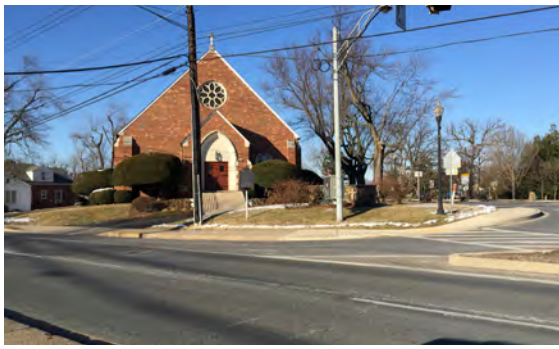
AUGUST 2015

City of Gaithersburg

DRAFT MD 355 Bus Rapid Transit Study
APPENDIX



Gaithersburg
A CHARACTER COUNTS! CITY

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Montgomery County RAPID TRANSIT MD 355

Typical Section Design Criteria for MD 355

February 2015

Design Elements	Preferred	Minimum
Dedicated Median BRT Lane	12' effective, plus 1' for gutter pan	11' effective, plus 1' for gutter pan
Curb-side BRT Lane	12' effective, plus outside bike lane	11' effective, plus 1' for gutter pan
Separation between Median BRT and General Purpose Lanes	6'	2'
General Purpose Lanes	12' effective, plus 1' for gutter pan	10' effective, plus 1'for gutter pan[1]
Gutter Pans	1'	1'
On-road Bicycle Compatibility	4', 5', or 6' bike lane (excluding gutter pan) depending on speed and truck volumes	0' to provide no on-road bike lane
Buffer between Curb and Sidewalk	6'	3' to provide minimum buffer 0' to provide no buffer
Sidewalk	6' or existing, whichever is greater	5'
Station Platform Widths ▪ **Median (2-way) Platform** ▪ **Side Platform**	 15' wide 12' wide	 10' wide 10' wide

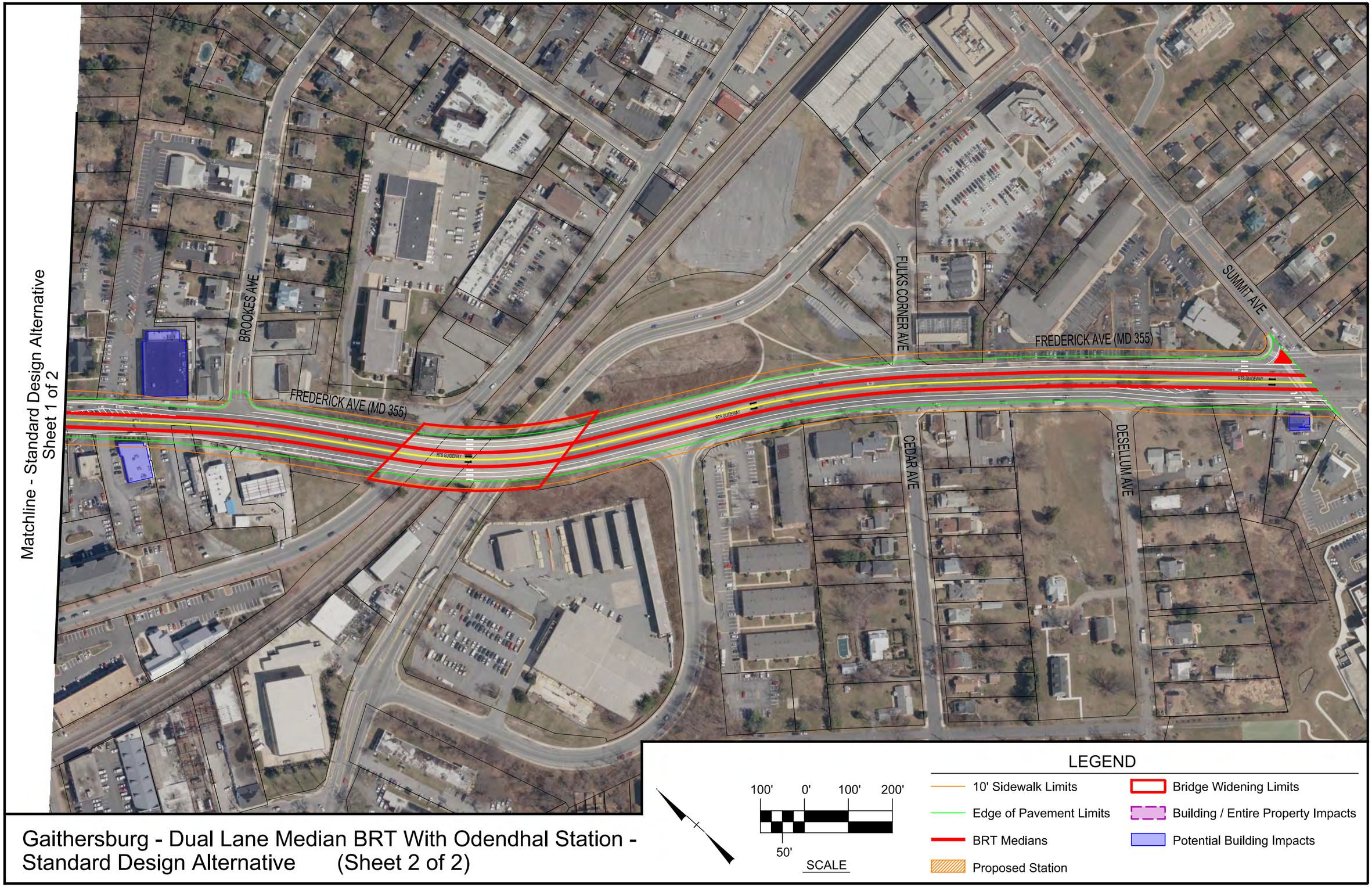
1. "In urban areas where pedestrian crossings, right-of-way, or existing development become stringent controls on lane widths, the use of 11 ft lanes may be appropriate. Lanes 10 ft wide are acceptable on low-speed facilities…" 2001 AASHTO, pg. 4-7 and 4-8
   "… the upper limit for low-speed design is 45 mph…" 2011 AASHTO, pg. 2-58

Gaithersburg - Dual Lane Median BRT With Odendhal Station - Standard Design Alternative (Sheet 1 of 2)

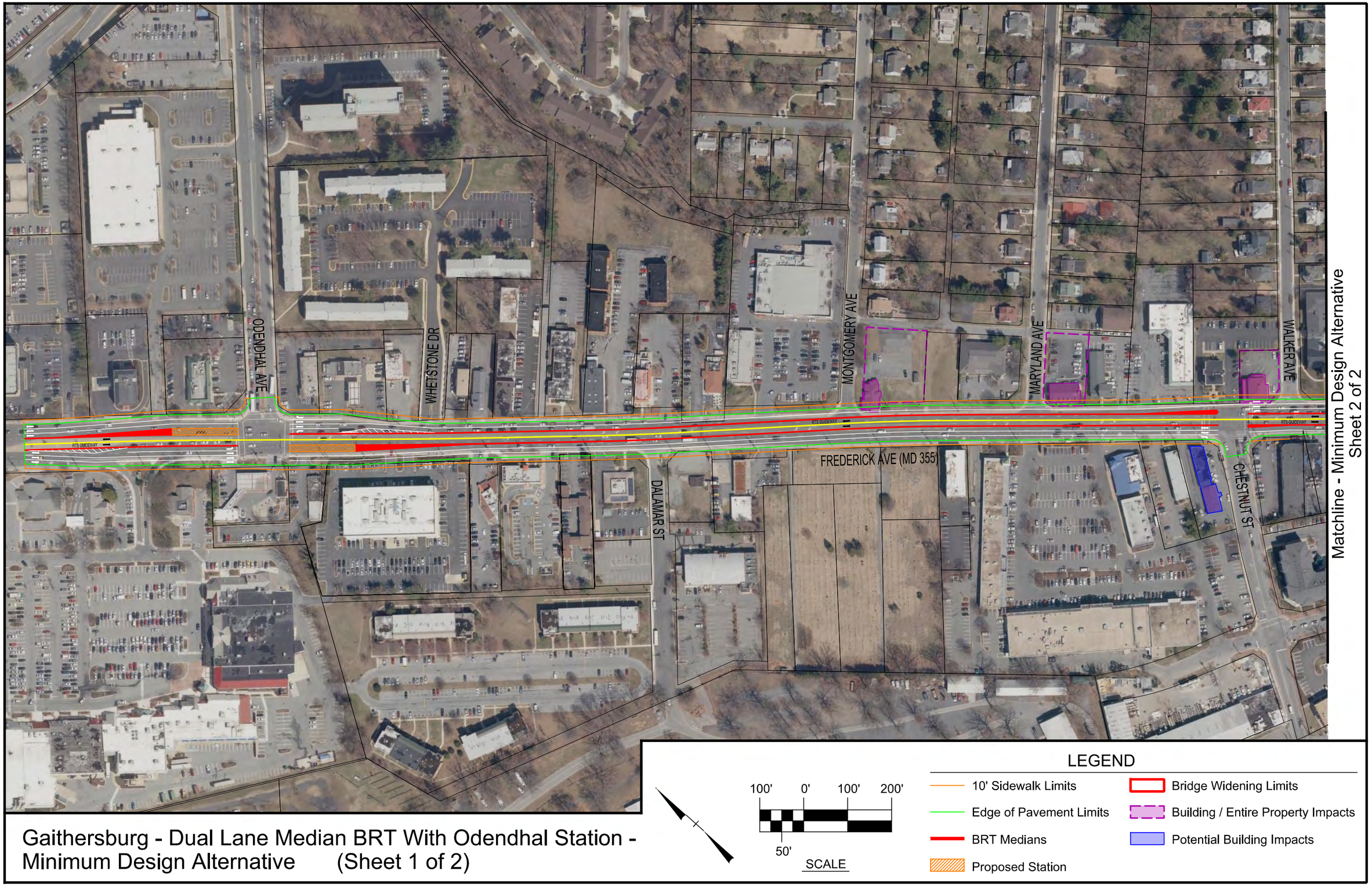
100' 0' 100' 200'
50'
SCALE

LEGEND

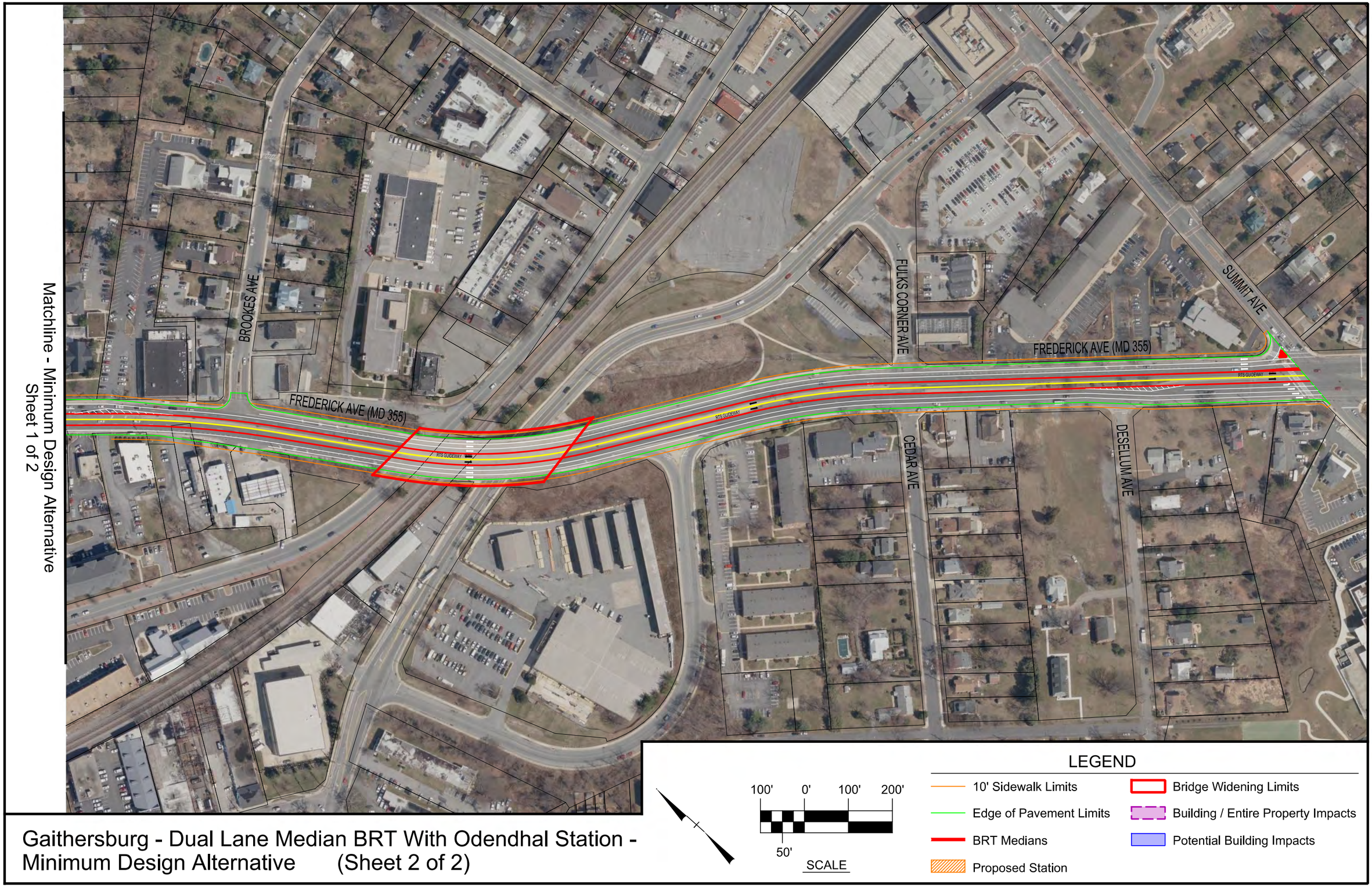
- 10' Sidewalk Limits
- Edge of Pavement Limits
- BRT Medians
- Proposed Station
- Bridge Widening Limits
- Building / Entire Property Impacts
- Potential Building Impacts



