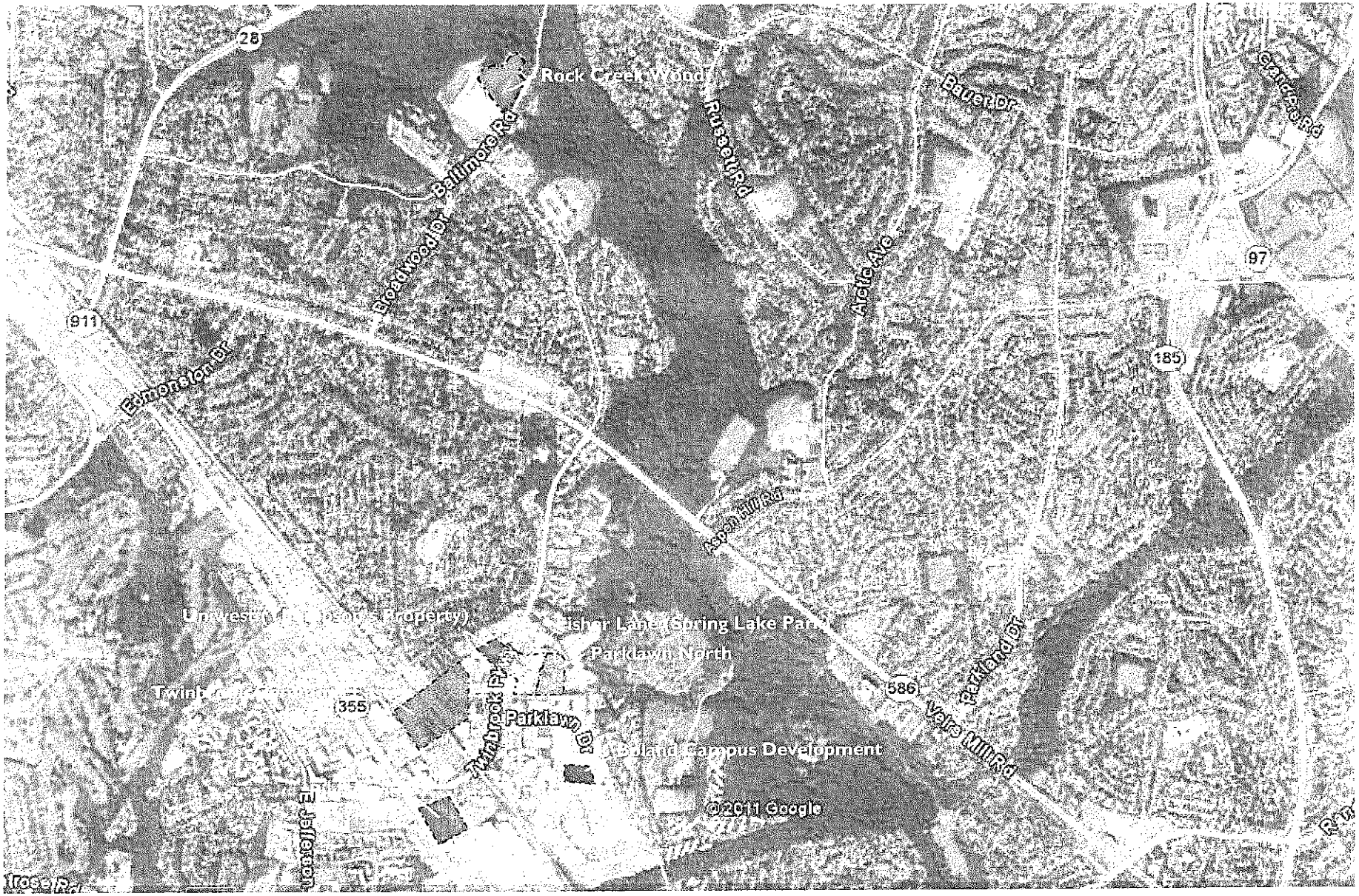

Figure 6
Location of Pipeline Projects

North

Halpine View
Rockville, MD

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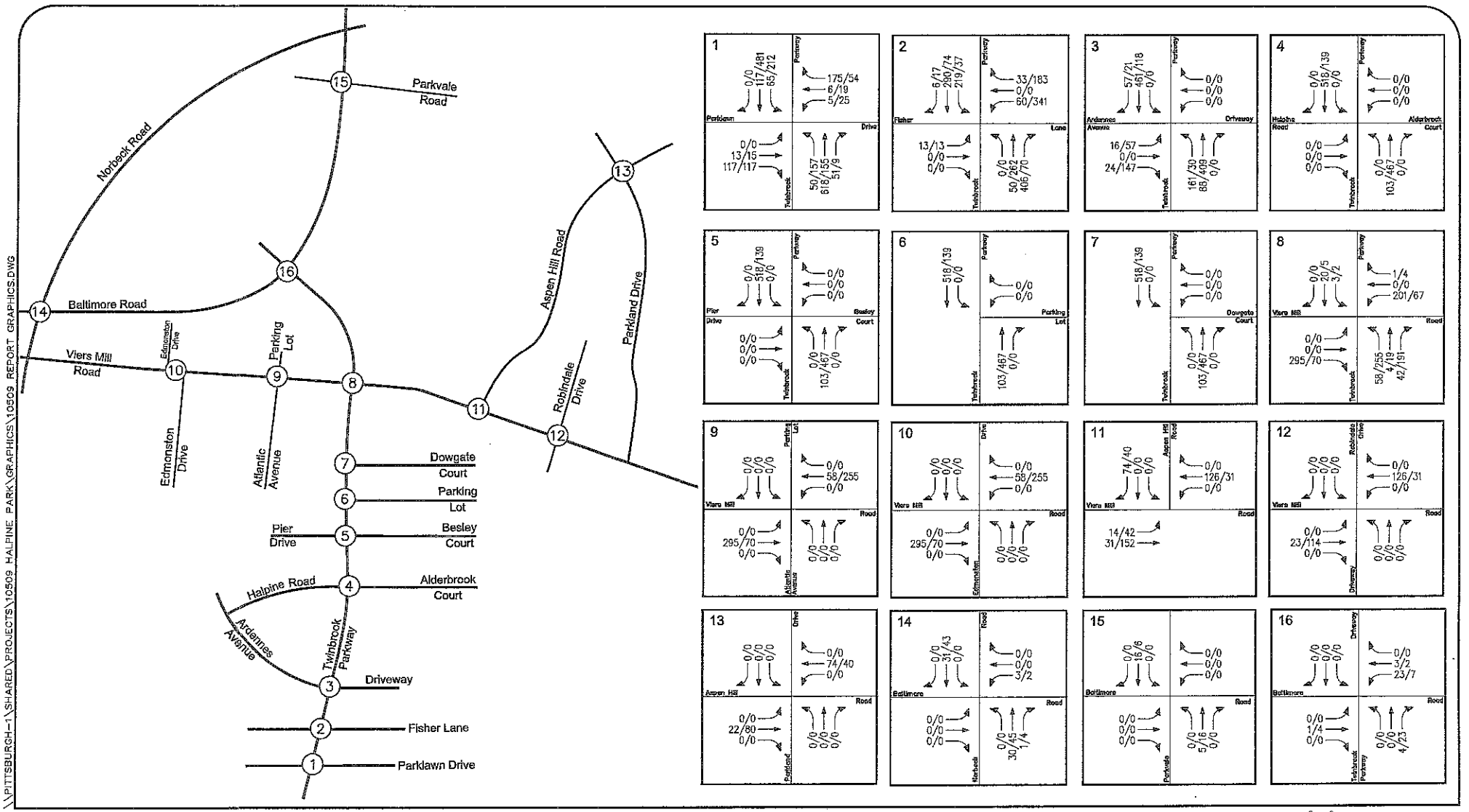