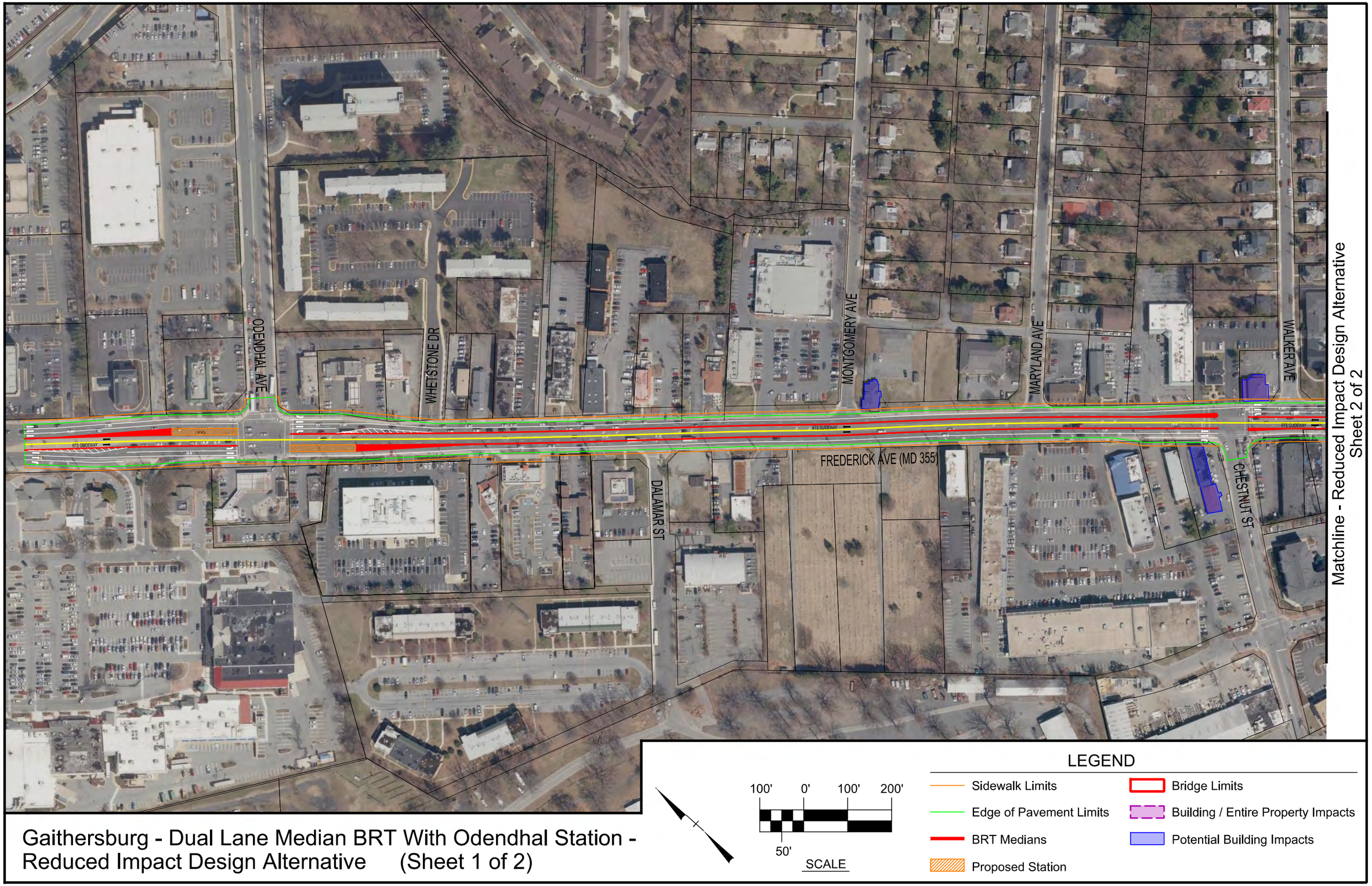
Gaithersburg - Dual Lane Median BRT With Odendhal Station - Standard Design Alternative (Sheet 2 of 2)



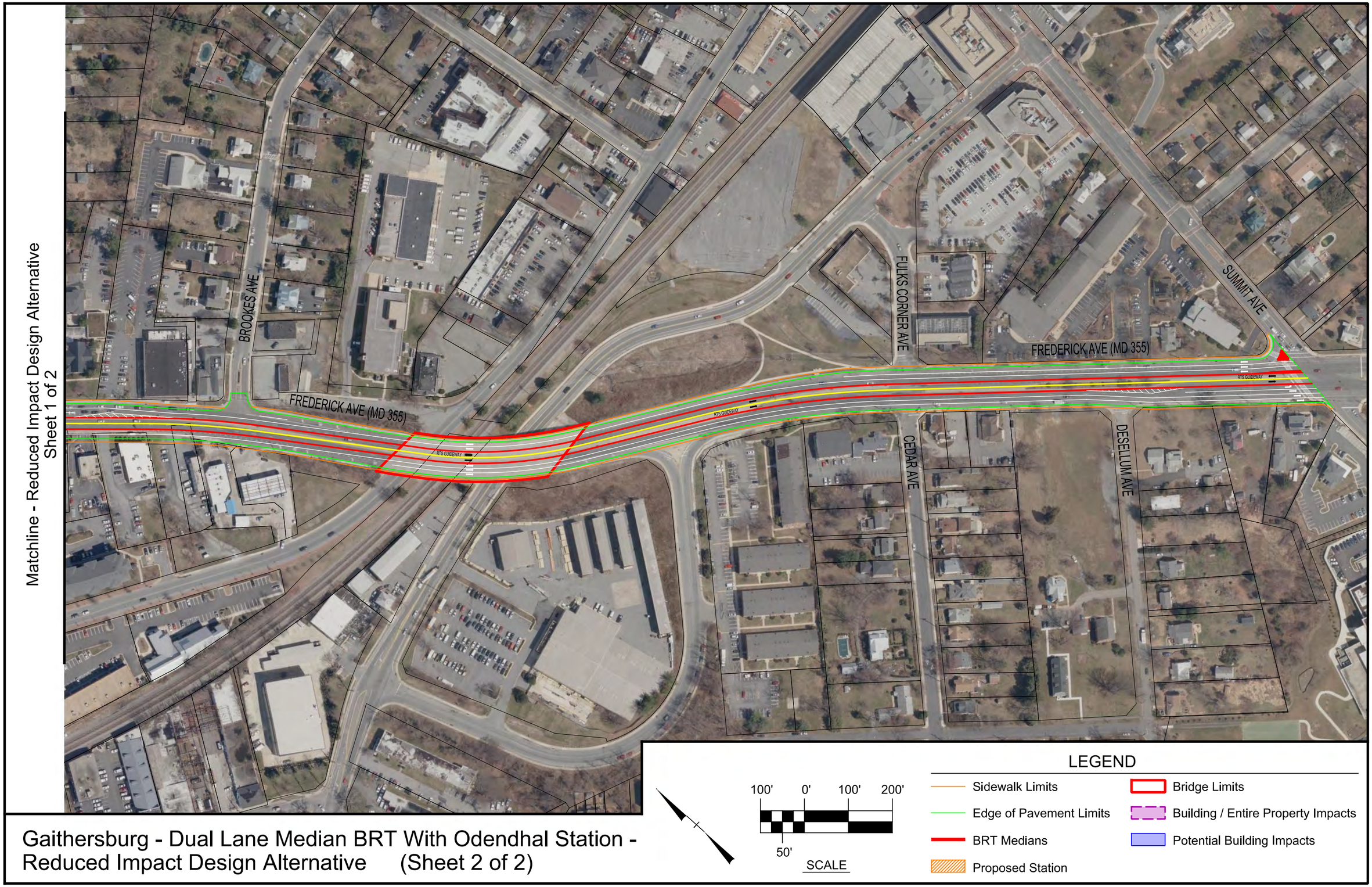
Gaithersburg - Dual Lane Median BRT With Odendhal Station - Minimum Design Alternative (Sheet 1 of 2)



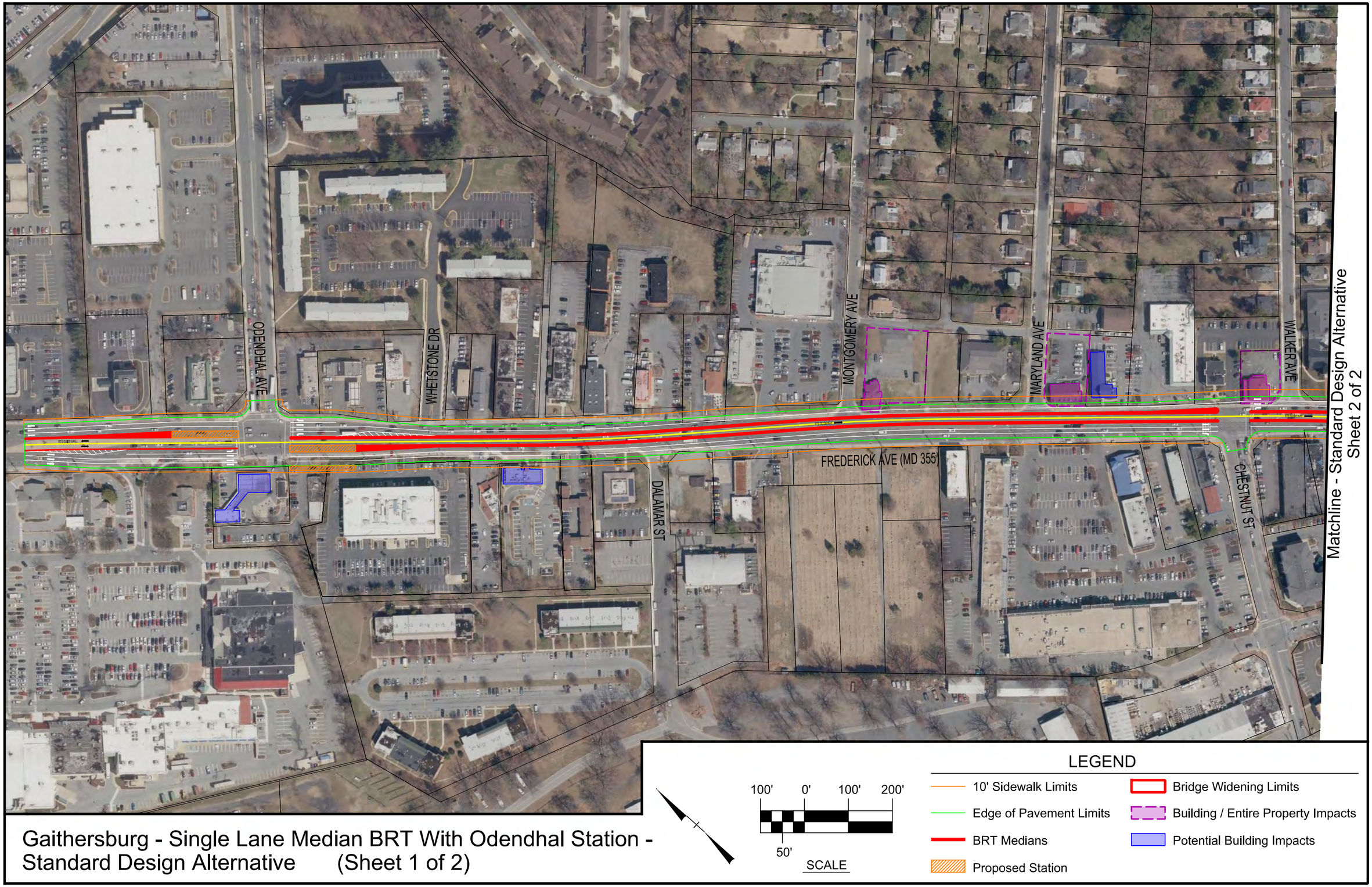
Gaithersburg - Dual Lane Median BRT With Odendhal Station - Minimum Design Alternative (Sheet 2 of 2)



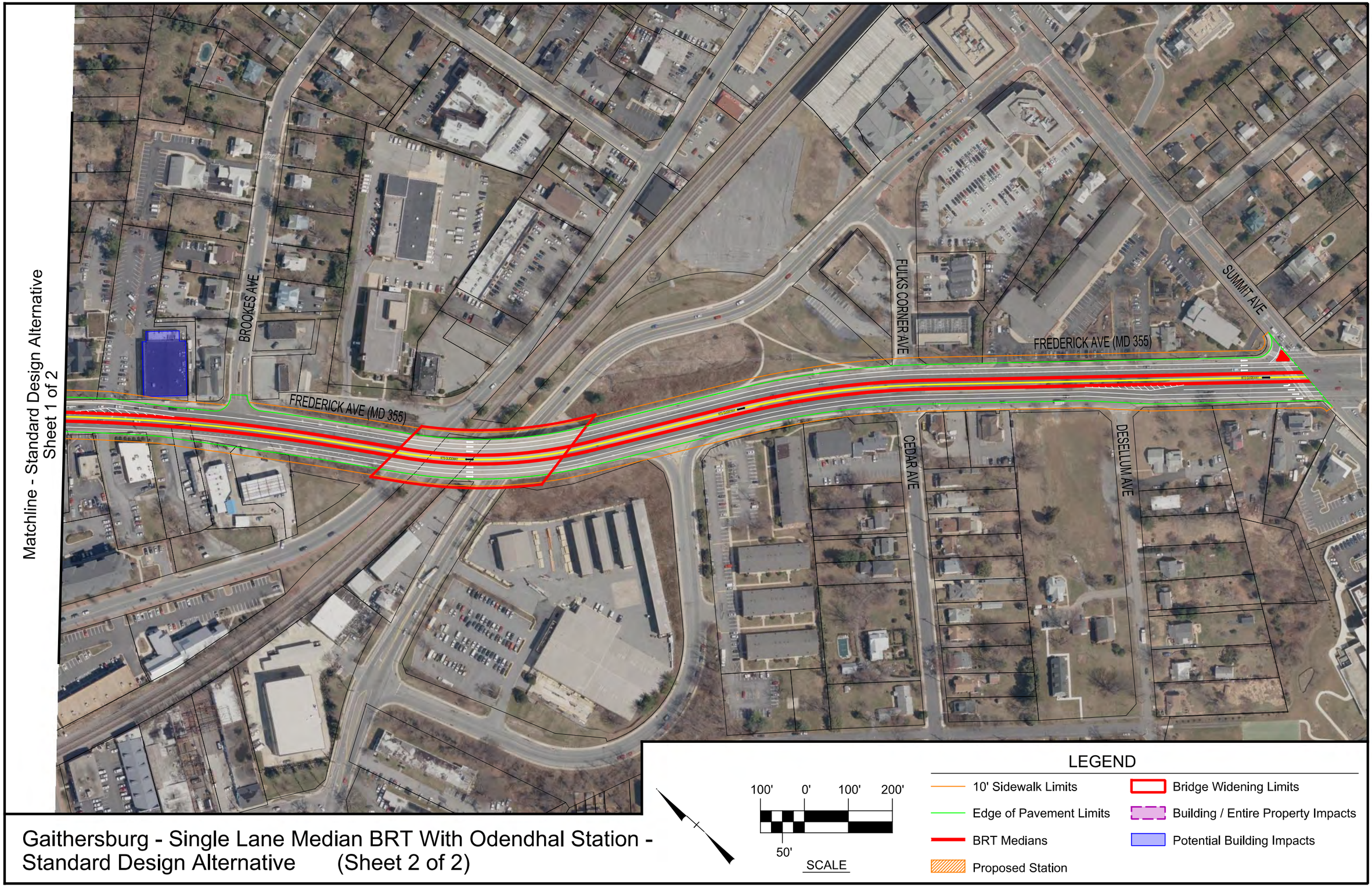
Gaithersburg - Dual Lane Median BRT With Odendhal Station - Reduced Impact Design Alternative (Sheet 1 of 2)



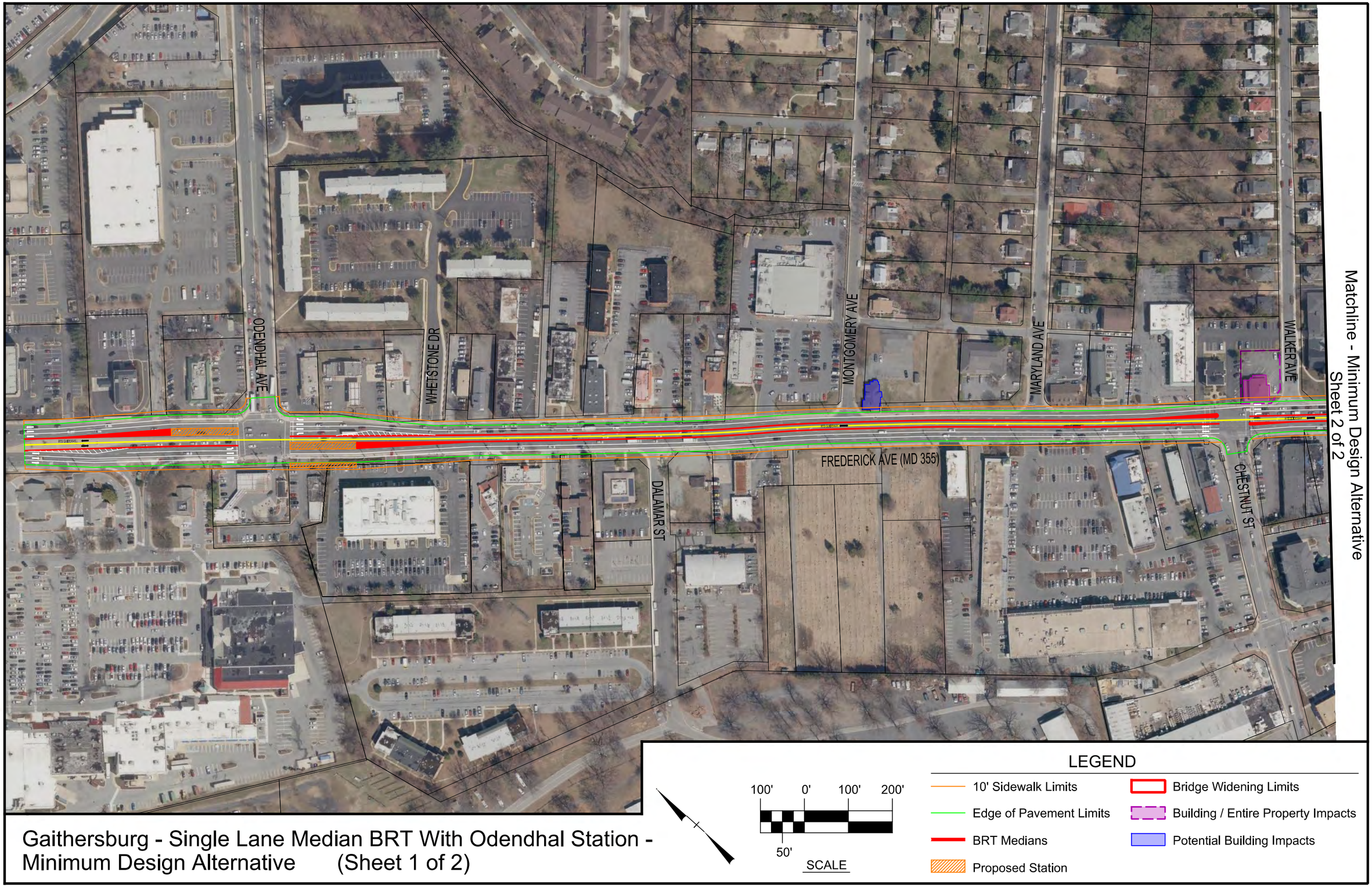
Gaithersburg - Dual Lane Median BRT With Odendhal Station - Reduced Impact Design Alternative (Sheet 2 of 2)



Gaithersburg - Single Lane Median BRT With Odendhal Station - Standard Design Alternative (Sheet 1 of 2)



Gaithersburg - Single Lane Median BRT With Odendhal Station - Standard Design Alternative (Sheet 2 of 2)



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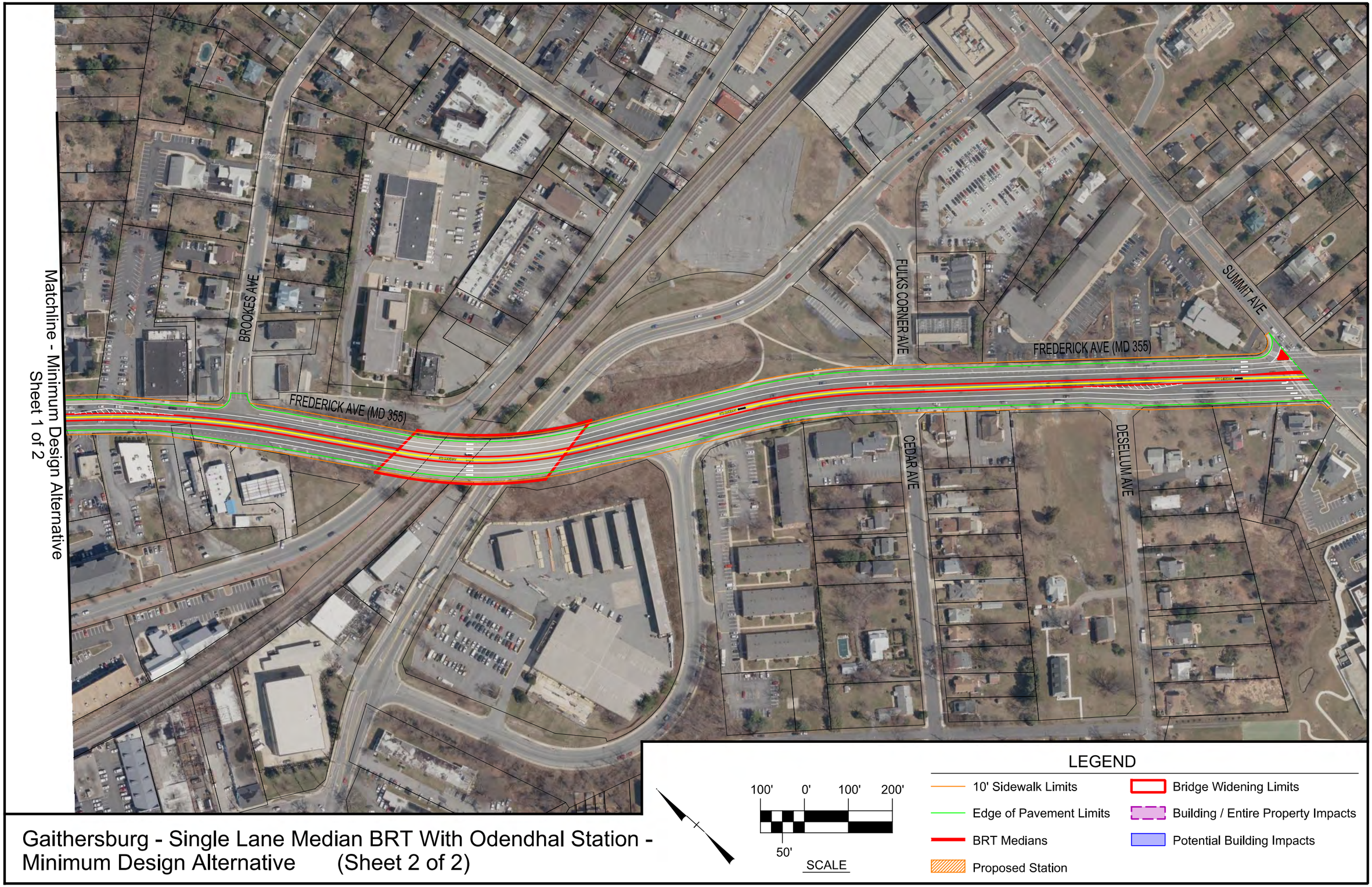
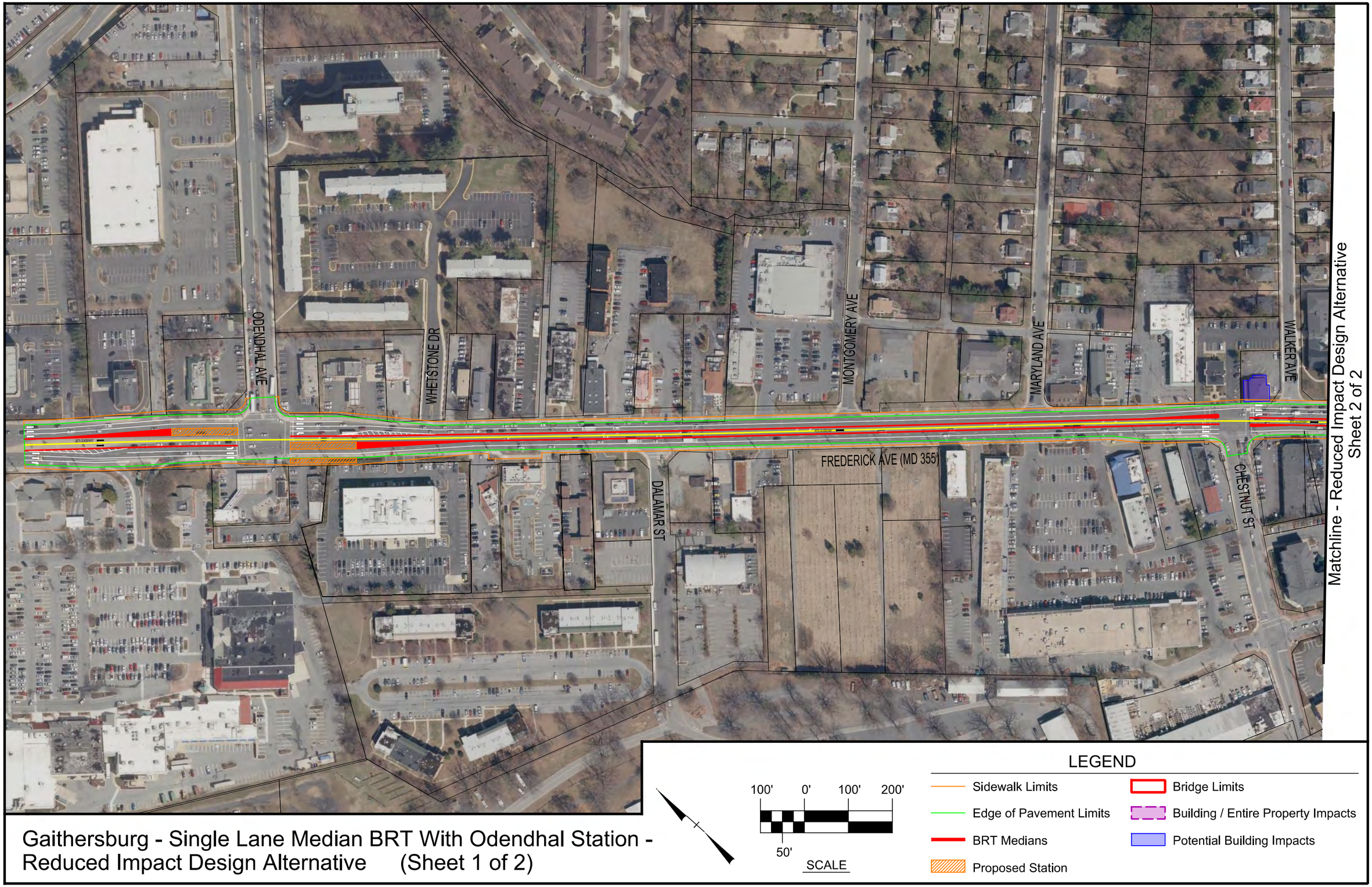
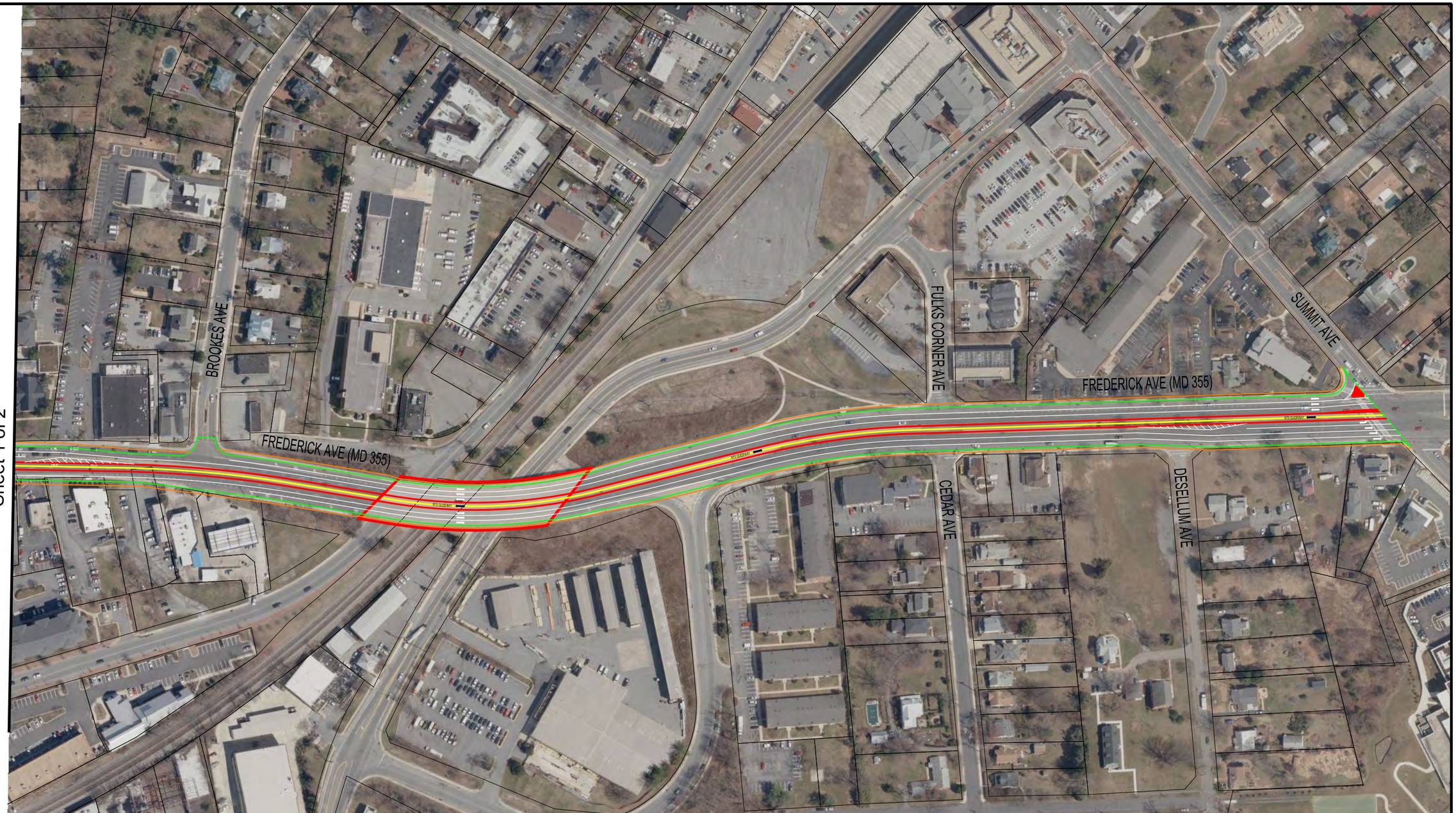