Figure 7
Combined Approved Development Traffic Assignments

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Halpine View
Rockville, MD

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Background Traffic Forecasts

The background development traffic forecasts shown on Figure 7 were added to the existing traffic volumes shown on Figure 4 with and without the resolutions for Montrose Parkway East. The resulting background peak hour traffic volumes are shown on Figure 8 and Figure 9.

Background Intersection Critical Lane Volumes

Future peak hour critical lane volumes, **without the Halpine View development**, were estimated at the existing study intersections in the study area based on the existing lane use and traffic control shown on Figure 3, the background traffic forecasts shown on Figure 8 and Figure 9, and the CLV intersection capacity analysis procedure, in accordance with M-NCPPC guidelines. The results are presented in Appendix E and summarized in Table 3.

Table 3 indicates that all of the study intersections will continue to operate within their congestion standards with the exception of the Twinbrook Parkway/Veirs Mill Road intersection. This intersection (Twinbrook Parkway/Veirs Mill Road) will operate with a CLV of 1,741 during the AM peak hour and 1,642 during the PM peak hour without consideration of the Montrose Parkway East project; and with Montrose Parkway East will operate with a CLV of 1,665 and 1,632 during the AM and PM peak hours respectively.

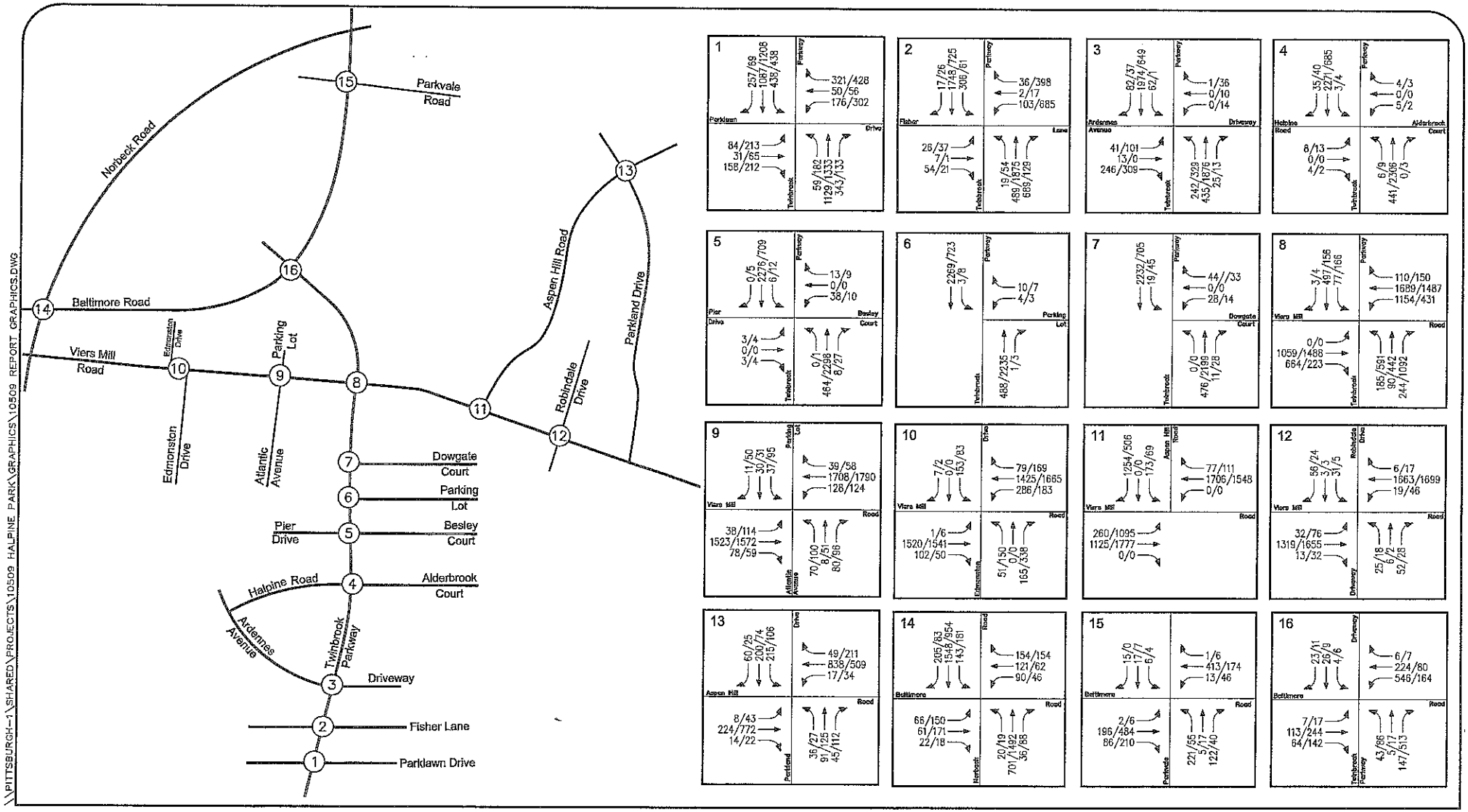

Figure 8
Background Traffic Forecasts without Montrose Parkway East

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Halpine View
Rockville, MD