Gaithersburg - Single Lane Median BRT With Odendhal Station - Minimum Design Alternative (Sheet 2 of 2)



Gaithersburg - Single Lane Median BRT With Odendhal Station - Reduced Impact Design Alternative (Sheet 1 of 2)

Matchline - Reduced Impact Design Alternative
Sheet 1 of 2

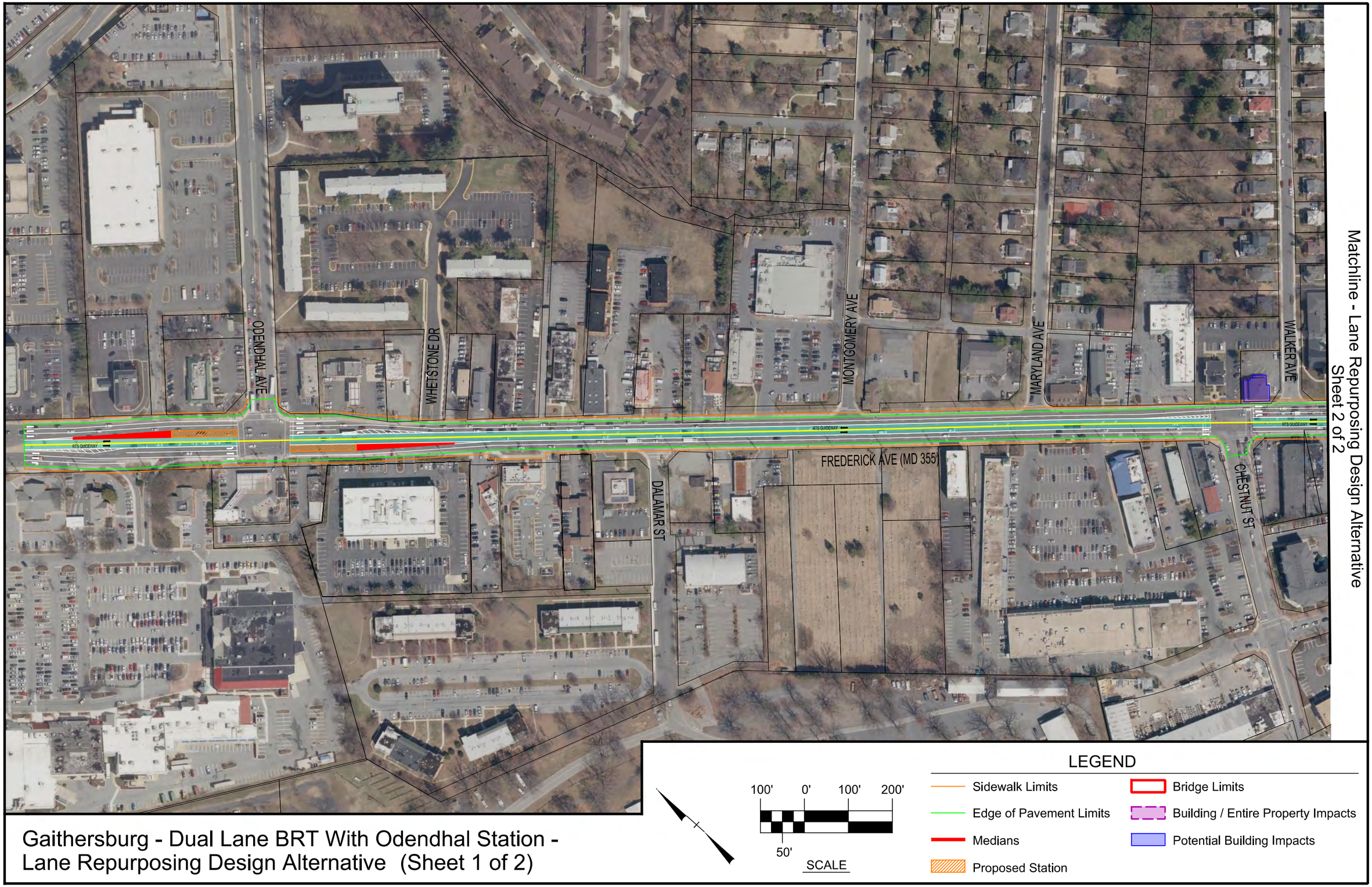


Gaithersburg - Single Lane Median BRT With Odendhal Station - Reduced Impact Design Alternative (Sheet 2 of 2)

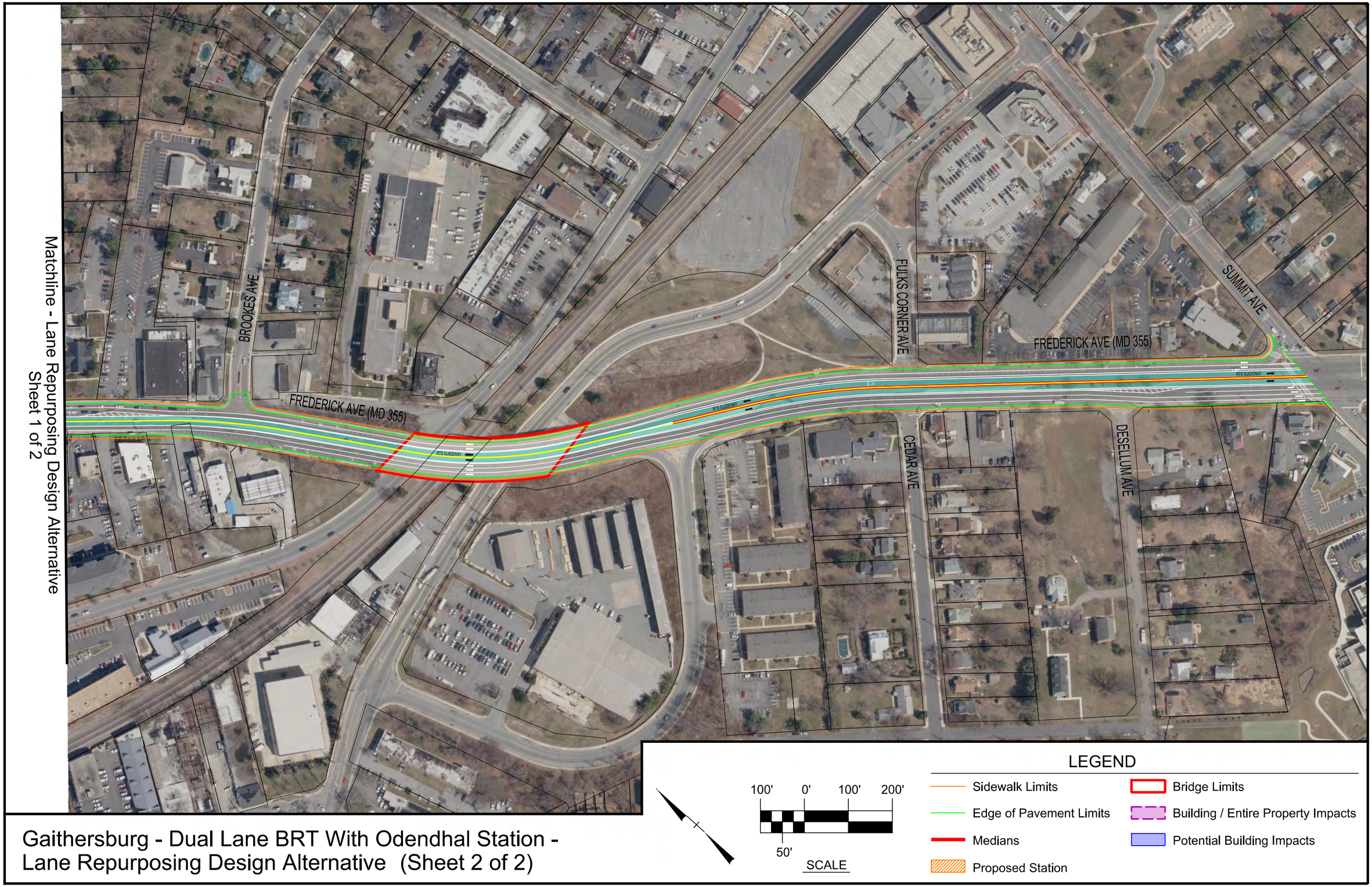
100' 0' 100' 200'
50'
SCALE

LEGEND

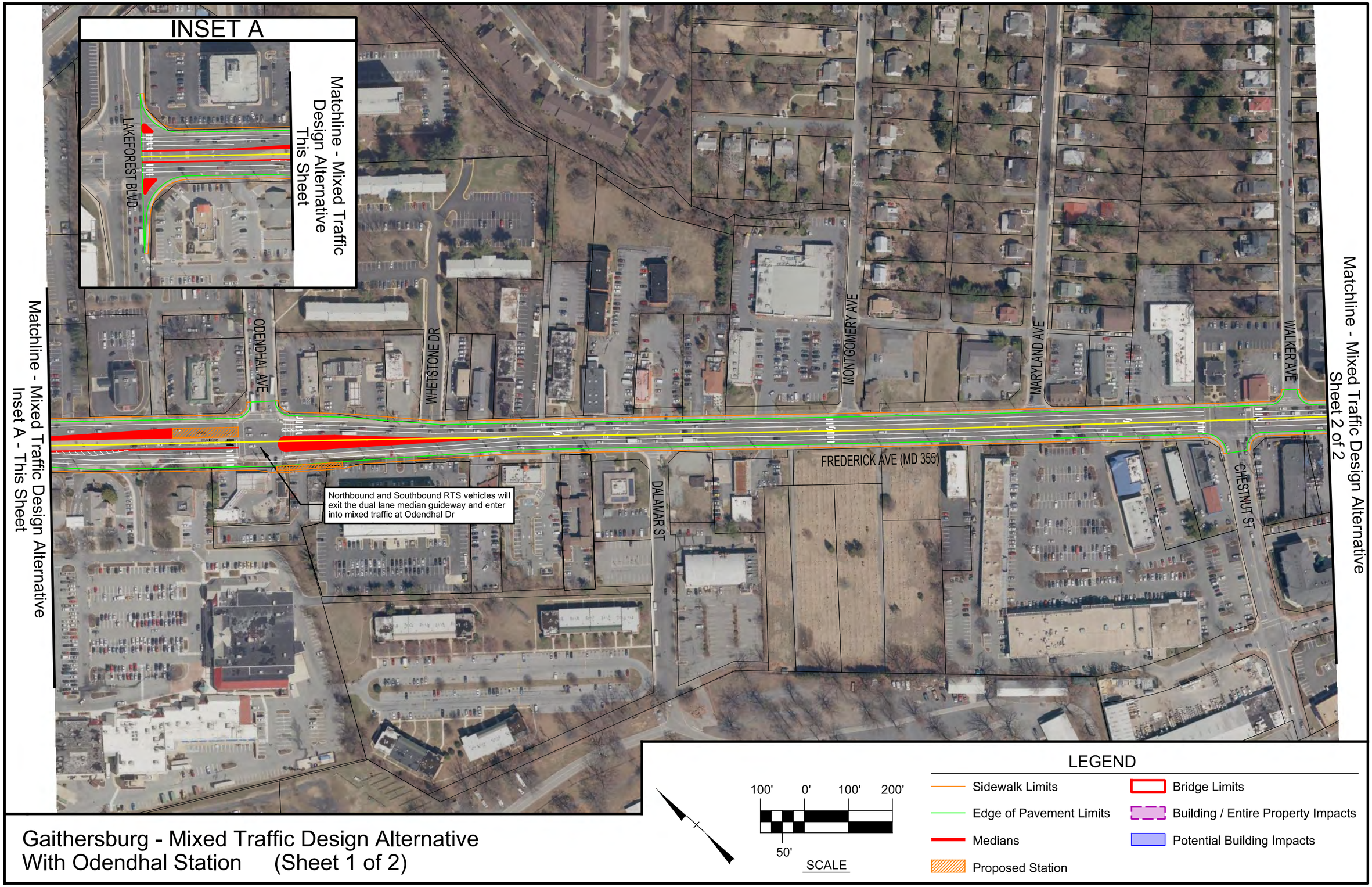
- Sidewalk Limits
- Edge of Pavement Limits
- BRT Medians
- Proposed Station
- Bridge Limits
- Building / Entire Property Impacts
- Potential Building Impacts