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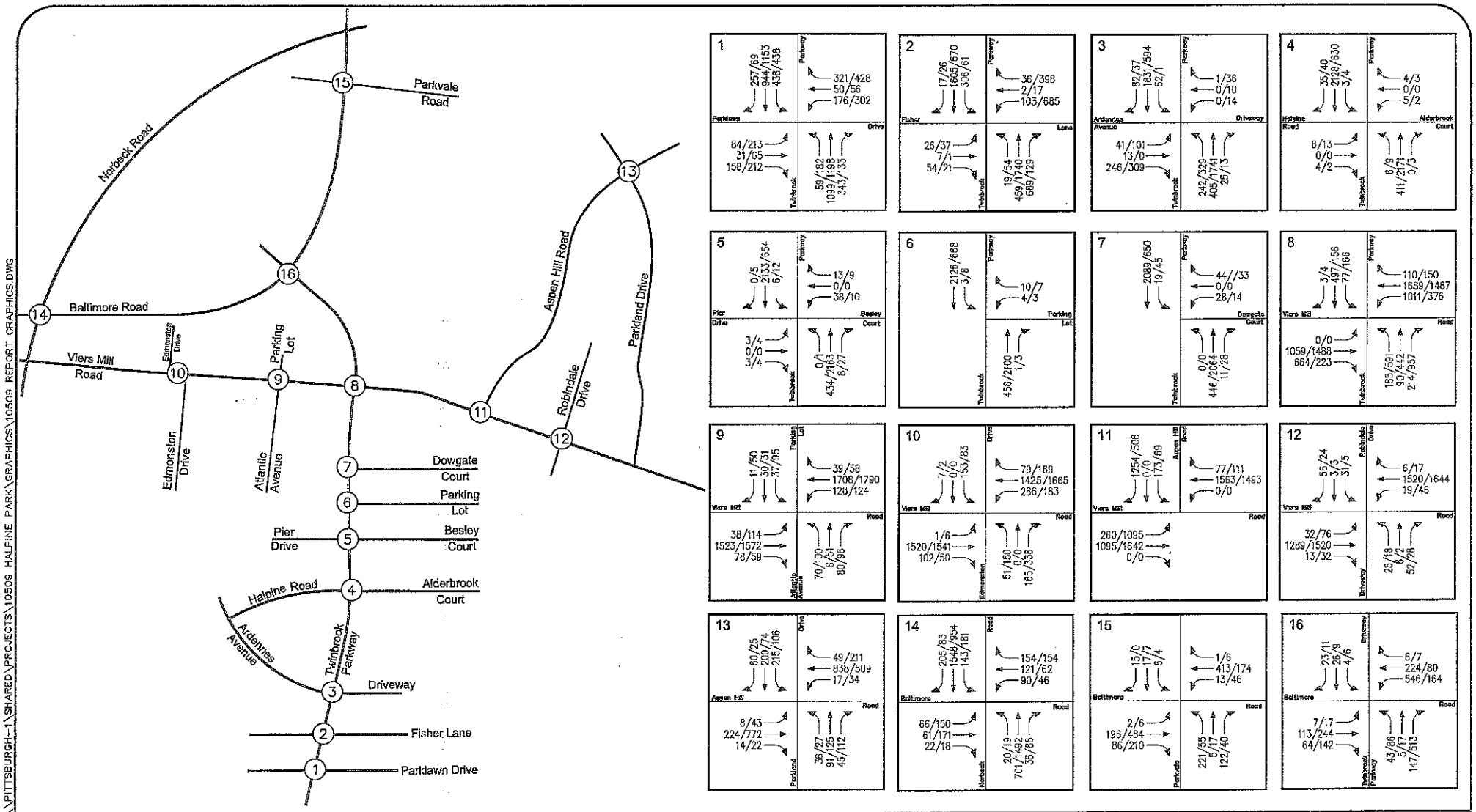

Figure 9
Background Traffic Forecasts with Montrose Parkway East

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Halpine View
Rockville, MD

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Table 3
Halpine View
Total Intersection Level of Service Summary

Intersection	Congestion Standard	Existing AM	Existing PM	Background without Montrose East AM	Background without Montrose East PM	Background **with** Montrose East AM	Background **with** Montrose East PM
1: Twinbrook Parkway/Parklawn Drive	1800	834	1206	1301	1594	1285	1523
2: Twinbrook Parkway/Fisher Lane	1800	622	859	833	1212	822	1163
3: Twinbrook Parkway/Ardennes Avenue	1800	791	883	1045	1156	992	1085
4: Twinbrook Parkway/Alderbrook Ct. (Street A)	1550	975	1000	1249	1248	1173	1176
5: Twinbrook Parkway/Besley Ct. (Street C)	1550	986	1005	1260	1253	1184	1181
6: Twinbrook Parkway/Street D	1550	N/A	N/A	N/A	N/A	N/A	N/A
7: Twinbrook Parkway/Dowgate Ct. (Street E)	1550	980	1058	1255	1305	1179	1234
8: Twinbrook Parkway/Veirs Mill Road	1550	1454	1457	1741	1632	1665	1632
9: Veirs Mill Road/Atlantic Avenue	1500	904	1162	1060	1199	1060	1199
10: Veirs Mill Road/Edmonston Drive	1500	1200	1229	1357	1266	1357	1266
11: Veirs Mill Road/Aspen Hill Road	1550	1210	1188	1296	1222	1243	1201
12: Veirs Mill Road/Robindale Drive	1475	962	1010	1028	1026	953	997
13: Aspen Hill Road/Parkland Drive	1475	1172	1091	1246	1171	1246	1171
14: Norbeck Road/Baltimore Road	1500	1274	1358	1290	1384	1290	1384
15: Parkvale Road/Baltimore Road	1475	659	806	675	812	675	812
16: Twinbrook Drive/Baltimore Road	1500	738	526	762	537	762	537

Note: Number indicates the critical lane volume in vehicles.