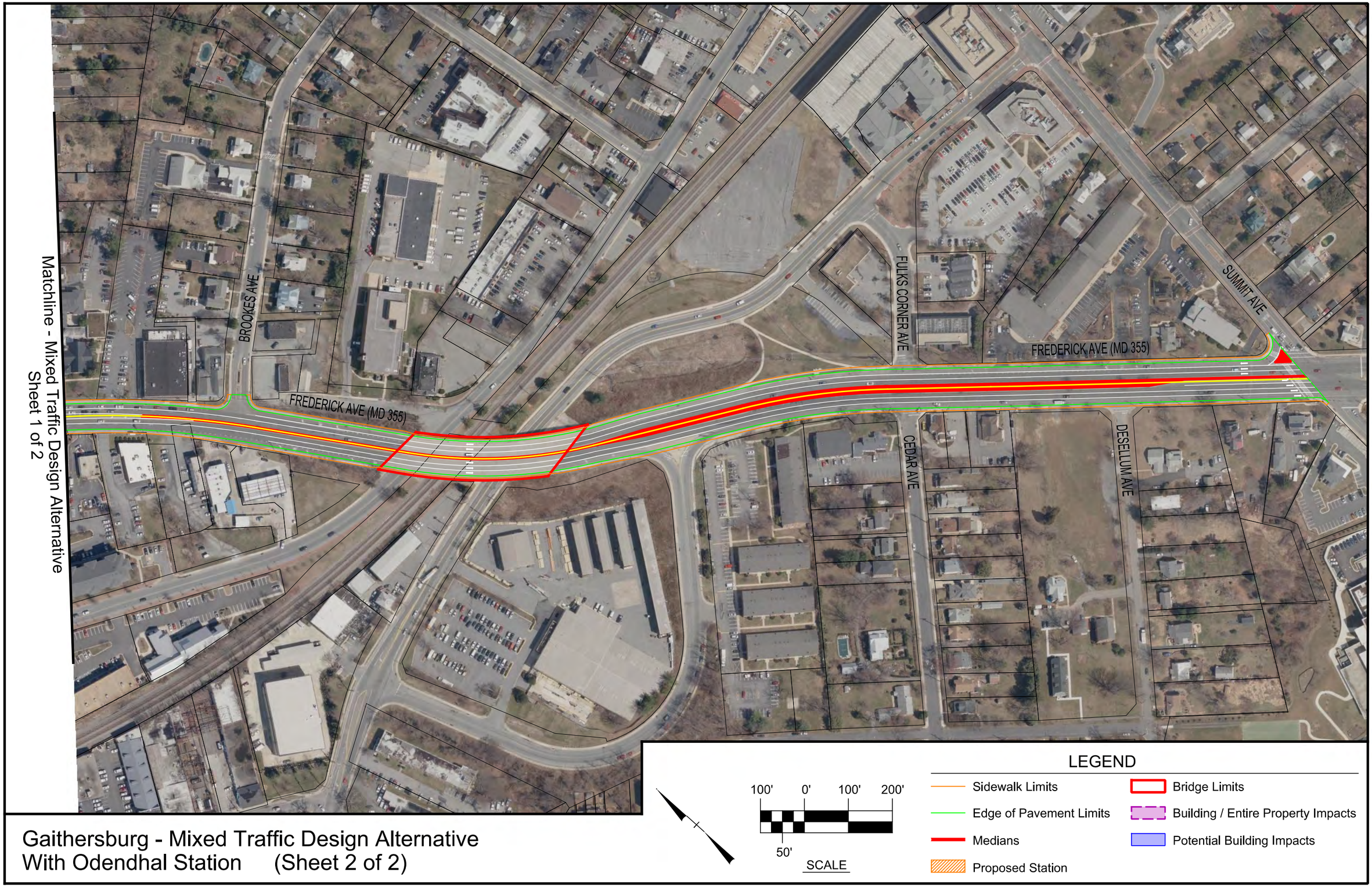
Gaithersburg - Dual Lane BRT With Odendhal Station - Lane Repurposing Design Alternative (Sheet 1 of 2)



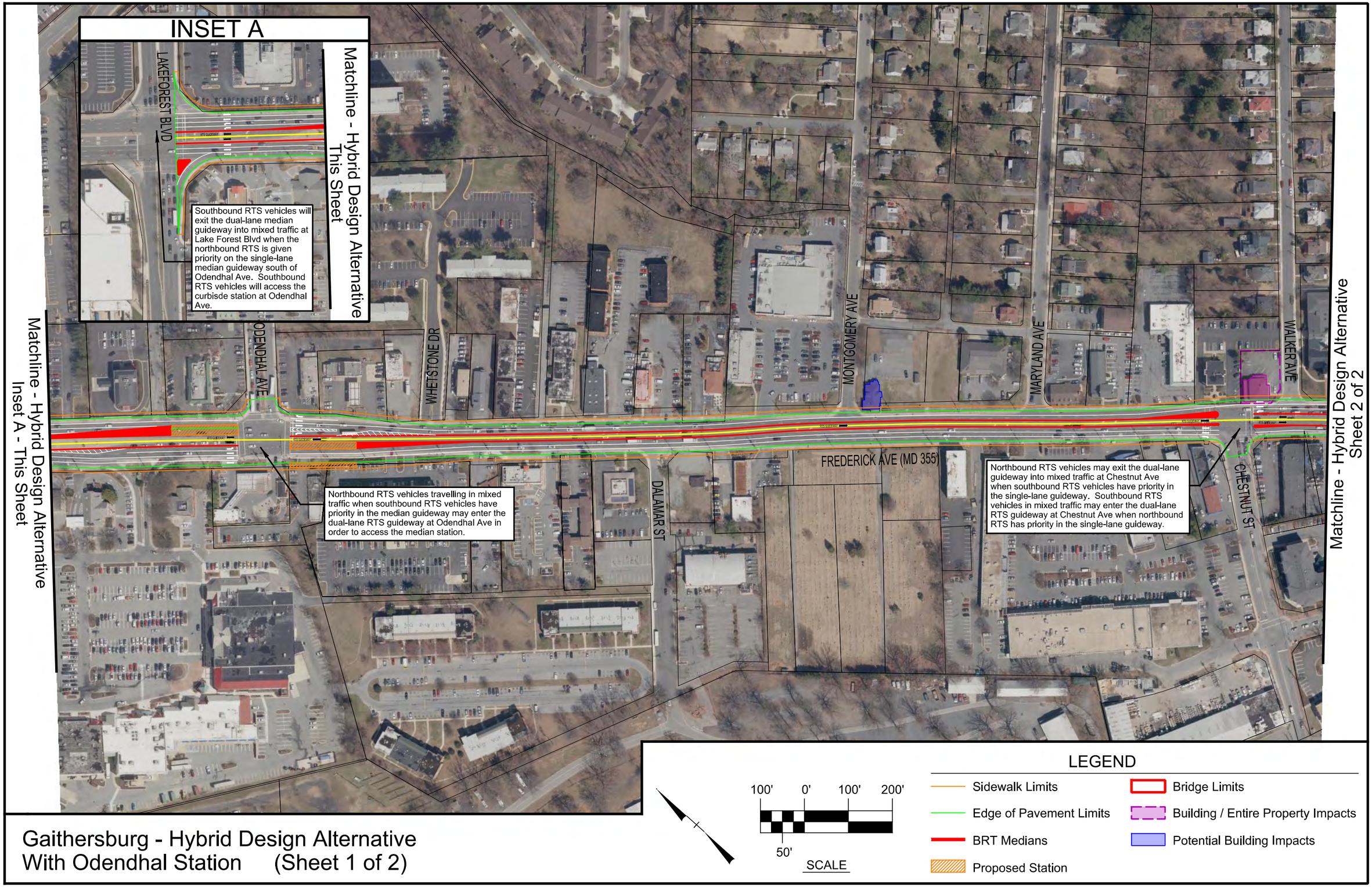
Gaithersburg - Dual Lane BRT With Odendhal Station - Lane Repurposing Design Alternative (Sheet 2 of 2)



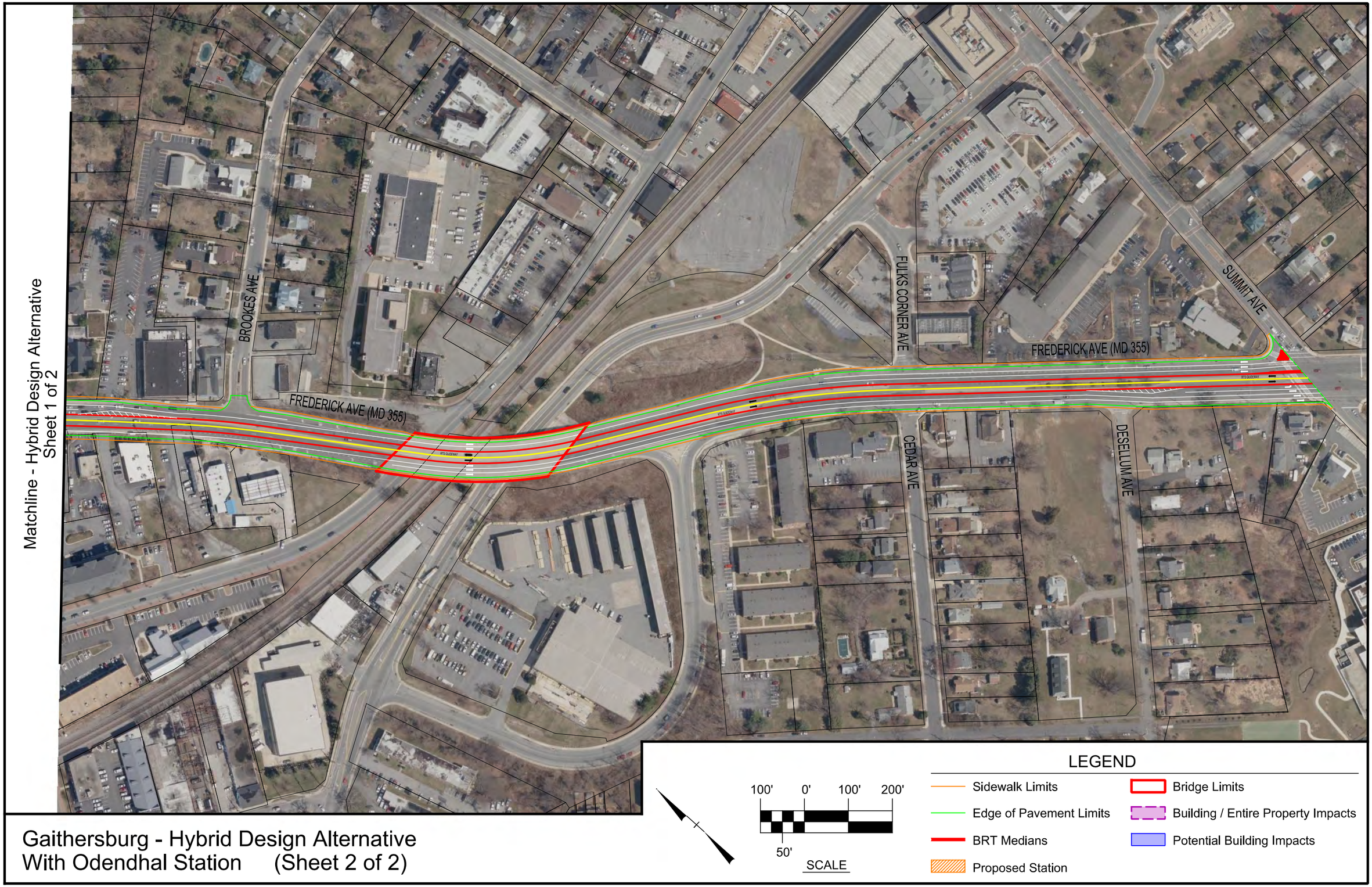
Gaithersburg - Mixed Traffic Design Alternative
With Odendhal Station (Sheet 1 of 2)



Gaithersburg - Mixed Traffic Design Alternative
With Odendhal Station (Sheet 2 of 2)



Gaithersburg - Hybrid Design Alternative
With Odendhal Station (Sheet 1 of 2)



Gaithersburg - Hybrid Design Alternative
With Odendhal Station (Sheet 2 of 2)

Critical Lane Volume
Level of Service Worksheet

Intersection **Frederick Ave (MD 355) / Odendhal Ave**
Major Approach: Frederick Ave (MD 355)
Minor Approach: Odendhal Ave
City/State: Gaithersburg, MD
Scenario: **Existing - 2014**
Analyst: SE

vhb
8300 Boone Boulevard, Suite 700
Vienna, Virginia 22182
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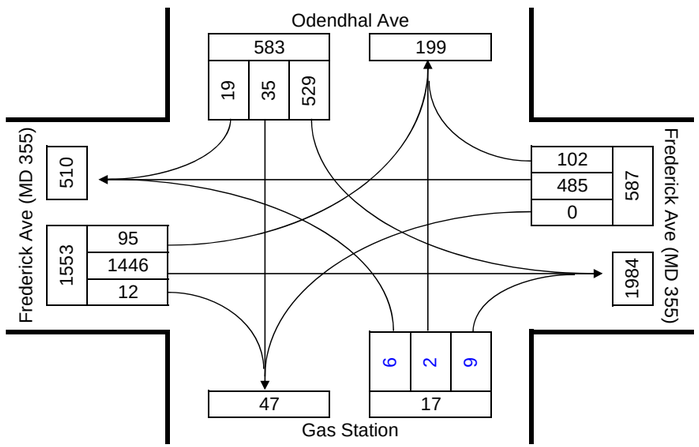
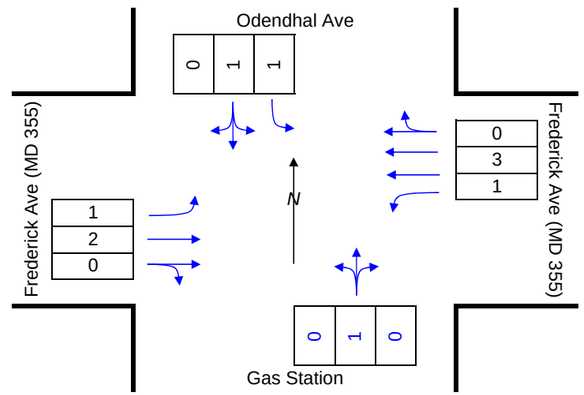
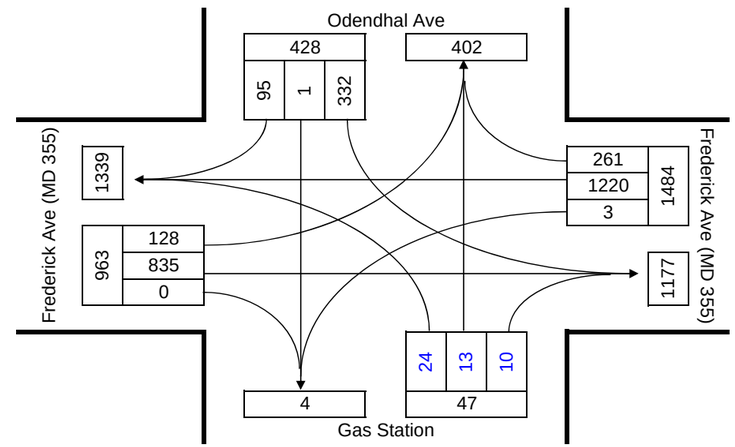
Morning Peak Hour (7-8 AM)



Lane Configuration



Evening Peak Hour (5-6 PM)



N-S Split Phase? N E-W Split Phase? N

Signal Phases

Intersection Control:

Signal: X Stop: _____
Split: _____ Ways: _____
# of Phases: _____
Cycle Length: _____ sec.