Site Trip Generation

The site trips that will be generated by Halpine View were estimated based on LATR trip generation rates. As previously indicated, there are 564-apartment units on the property today. Pursuant to the pre-application concept plan, the existing apartment units would be replaced by a total of 2,206 apartment mid-rise dwelling units and 9,350 S.F. of retail space. Of the 2,206 apartment units, 200 will be age-restricted housing. As shown in Table 4, this development will generate 600 (127 in and 473 out) new AM peak hour trips, and 717 (470 in and 247 out) new PM peak hour trips, upon completion and full occupancy. The existing site trips were counted at the existing site access points along Twinbrook Parkway, and were retained in those locations; however, two of the existing site access points will be realigned to be directly across from the existing right-of-way alignments opposite Twinbrook Parkway.

Table 4 A
Halpine View
Site Trip Generation

Development/Use	Amount	Units	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total
Existing Site Development								
Garden Apartments	564	DU	46	183	229	176	90	266
Proposed Development								
Retail	9,350	GLA	9	8	17	34	32	66
Residential								
Garden Apartments	2006	DU	161	644	805	623	321	944
Senior Housing	200	DU	7	9	16	13	9	22
Residential Subtotal	2206	DU	168	653	821	636	330	966

Note: Trip generation based on MNCPPC trip generation rates.
Retail trip generation used rate for shopping center Under 50,000 WITHOUT major food chain store

Table 4 B
Halpine View
Site Trip Generation Reductions

Use	Quantity	Unit	Trip Type	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total
1. Vehicle Trips [1]									
Retail	9,350	SF	Vehicle Trips	9	8	17	34	32	66
Residential	2,206	SF	Vehicle Trips	168	653	821	636	330	966
Subtotal	11,556	SF	Vehicle Trips	**177**	**661**	**838**	**670**	**362**	**1,032**
2. Conversion from Vehicle to Person Trips									
Retail Person Trips	9,350	SF	Person Trip	14	13	27	54	51	105
Residential Person Trips	2,206	SF	Person Trip	202	783	985	764	395	1,159
Subtotal			Person Trip	**216**	**796**	**1,012**	**818**	**446**	**1,264**
3. Trips Internal to the Site (Walking)									
Retail Internal Person Trips			Person Trip	3	3	6	11	10	21
Residential Internal Person Trips			Person Trip	3	3	6	10	11	21
Subtotal			Person trips	**6**	**6**	**12**	**21**	**21**	**42**
4. External Person Trips									
Retail External Person Trips			Person Trip	11	10	21	43	41	84
Residential External Person Trips			Person Trip	199	780	979	754	384	1,138
Subtotal			Person Trip	**210**	**790**	**1,000**	**797**	**425**	**1,222**
5. Conversion from Person to Vehicle Trips									
Retail External Vehicle Trips				7	6	13	27	26	53
Residential External Vehicle Trips			Vehicle Trips	166	650	816	628	320	948
Subtotal			Vehicle Trips	**173**	**656**	**829**	**655**	**346**	**1,001**
6. Retail Pass-by Trips									
Pass-by Trips [4]	34%		Vehicle Trips	0	0	0	9	9	18
New Retail External Auto Trips			Vehicle Trips	7	6	13	18	17	35
7. Less Existing Residential Trips									
Existing Residential - Garden Apartments	564	DU	Vehicle Trips	46	183	229	176	90	266
Net New External Residential Trips			Vehicle Trips	120	467	587	452	230	682
Net New External Retail Trips			Vehicle Trips	7	6	13	18	17	35
Total Net New Site Trips			Vehicle Trips	**127**	**473**	**600**	**470**	**247**	**717**

Notes: 1. Trip generation rates based on Montgomery County LATR Guidelines, 2008
2. Pass-by trips based on ITE Trip Generation Report 7th Editon. No pass-by reduction was taken in the AM peak hour.

Site Trip Distribution

The assumed directional distribution of the net new external trips generated by Halpine View is based on the M-NCPPC guidelines for trip distribution for the North Bethesda Policy Area and information from previously approved traffic studies contained in Appendix A. This distribution for the new trips is as follows:

Commercial

- 45% to/from the southwest via Twinbrook Parkway,
- 5% to/from the south via Parklawn Road,
- 10% to/from the northeast via Baltimore Avenue,
- 5% to/from the northeast via Norbeck Road,
- 10% to/from the northwest on Viers Mill Road,
- 5% to/from the east via Aspen Hill Road.
- 20% to/from the southeast via Veirs Mill Road

Residential

- 60% to/from the southwest via Twinbrook Parkway,
- 5% to/from the south via Parklawn Road,
- 2% to/from the northeast via Baltimore Avenue,
- 3% to/from the northeast via Norbeck Road,
- 10% to/from the northwest on Viers Mill Road,
- 5% to/from the east via Aspen Hill Road.
- 15% to/from the southeast via Veirs Mill Road

The trip distribution for the pass-by trips is based on the existing directional distribution on Twinbrook Parkway at its intersection with Halpine Road and these trips are shown on the forecast worksheets contained in Appendix D. The site trip assignments for Halpine View are shown on Figure 10.