No. of Lanes	Lane Use Factor
1	1.00
2	0.53
3	0.37
4	0.30
Dbl-lft	0.53

LOS	Critical Lane Volume	
A	0	999
B	1000	1149
C	1150	1299
D	1300	1449
E	1450	1600
F	1601	9999

Opposing Volume (vph)	PCE
<= 199	1.1
<= 599	2.0
<= 799	3.0
<= 999	4.0
> 1000	5.0

AM Peak Hour

Phase	Movement	(1) Volume	(2) Lane Use Factor	Lane Volume (1) x (2)	(3) Opposing Lefts	(4) Left Turn Lane Use Factor	Lane Volume (3) x (4)	Critical Lane Volume	C
	SB	583	0.53	309	6	1.00	6	315	C
	NB	18	1.00	18	529	0.53	280	298	
	EB	1458	0.53	773	0	1.00	0	773	C
	WB	587	0.37	217	95	1.00	95	312	
C: Critical Volume							Total	1088	
							V/C	0.68	
							LOS	B	

PM Peak Hour

Phase	Movement	(1) Volume	(2) Lane Use Factor	Lane Volume (1) x (2)	(3) Opposing Lefts	(4) Left Turn Lane Use Factor	Lane Volume (3) x (4)	Critical Lane Volume	C
	SB	428	0.53	227	24	1.00	24	251	C
	NB	48	1.00	48	332	0.53	175.96	224	
	EB	835	0.53	443	3	1.00	3	446	
	WB	1481	0.37	548	128	1.00	128	676	C
C: Critical Volume							Total	927	
							V/C	0.58	
							LOS	A	

Critical Lane Volume
Level of Service Worksheet

Intersection **Frederick Ave (MD 355) / Chestnut St**
Major Approach: Frederick Ave (MD 355)
Minor Approach: Chestnut St
City/State: Gaithersburg, MD
Scenario: **Existing - 2014**
Analyst: SE

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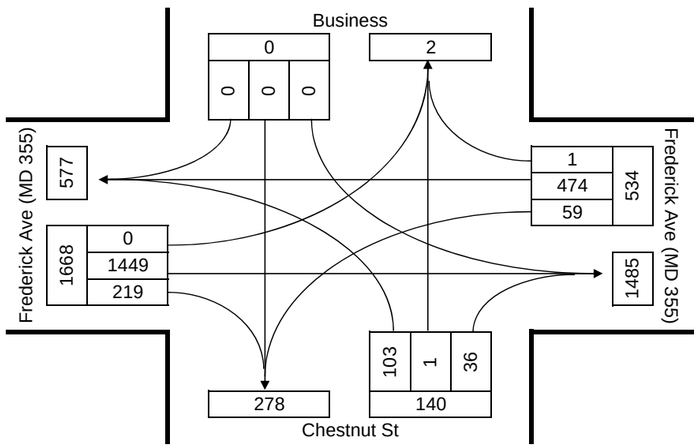
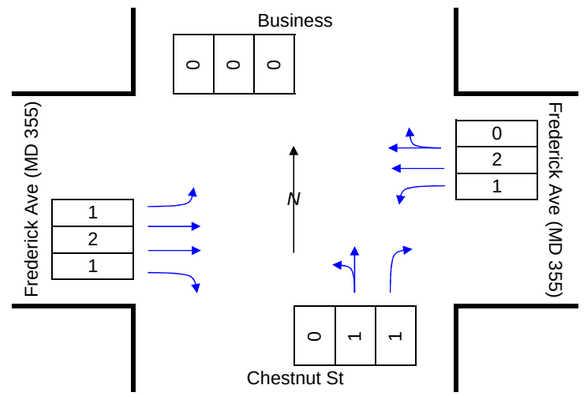
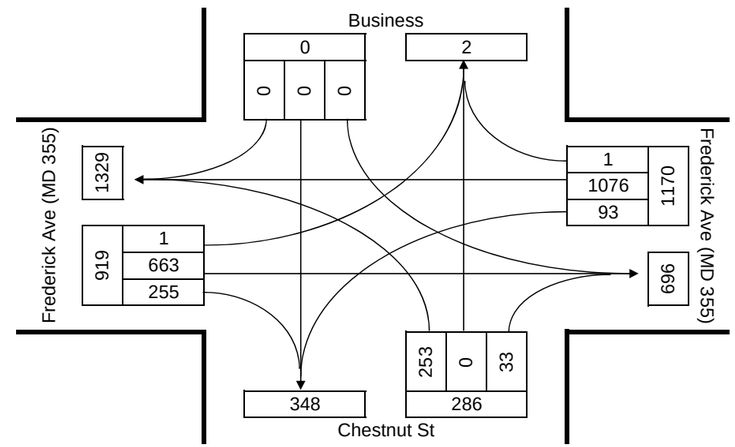
Morning Peak Hour (7-8 AM)



Lane Configuration



Evening Peak Hour (5-6 PM)



N-S Split Phase? N E-W Split Phase? N

Signal Phases

Intersection Control:

Signal: X Stop: _____
Split: _____ Ways: _____
# of Phases: _____
Cycle Length: _____ sec.

No. of Lanes	Lane Use Factor
1	1.00
2	0.53
3	0.37
4	0.30
Dbl-lft	0.53

LOS	Critical Lane Volume	
A	0	999
B	1000	1149
C	1150	1299
D	1300	1449
E	1450	1600
F	1601	9999

Opposing Volume (vph)	PCE
<= 199	1.1
<= 599	2.0
<= 799	3.0
<= 999	4.0
> 1000	5.0

AM Peak Hour

Phase	Movement	(1) Volume	(2) Lane Use Factor	Lane Volume (1) x (2)	(3) Opposing Lefts	(4) Left Turn Lane Use Factor	Lane Volume (3) x (4)	Critical Lane Volume	C
	SB	0	0.00	0	0	1.00	0	0	
	NB	104	1.00	104	0	1.00	0	104	C
	EB	1449	0.53	768	59	1.00	59	827	C
	WB	475	0.53	252	0	1.00	0	252	
C: Critical Volume							Total	931	
							V/C	0.58	
							LOS	A	

PM Peak Hour

Phase	Movement	(1) Volume	(2) Lane Use Factor	Lane Volume (1) x (2)	(3) Opposing Lefts	(4) Left Turn Lane Use Factor	Lane Volume (3) x (4)	Critical Lane Volume	C
	SB	0	0.00	0	0	1.00	0	0	
	NB	253	1.00	253	0	1.00	0	253	C
	EB	663	0.53	351	93	1.00	93	444	
	WB	1077	0.53	571	1	1.00	1	572	C
C: Critical Volume							Total	825	
							V/C	0.52	
							LOS	A	

Critical Lane Volume
Level of Service Worksheet

Intersection **Frederick Ave (MD 355) / Summit Ave**
Major Approach: Frederick Ave (MD 355)
Minor Approach: Summit Ave
City/State: Gaithersburg, MD
Scenario: **Existing - 2014**
Analyst: SE

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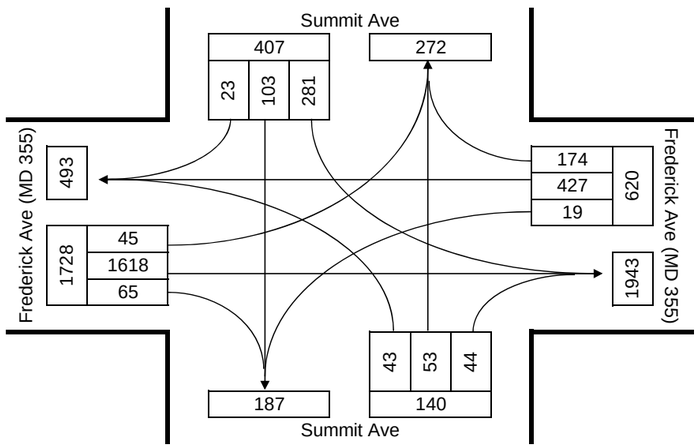
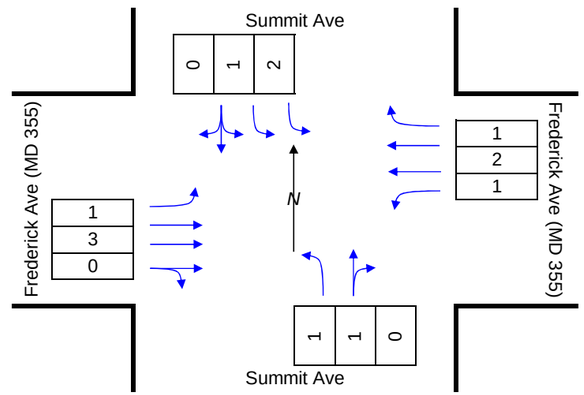
(703) 847-3071

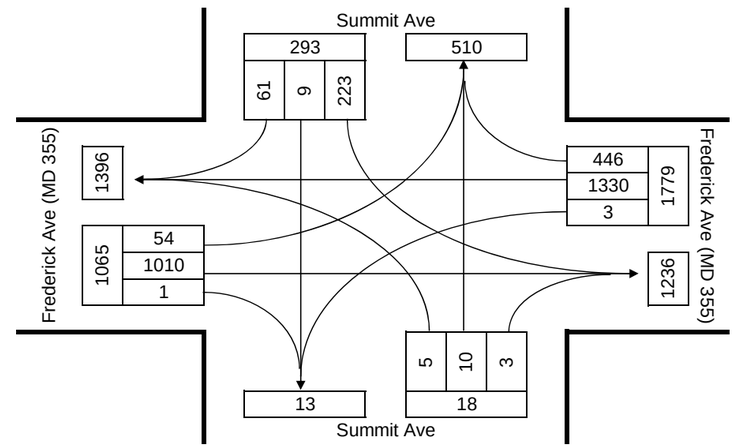
Morning Peak Hour (7-8 AM)



Lane Configuration



Evening Peak Hour (5-6 PM)



N-S Split Phase? Y E-W Split Phase? N

Signal Phases

Intersection Control:

Signal: X Stop: _____
Split: X Ways: _____
# of Phases: _____
Cycle Length: _____ sec.

No. of Lanes	Lane Use Factor
1	1.00
2	0.53
3	0.37
4	0.30
Dbl-lft	0.53

LOS	Critical Lane Volume	
A	0	999
B	1000	1149
C	1150	1299
D	1300	1449
E	1450	1600
F	1601	9999

Opposing Volume (vph)	PCE
<= 199	1.1
<= 599	2.0
<= 799	3.0
<= 999	4.0
> 1000	5.0

AM Peak Hour

Phase	Movement	(1) Volume	(2) Lane Use Factor	Lane Volume (1) x (2)	(3) Opposing Lefts	(4) Left Turn Lane Use Factor	Lane Volume (3) x (4)	Critical Lane Volume	C
	SB	407	0.37	151	0	1.00	0	151	C
	NB	97	1.00	97	0	0.53	0	97	C
	EB	1683	0.37	623	19	1.00	19	642	C
	WB	427	0.53	226	45	1.00	45	271	
C: Critical Volume							Total	889	
							V/C	0.56	
							LOS	A	

PM Peak Hour

Phase	Movement	(1) Volume	(2) Lane Use Factor	Lane Volume (1) x (2)	(3) Opposing Lefts	(4) Left Turn Lane Use Factor	Lane Volume (3) x (4)	Critical Lane Volume	C
	SB	293	0.37	108	0	1.00	0	108	C
	NB	13	1.00	13	0	0.53	0	13	C
	EB	1011	0.37	374	3	1.00	3	377	
	WB	1330	0.53	705	54	1.00	54	759	C
C: Critical Volume							Total	880	
							V/C	0.55	
							LOS	A	

Critical Lane Volume
Level of Service Worksheet

Intersection **Frederick Ave (MD 355) / Odendhal Ave**
Major Approach: Frederick Ave (MD 355)
Minor Approach: Odendhal Ave
City/State: Gaithersburg, MD
Scenario: **2025 - RTS Mixed Traffic**
Analyst: SE

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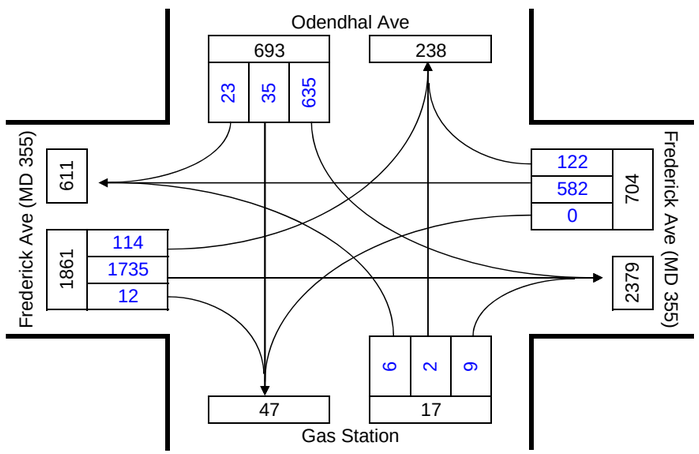
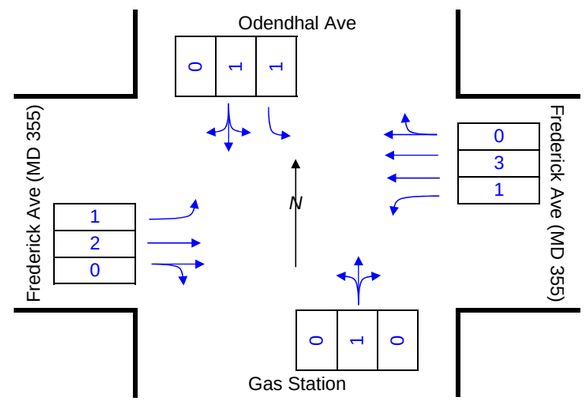
(703) 847-3071

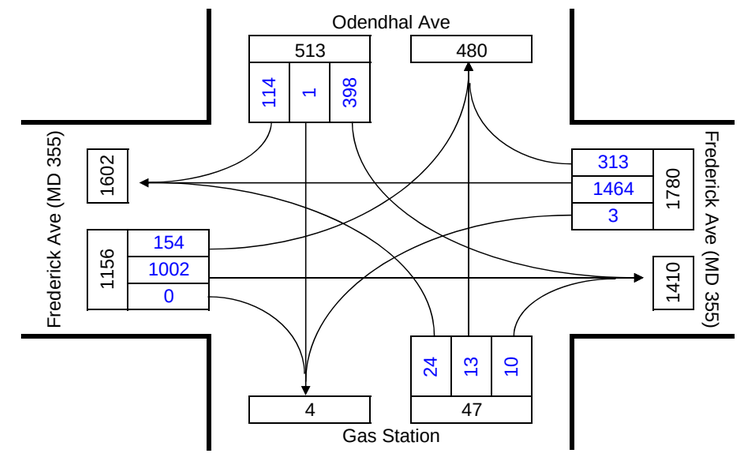
Morning Peak Hour (7-8 AM)



Lane Configuration



Evening Peak Hour (5-6 PM)



N-S Split Phase? N E-W Split Phase? N

Signal Phases

Intersection Control:

Signal: X Stop: _____
Split: _____ Ways: _____
# of Phases: _____
Cycle Length: _____ sec.