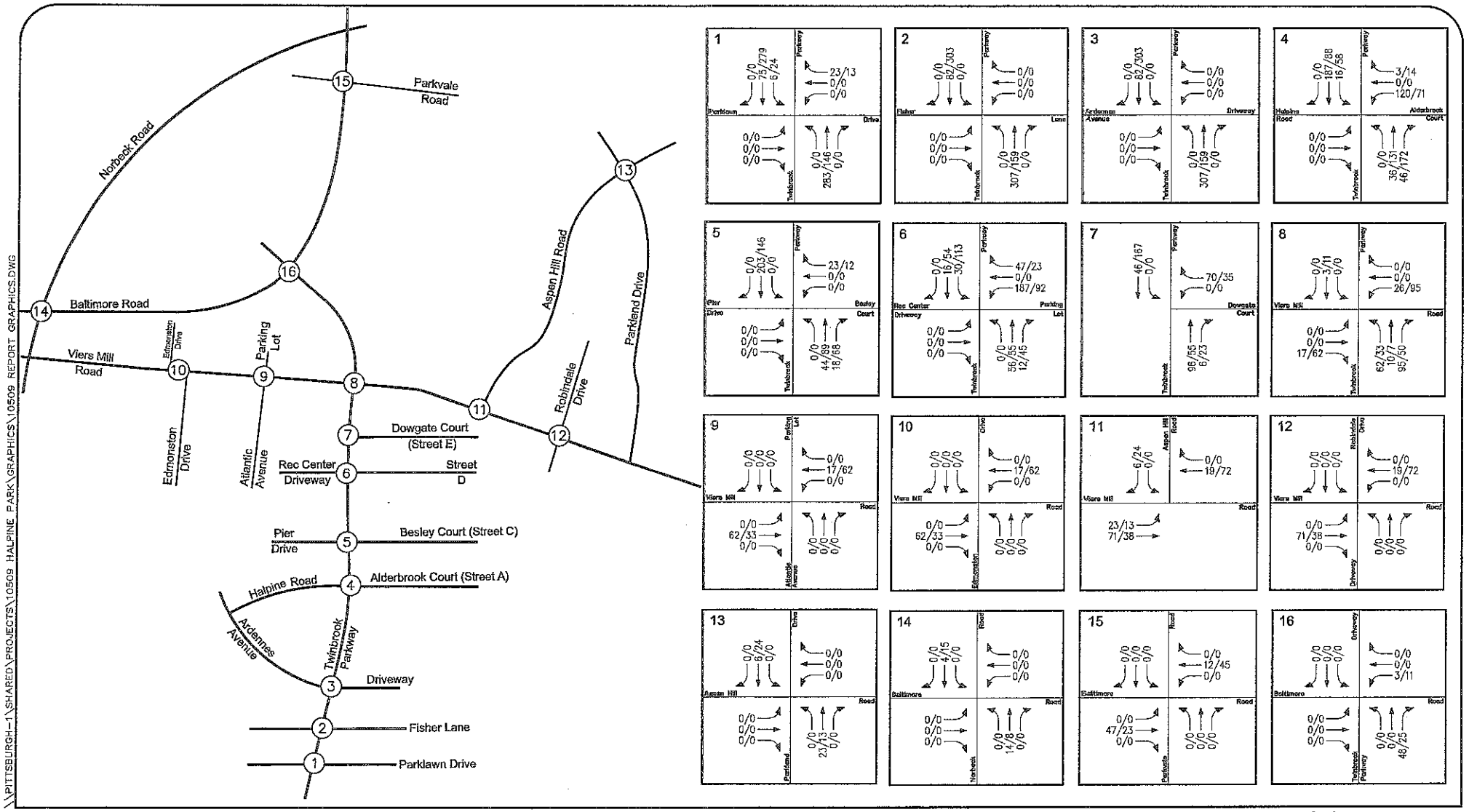

Figure 10
Site-Generated Traffic Assignments

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Total Future Traffic Forecasts

The new vehicle trips generated by the addition to the Halpine View development as shown on Figure 10 were added to the background forecasts shown on Figure 6, resulting in the total future traffic forecasts without Montrose Parkway and with Montrose Parkway as shown on Figures 11 and 12 respectively.

Total Future Intersection Critical Lane Volumes

Future peak hour critical lane volumes, **with the Halpine View development**, were estimated at the study intersections based on the existing lane use and traffic control shown on Figure 3, total future traffic forecasts shown on Figure 11 and Figure 12, and the M-NCPPC critical lane volume intersection capacity analysis procedure. The results are presented in Appendix F and summarized in Table 5.

Table 5 indicates that with the proposed Halpine View all of the study intersections will operate within their congestion standards with the exception of Twinbrook Parkway/Veirs Mill Road and Twinbrook Parkway/Halpine Road/Alderbrook Court.

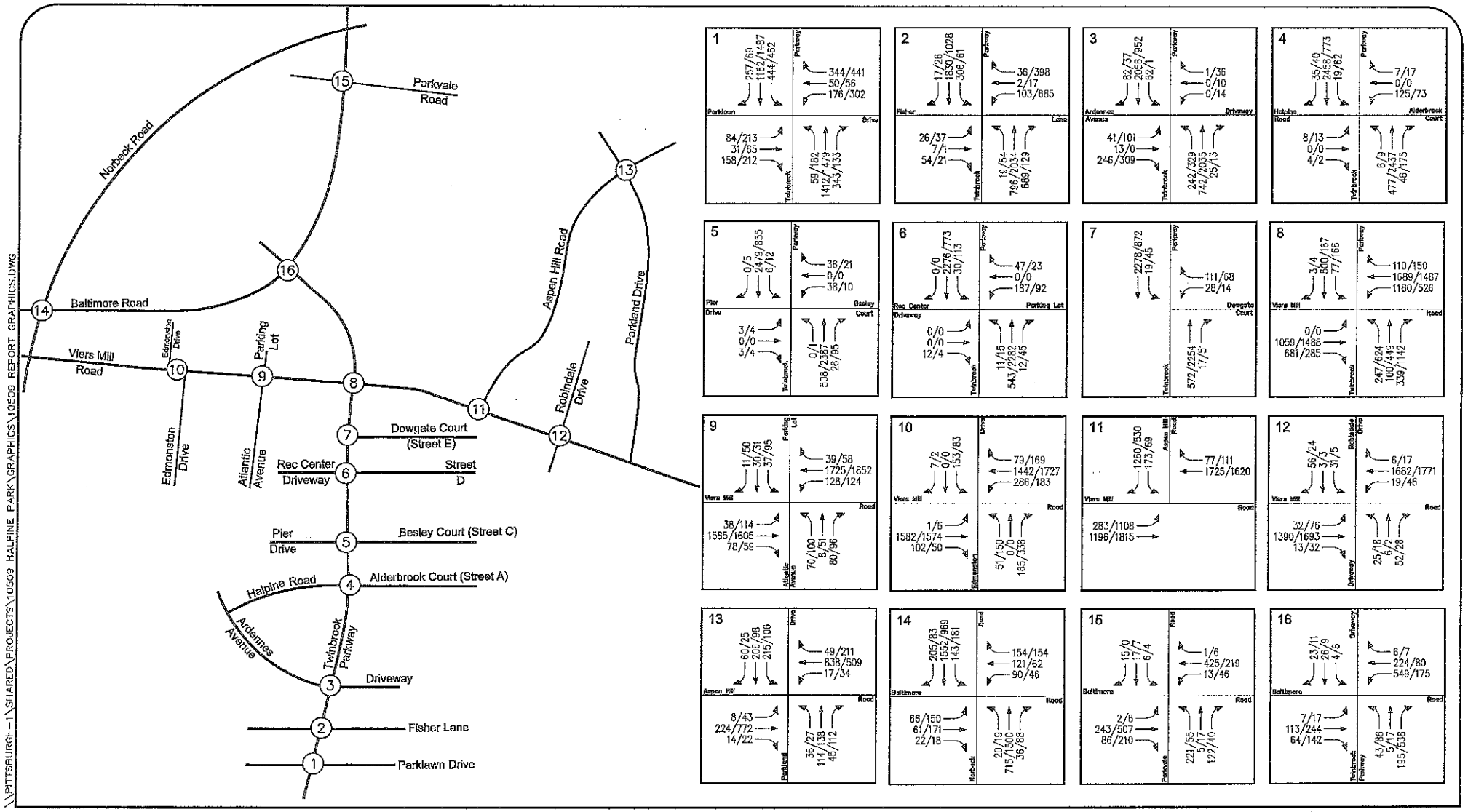

Figure 11
Total Future Traffic Forecasts without Montrose Parkway

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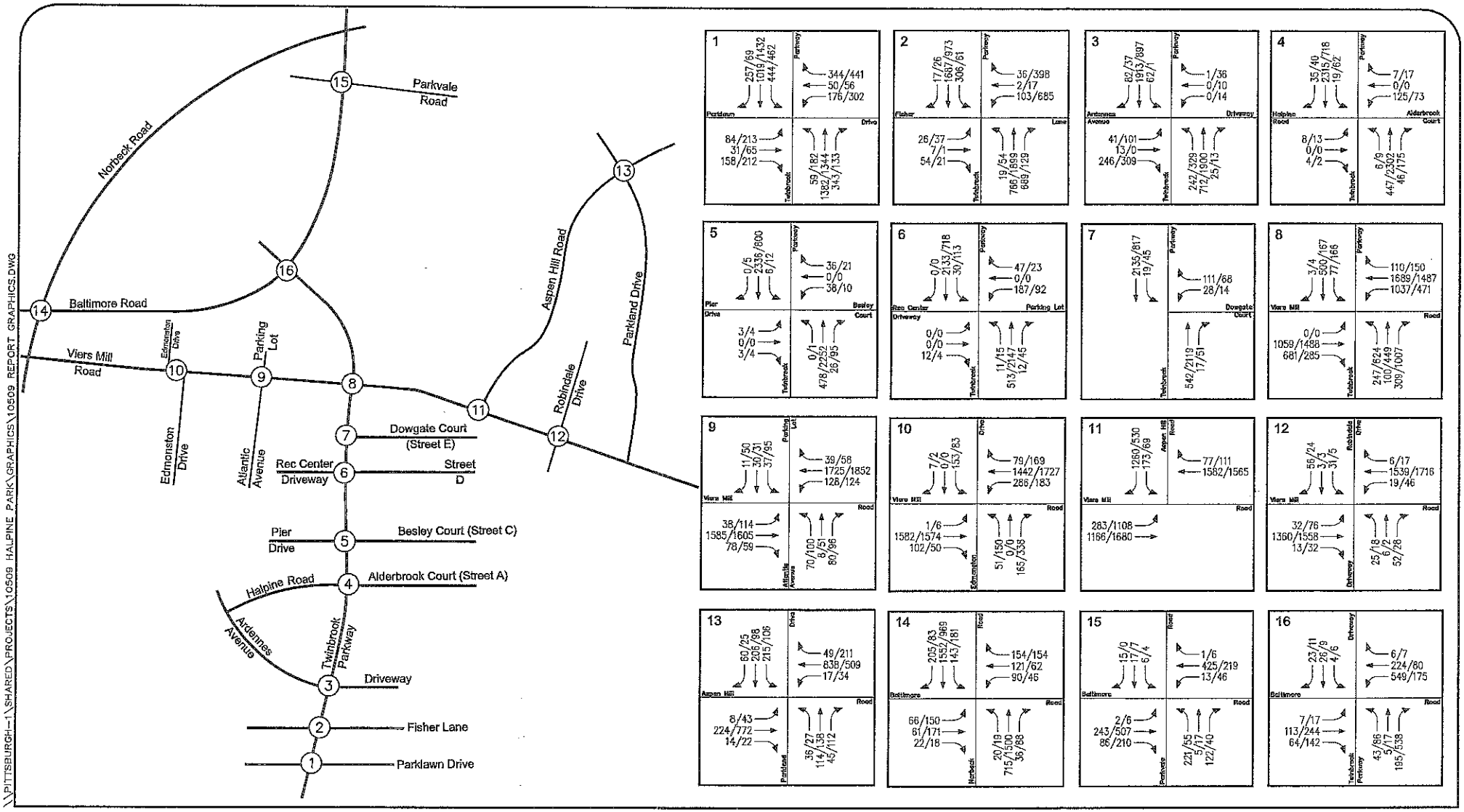

Figure 12
Total Future Traffic Forecasts with Montrose Parkway

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Table 5
Halpine View
Total Intersection Level of Service Summary