No. of Lanes	Lane Use Factor
1	1.00
2	0.53
3	0.37
4	0.30
Dbl-lft	0.53

LOS	Critical Lane Volume	
A	0	999
B	1000	1149
C	1150	1299
D	1300	1449
E	1450	1600
F	1601	9999

Opposing Volume (vph)	PCE
<= 199	1.1
<= 599	2.0
<= 799	3.0
<= 999	4.0
> 1000	5.0

AM Peak Hour

Phase	Movement	(1) Volume	(2) Lane Use Factor	Lane Volume (1) x (2)	(3) Opposing Lefts	(4) Left Turn Lane Use Factor	Lane Volume (3) x (4)	Critical Lane Volume	C
	SB	693	0.53	367	6	1.00	6	373	C
	NB	18	1.00	18	635	0.53	337	354	
	EB	1747	0.53	926	0	1.00	0	926	C
	WB	704	0.37	260	114	1.00	114	374	
C: Critical Volume							Total	1299	
							V/C	0.81	
							LOS	C	

PM Peak Hour

Phase	Movement	(1) Volume	(2) Lane Use Factor	Lane Volume (1) x (2)	(3) Opposing Lefts	(4) Left Turn Lane Use Factor	Lane Volume (3) x (4)	Critical Lane Volume	C
	SB	513	0.53	272	24	1.00	24	296	C
	NB	48	1.00	48	398	0.53	210.94	259	
	EB	1002	0.53	531	3	1.00	3	534	
	WB	1777	0.37	657	154	1.00	154	811	C
C: Critical Volume							Total	1107	
							V/C	0.69	
							LOS	B	

Critical Lane Volume
Level of Service Worksheet

Intersection **Frederick Ave (MD 355) / Chestnut St**
Major Approach: Frederick Ave (MD 355)
Minor Approach: Chestnut St
City/State: Gaithersburg, MD
Scenario: **2025 - RTS Mixed Traffic**
Analyst: SE

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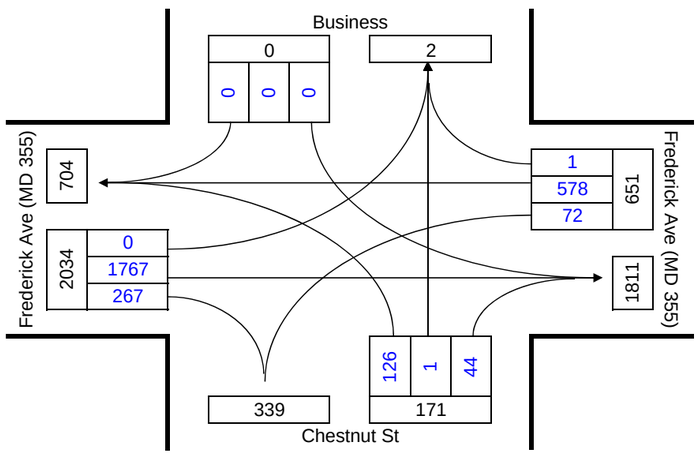
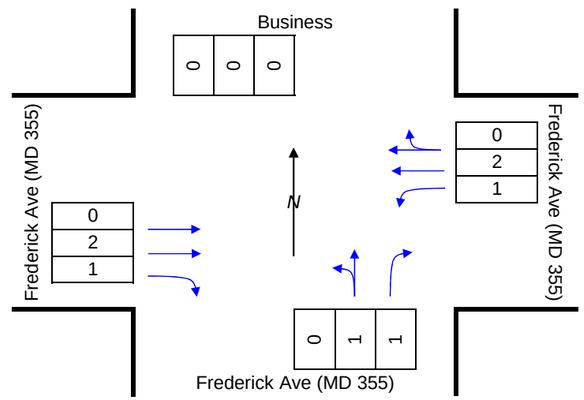
(703) 847-3071

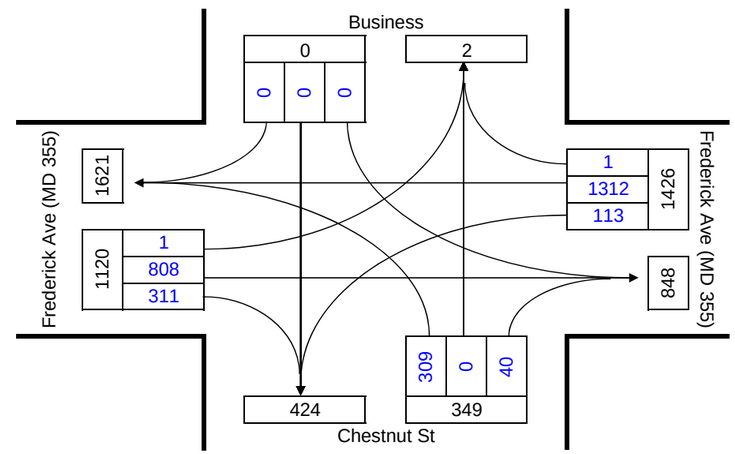
Morning Peak Hour (7-8 AM)



Lane Configuration



Evening Peak Hour (5-6 PM)



N-S Split Phase? N E-W Split Phase? N

Signal Phases

Intersection Control:

Signal: X Stop: _____
Split: _____ Ways: _____
# of Phases: _____
Cycle Length: _____ sec.

No. of Lanes	Lane Use Factor
1	1.00
2	0.53
3	0.37
4	0.30
Dbl-lft	0.53

LOS	Critical Lane Volume	
A	0	999
B	1000	1149
C	1150	1299
D	1300	1449
E	1450	1600
F	1601	9999

Opposing Volume (vph)	PCE
<= 199	1.1
<= 599	2.0
<= 799	3.0
<= 999	4.0
> 1000	5.0

AM Peak Hour

Phase	Movement	(1) Volume	(2) Lane Use Factor	Lane Volume (1) x (2)	(3) Opposing Lefts	(4) Left Turn Lane Use Factor	Lane Volume (3) x (4)	Critical Lane Volume	C
	SB	0	0.00	0	0	1.00	0	0	
	NB	127	1.00	127	0	1.00	0	127	C
	EB	1767	0.53	937	72	1.00	72	1009	C
	WB	579	0.53	307	0	1.00	0	307	
C: Critical Volume							Total	1136	
							V/C	0.71	
							LOS	B	

PM Peak Hour

Phase	Movement	(1) Volume	(2) Lane Use Factor	Lane Volume (1) x (2)	(3) Opposing Lefts	(4) Left Turn Lane Use Factor	Lane Volume (3) x (4)	Critical Lane Volume	C
	SB	0	0.00	0	0	1.00	0	0	
	NB	309	1.00	309	0	1.00	0	309	C
	EB	808	0.53	428	113	1.00	113	541	
	WB	1313	0.53	696	1	1.00	1	697	C
C: Critical Volume							Total	1006	
							V/C	0.63	
							LOS	B	

Critical Lane Volume
Level of Service Worksheet

Intersection **Frederick Ave (MD 355) / Summit Ave**
Major Approach: Frederick Ave (MD 355)
Minor Approach: Summit Ave
City/State: Gaithersburg, MD
Scenario: **2025 - RTS Mixed Traffic**
Analyst: SE

8300 Boone Boulevard, Suite 700
Vienna, Virginia 22182
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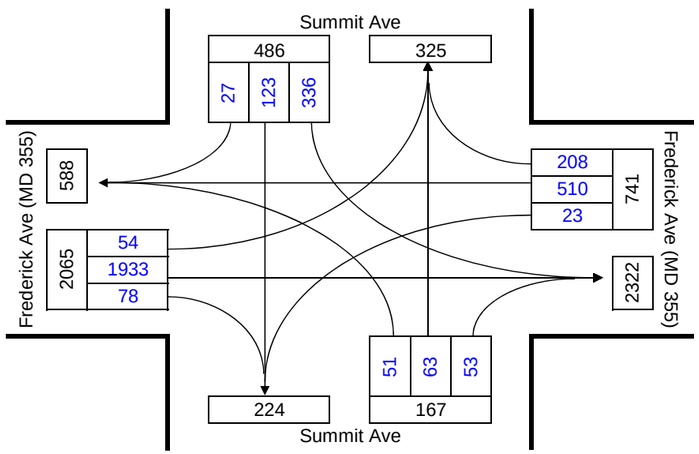
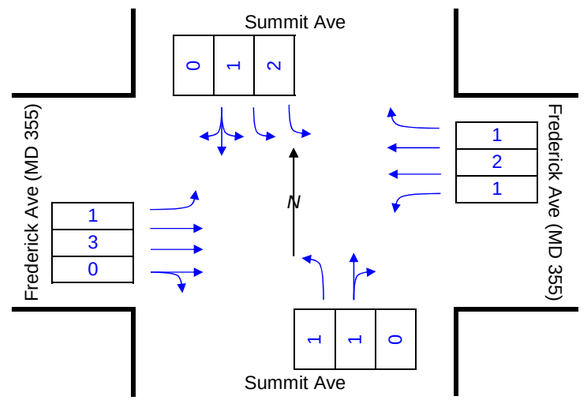
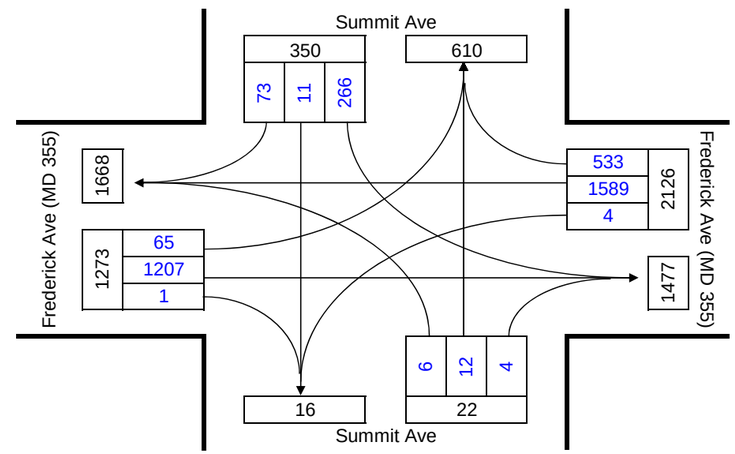
Morning Peak Hour (7-8 AM)



Lane Configuration



Evening Peak Hour (5-6 PM)



N-S Split Phase? Y E-W Split Phase? N

Signal Phases

Intersection Control:

Signal: X Stop: _____
Split: X Ways: _____
# of Phases: _____
Cycle Length: _____ sec.

No. of Lanes	Lane Use Factor
1	1.00
2	0.53
3	0.37
4	0.30
Dbl-lft	0.53

LOS	Critical Lane Volume	
A	0	999
B	1000	1149
C	1150	1299
D	1300	1449
E	1450	1600
F	1601	9999

Opposing Volume (vph)	PCE
<= 199	1.1
<= 599	2.0
<= 799	3.0
<= 999	4.0
> 1000	5.0

AM Peak Hour

Phase	Movement	(1) Volume	(2) Lane Use Factor	Lane Volume (1) x (2)	(3) Opposing Lefts	(4) Left Turn Lane Use Factor	Lane Volume (3) x (4)	Critical Lane Volume	C
	SB	486	0.37	180	51	1.00	51	180	C
	NB	116	1.00	116	336	0.53	178	116	C
	EB	2011	0.37	744	23	1.00	23	767	C
	WB	510	0.53	270	54	1.00	54	324	
C: Critical Volume							Total	1063	
							V/C	0.66	
							LOS	B	

PM Peak Hour

Phase	Movement	(1) Volume	(2) Lane Use Factor	Lane Volume (1) x (2)	(3) Opposing Lefts	(4) Left Turn Lane Use Factor	Lane Volume (3) x (4)	Critical Lane Volume	C
	SB	350	0.37	130	6	1.00	6	130	C
	NB	16	1.00	16	266	0.53	141	16	C
	EB	1208	0.37	447	4	1.00	4	451	
	WB	1589	0.53	842	65	1.00	65	907	C
C: Critical Volume							Total	1053	
							V/C	0.66	
							LOS	B	

Critical Lane Volume
Level of Service Worksheet

Intersection **Frederick Ave (MD 355) / Odendhal Ave**
Major Approach: Frederick Ave (MD 355)
Minor Approach: Odendhal Ave
City/State: Gaithersburg, MD
Scenario: **2025 - Dual-Lane and Single-Lane Median Standard and Minimum Alternatives**
Analyst: SE