Intersection	Congestion Standard	Existing AM	Existing PM	Background without Montrose East AM	Background without Montrose East PM	Background **with** Montrose East AM	Background **with** Montrose East PM	Total Future without Montrose East AM	Total Future without Montrose East PM	Total Future **with** Montrose East AM	Total Future **with** Montrose East PM
1: Twinbrook Parkway/Parklawn Drive	1800	834	1206	1301	1594	1285	1523	1457	1696	1441	1624
2: Twinbrook Parkway/Fisher Lane	1800	622	859	833	1212	822	1163	946	1271	935	1221
3: Twinbrook Parkway/Ardennes Avenue	1800	791	883	1045	1156	992	1085	1075	1241	1022	1169
4: Twinbrook Parkway/Alderbrook Ct. (Street A) with improvement (WB right lane)	1550	975	1000	1249	1248	1173	1176	1471	1551	1396 1389	1480 1463
5: Twinbrook Parkway/Besley Ct. (Street C)	1550	986	1005	1260	1253	1184	1181	1391	1312	1315	1241
6: Twinbrook Parkway/Street D	1550	N/A	N/A	N/A	N/A	N/A	N/A	1310	1238	1234	1154
7: Twinbrook Parkway/Dowgate Ct. (Street E)	1550	980	1058	1255	1305	1179	1234	1346	1417	1271	1345
8: Twinbrook Parkway/Veirs Mill Road with improvement (NB lane use change)	1550	1454	1457	1741	1632	1665	1632	1823	1738	1748 1685	1709 1654
9: Veirs Mill Road/Atlantic Avenue	1500	904	1162	1060	1199	1060	1199	1093	1217	1093	1217
10: Veirs Mill Road/Edmonston Drive	1500	1200	1229	1357	1266	1357	1266	1390	1284	1390	1284
11: Veirs Mill Road/Aspen Hill Road	1550	1210	1188	1296	1222	1243	1201	1306	1255	1253	1235
12: Veirs Mill Road/Robindale Drive	1475	962	1010	1028	1026	953	997	1038	1065	963	1035
13: Aspen Hill Road/Parkland Drive	1475	1172	1091	1246	1171	1246	1171	1269	1184	1269	1184
14: Norbeck Road/Baltimore Road	1500	1274	1358	1290	1384	1290	1384	1292	1389	1292	1389
15: Parkvale Road/Baltimore Road	1475	659	806	675	812	675	812	687	835	687	835
16: Twinbrook Drive/Baltimore Road	1500	738	526	762	537	762	537	765	548	765	548

Note: Number indicates the critical lane volume in vehicles.

PEDESTRIAN STATEMENT

Pedestrian and bicycle access to Halpine View will be provided via a sidewalk system along both sides of Twinbrook Parkway which will be improved along the property frontage. Sidewalks and /or a trail system exist on one or both sides of Twinbrook Parkway, Robindale Drive, Aspen Hill Road, Norbeck Road, Veirs Mille Road, Baltimore Road, Edmonston Drive, or Atlantic Avenue. These sidewalks connect to the surrounding retail, office, residential neighborhoods and the Twinbrook Metro Station. These facilities are in adequate condition for use by the residents and other adjacent residential and commercial uses. Pedestrian signals with clearly marked crosswalks are located at major intersections along Twinbrook Parkway and Veirs Mill Road.

There is a recently completed pedestrian bridge over Veirs Mill Road connecting the Rock Creek hiker-biker trail to the Twinbrook Metro Station that provides safe crossing of Veirs Mill Road for the communities to the east.

The pending application for an office project to the south side of the site, Parklawn North, is proposing to add a hiker-biker trail connection that will link Fishers Lane to the Rock Creek hiker-biker trail. This new trail connection is proposed to run along the east side of the Halpine View property.

Transit System Characteristics

Metrorail, Metro Bus, and Ride-On Bus Services: The Twinbrook Metrorail station is located approximately 0.5 miles northeast of the property, and is within walking distance to the site. Montgomery County Ride-On bus stops for Routes 5, 10, 26, 44, 45, 46, and 93, and Metro Bus routes C4 and J5 all serve Twinbrook Metro Station. Ride on Bus Service Routes 26 and 45 travel along Twinbrook Parkway and have stops located at the metro station and at the intersection of Twinbrook Parkway/Veirs Mill Road and services Glenmont, Twinbrook and White Flint Metrorail stations and the Montgomery Mall. Metro Bus Routes Q1, Q2, Q4, Q5, and Q6, serve the Veirs Mill corridor.

Bus stops and route information are contained in Appendix C and are shown on the transit facility map contained in Appendix C.

MITIGATING ACTIONS

Two of the sixteen intersections will not meet the Policy Area standards with the background traffic and proposed new development - Twinbrook Parkway/Veirs Mill Road, and Twinbrook Parkway/Alderbrook Court/Halpine Road. In order to mitigate the impact of the proposed project, the following intersection improvements are recommended.

Twinbrook Parkway/Veirs Mill Road:

Change the existing lane use on northbound Twinbrook Parkway approach to provide a left, a left through, and double right turn lanes.

Twinbrook Parkway/Alderbrook Court (Street A):

Provide an additional westbound lane on Alderbrook Court/Street A to provide separate right and left turn lanes.

The improvements noted above were used in the analysis for the study intersections, the results of this analysis are contained in Table 5, and the recommended improvements are illustrated in Figure 13.

The improvement recommended above for the intersection of Twinbrook Parkway/Veirs Mill Road will not fully mitigate the impact of the project. As required by the MNCPPC LATR guidelines, if an intersection exceeds the Policy Area standard, the mitigation provided must either bring an intersection into compliance with the policy area standard or mitigate 150 percent of the projects impact. That equates to 125 CLV in the AM peak hour and 116 CLV in the PM peak hour, with Montrose Parkway East. The recommended lane use change at this intersection will mitigate all but 62 vehicles during the AM peak hour and 61 vehicles during the PM peak hour of the required mitigation.

Therefore, additional mitigation measures will be necessary to mitigate the 62 vehicles. Based on the location of the property there are several options to mitigate the site impact including:

1. The installation of signals at the intersection of Twinbrook Parkway/Alderbrook Ct (Street A) and/or at the intersection of Twinbrook Parkway/Twinbrook

Recreation Center/Street D. Both of these would include countdown pedestrian signals, handicap ramps, and crosswalk installation. This would provide for safe pedestrian crossing of Twinbrook Parkway and facilitate pedestrian access to the Twinbrook Metro Station, the Twinbrook Recreation Center, and Rock Creek Trail, further reducing site vehicle trips.

2. Construct a connection from the site to the proposed hiker-biker trail connection to Rock Creek Park;

3. Other mitigation measures coordinated with M-NCPPC and DOT staff to mitigate any remaining portion of the 62 trips.

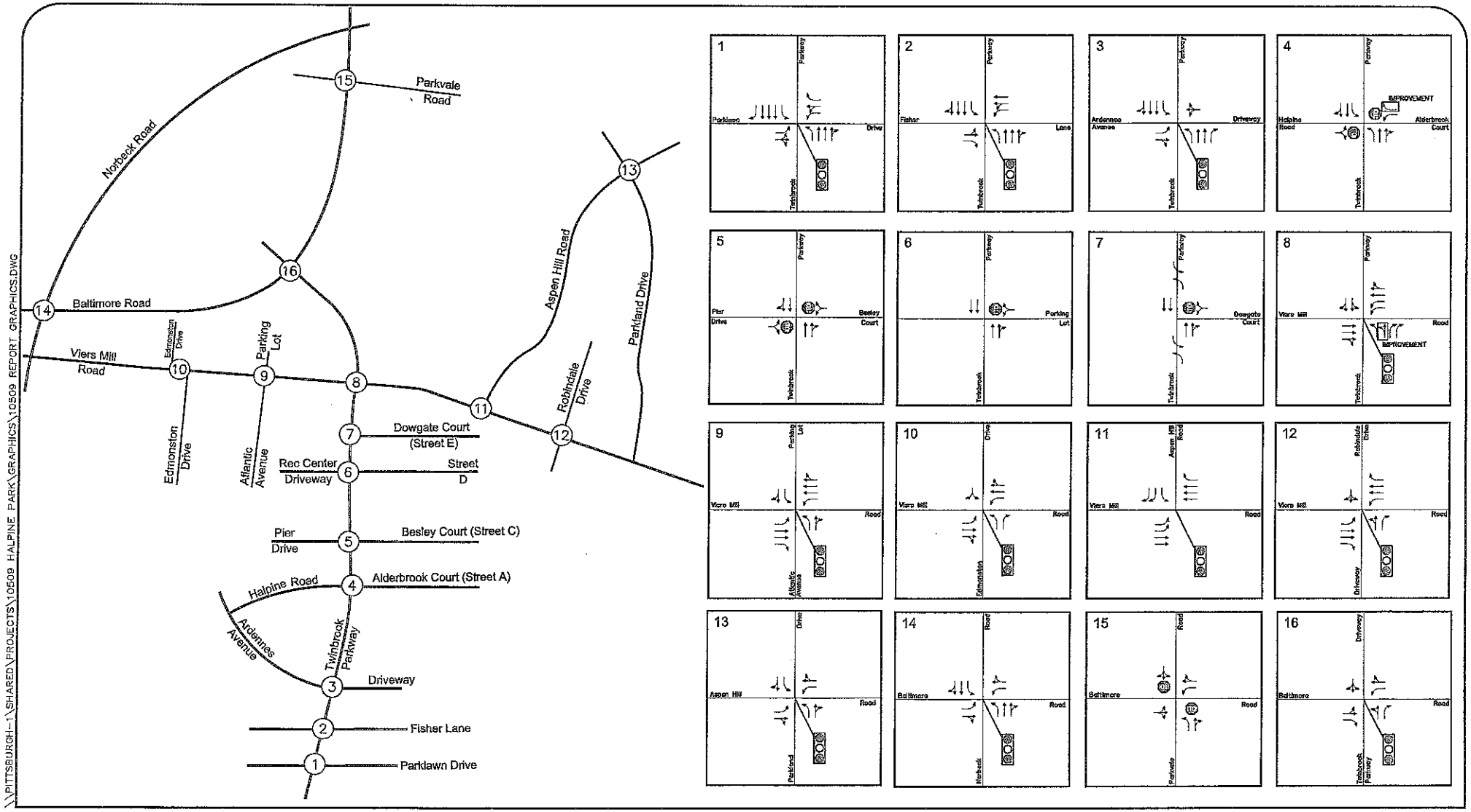

Figure 13
Recommended Intersection Lane Use and Traffic Control

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POLICY AREA MOBILITY REVIEW STATEMENT

The subject site is located in the Twinbrook Policy Area, which is included in the North Bethesda Policy Area for the purposes of PAMR review. As noted above and outlined in the PAMR guidelines, as of July 1, 2010 developments in this policy area must mitigate 30% of their trips. Since the applicant is proposing to mitigate 150 percent of the site trips to meet the LATR standards, the PAMR requirements will also be satisfied.

CONCLUSIONS

The conclusions of this study are as follows:

1. All sixteen (16) of the existing study intersections are currently operating within their policy area congestion standards.

2. Based on the data provided by the M-NCPPC, there are eight (8) pipeline projects in the study area. These pipeline projects will add 2,362 vehicle trips during the AM peak hour and 2,645 vehicle trips during the PM peak hour to the area road network.

3. With the projected volumes generated by the background developments, fifteen (15) of the sixteen (16) existing study intersections will continue to operate with acceptable CLVs during both the AM and PM peak hours. The intersections of Twinbrook Parkway/Veirs Mill Road will operate with a CLV of 1,741 during the AM peak hour and 1,632 during the PM peak hour without Montrose Parkway East and will operate with a CLV of 1,665 during the AM peak hour and 1,632 during the PM peak hour with Montrose Parkway East exceeding the policy area congestion standard of 1,550.

4. Based on the M-NCPPC rates for mid-rise residential dwelling units and retail (without grocery), the proposed redevelopment of the site will add 600 new external AM peak hour trips and 717 new external PM peak hour trips.

5. With the addition of the net new external trips that would be generated by the Halpine View development, the level of service at two (2) of the sixteen (16) study intersections will exceed the policy area CLV congestion standards. The intersections of Twinbrook Parkway/Veirs Mill Road and Twinbrook Parkway/Halpine Road/Alderbrook Court will require mitigation to offset the impact of the proposed project.

6. The recommended mitigation for the intersection of Alderbrook Court/Halpine Road/Twinbrook Parkway is to provide a second outbound lane on Alderbrook Court. This would result in a left/thru lane and a separate right turn lane. The recommended improvement to the intersection of Veirs Mill Road/Twinbrook Parkway is to change the existing lane use on the northbound Twinbrook Parkway approach to provide a left turn lane, a shared left thru lane, and a double right turn lane. This improvement will mitigate only 100% of the sites impact, not the required 150%. Therefore, additional mitigation of the sites impact will be required.

7. Based on the location of the property there are several options to mitigate the site impact including: the installation of signals with countdown pedestrian signals heads, handicap ramps, and new crosswalk connections on Twinbrook Parkway (Halpine Road/Alderbrook Court/Street A and/or Twinbrook Recreation Center/Street D; on-site trail connection(s) from the new development to the proposed hiker-biker trail connection to Rock Creek Park; and other mitigation measures coordinated with M-NCPPC and DOT staff to mitigate any remaining portion of the 62 trips.