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Vienna, Virginia 22182
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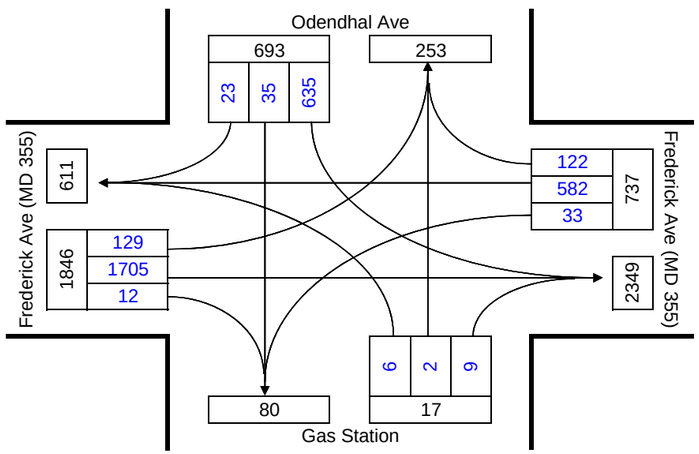
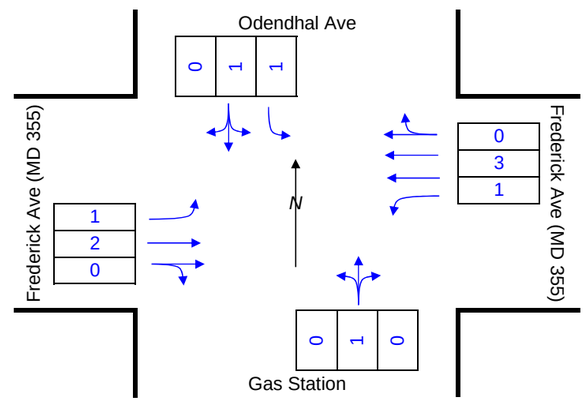
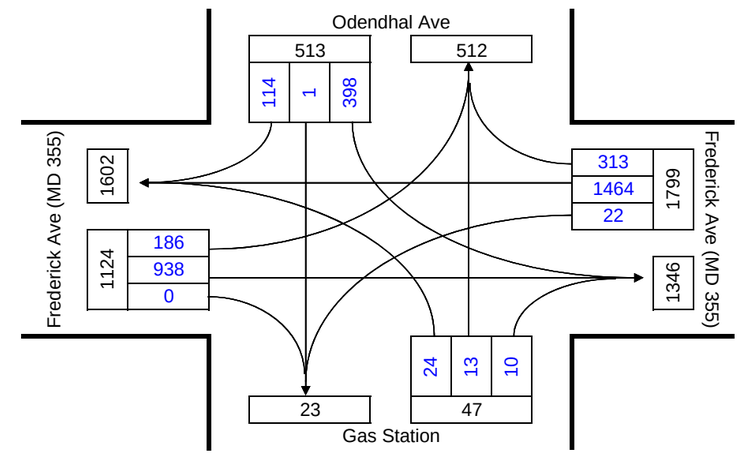
Morning Peak Hour (7-8 AM)



Lane Configuration



Evening Peak Hour (5-6 PM)



N-S Split Phase? N E-W Split Phase? N

Signal Phases

Intersection Control:

Signal: X Stop: _____
Split: _____ Ways: _____
# of Phases: _____
Cycle Length: _____ sec.

No. of Lanes	Lane Use Factor
1	1.00
2	0.53
3	0.37
4	0.30
Dbl-lft	0.53

LOS	Critical Lane Volume	
A	0	999
B	1000	1149
C	1150	1299
D	1300	1449
E	1450	1600
F	1601	9999

Opposing Volume (vph)	PCE
<= 199	1.1
<= 599	2.0
<= 799	3.0
<= 999	4.0
> 1000	5.0

AM Peak Hour

Phase	Movement	(1) Volume	(2) Lane Use Factor	Lane Volume (1) x (2)	(3) Opposing Lefts	(4) Left Turn Lane Use Factor	Lane Volume (3) x (4)	Critical Lane Volume	C
	SB	693	0.53	367	6	1.00	6	373	C
	NB	18	1.00	18	635	0.53	337	354	
	EB	1717	0.53	910	33	1.00	33	943	C
	WB	704	0.37	260	129	1.00	129	389	
C: Critical Volume							Total	1316	
							V/C	0.82	
							LOS	D	

PM Peak Hour

Phase	Movement	(1) Volume	(2) Lane Use Factor	Lane Volume (1) x (2)	(3) Opposing Lefts	(4) Left Turn Lane Use Factor	Lane Volume (3) x (4)	Critical Lane Volume	C
	SB	513	0.53	272	24	1.00	24	296	C
	NB	48	1.00	48	398	0.53	210.94	259	
	EB	938	0.53	497	22	1.00	22	519	
	WB	1777	0.37	657	186	1.00	186	843	C
C: Critical Volume							Total	1139	
							V/C	0.71	
							LOS	B	

Critical Lane Volume
Level of Service Worksheet

Intersection **Frederick Ave (MD 355) / Chestnut St**
Major Approach: Frederick Ave (MD 355)
Minor Approach: Chestnut St
City/State: Gaithersburg, MD
Scenario: **2025 - Dual-Lane and Single-Lane Median Standard and Minimum Alternatives**
Analyst: SE

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Vienna, Virginia 22182
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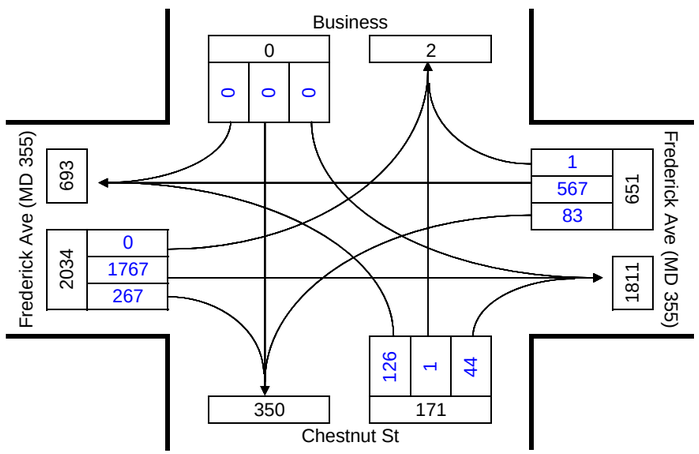
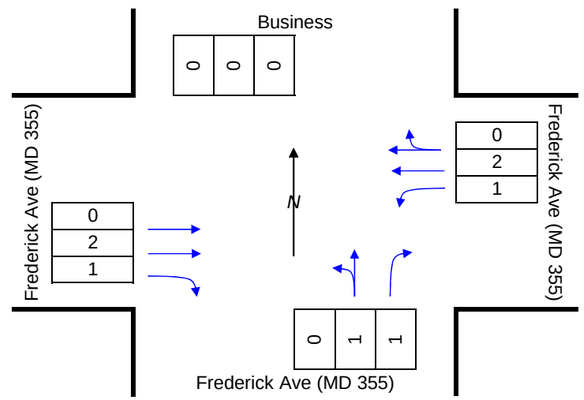
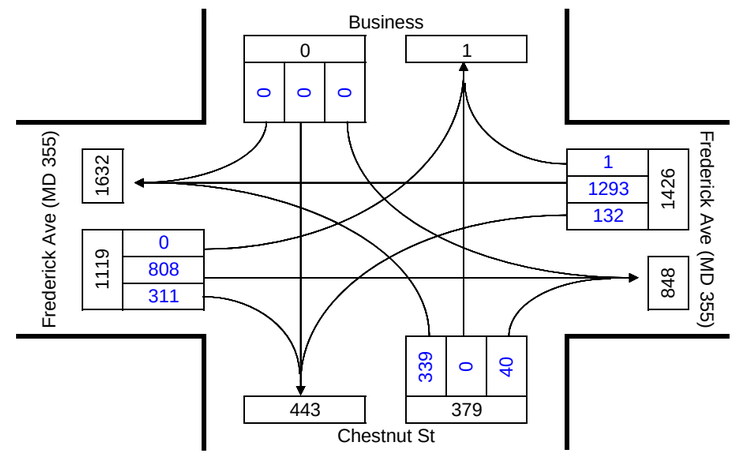
Morning Peak Hour (7-8 AM)



Lane Configuration



Evening Peak Hour (5-6 PM)



N-S Split Phase? N E-W Split Phase? N

Signal Phases

Intersection Control:

Signal: X Stop: _____
Split: _____ Ways: _____
# of Phases: _____
Cycle Length: _____ sec.

No. of Lanes	Lane Use Factor
1	1.00
2	0.53
3	0.37
4	0.30
Dbl-lft	0.53

LOS	Critical Lane Volume	
A	0	999
B	1000	1149
C	1150	1299
D	1300	1449
E	1450	1600
F	1601	9999

Opposing Volume (vph)	PCE
<= 199	1.1
<= 599	2.0
<= 799	3.0
<= 999	4.0
> 1000	5.0

AM Peak Hour

Phase	Movement	(1) Volume	(2) Lane Use Factor	Lane Volume (1) x (2)	(3) Opposing Lefts	(4) Left Turn Lane Use Factor	Lane Volume (3) x (4)	Critical Lane Volume	C
	SB	0	0.00	0	0	1.00	0	0	
	NB	127	1.00	127	0	1.00	0	127	C
	EB	1767	0.53	937	83	1.00	83	1020	C
	WB	568	0.53	301	0	1.00	0	301	
C: Critical Volume							Total	1147	
							V/C	0.72	
							LOS	B	

PM Peak Hour

Phase	Movement	(1) Volume	(2) Lane Use Factor	Lane Volume (1) x (2)	(3) Opposing Lefts	(4) Left Turn Lane Use Factor	Lane Volume (3) x (4)	Critical Lane Volume	C
	SB	0	0.00	0	0	1.00	0	0	
	NB	339	1.00	339	0	1.00	0	339	C
	EB	808	0.53	428	132	1.00	132	560	
	WB	1294	0.53	686	0	1.00	0	686	C
C: Critical Volume							Total	1025	
							V/C	0.64	
							LOS	B	

Critical Lane Volume
Level of Service Worksheet

Intersection **Frederick Ave (MD 355) / Summit Ave**
Major Approach: Frederick Ave (MD 355)
Minor Approach: Summit Ave
City/State: Gaithersburg, MD
Scenario: **2025 - Dual-Lane and Single-Lane Median Standard and Minimum Alternatives**
Analyst: SE

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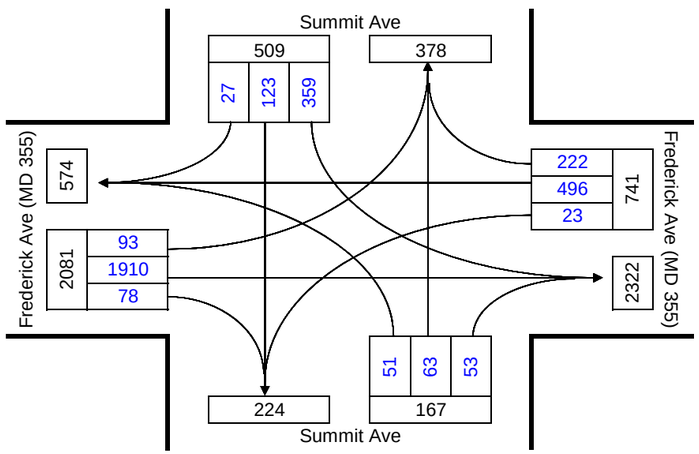
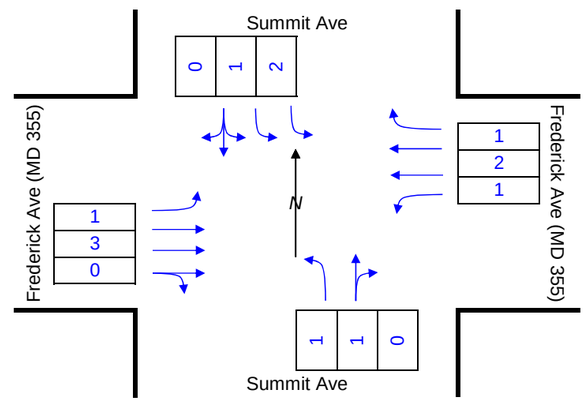
Vienna, Virginia 22182
(703) 847-3071

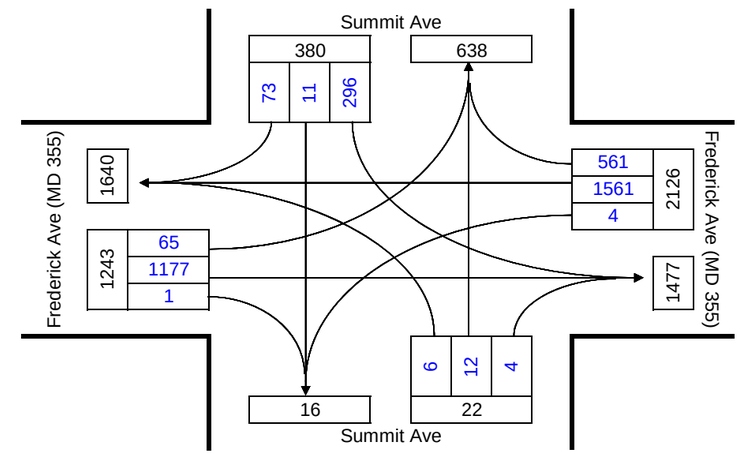
Morning Peak Hour (7-8 AM)



Lane Configuration



Evening Peak Hour (5-6 PM)



N-S Split Phase? Y E-W Split Phase? N

Signal Phases

Intersection Control:

Signal: X Stop: _____
Split: X Ways: _____
# of Phases: _____
Cycle Length: _____ sec.

No. of Lanes	Lane Use Factor
1	1.00
2	0.53
3	0.37
4	0.30
Dbl-lft	0.53

LOS	Critical Lane Volume	
A	0	999
B	1000	1149
C	1150	1299
D	1300	1449
E	1450	1600
F	1601	9999

Opposing Volume (vph)	PCE
<= 199	1.1
<= 599	2.0
<= 799	3.0
<= 999	4.0
> 1000	5.0

AM Peak Hour

Phase	Movement	(1) Volume	(2) Lane Use Factor	Lane Volume (1) x (2)	(3) Opposing Lefts	(4) Left Turn Lane Use Factor	Lane Volume (3) x (4)	Critical Lane Volume	C
	SB	509	0.37	188	51	1.00	51	188	C
	NB	116	1.00	116	359	0.53	190	116	C
	EB	1988	0.37	736	23	1.00	23	759	C
	WB	496	0.53	263	93	1.00	93	356	
C: Critical Volume							Total	1063	
							V/C	0.66	
							LOS	B	

PM Peak Hour

Phase	Movement	(1) Volume	(2) Lane Use Factor	Lane Volume (1) x (2)	(3) Opposing Lefts	(4) Left Turn Lane Use Factor	Lane Volume (3) x (4)	Critical Lane Volume	C
	SB	380	0.37	141	6	1.00	6	141	C
	NB	16	1.00	16	296	0.53	157	16	C
	EB	1178	0.37	436	4	1.00	4	440	
	WB	1561	0.53	827	65	1.00	65	892	C
C: Critical Volume							Total	1049	
							V/C	0.66	
							LOS	B	

Critical Lane Volume
Level of Service Worksheet

Intersection **Frederick Ave (MD 355) / Odendhal Ave**
Major Approach: Frederick Ave (MD 355)
Minor Approach: Odendhal Ave
City/State: Gaithersburg, MD
Scenario: **2025 - Dual-Lane Median Reduced Impact and Lane Repurposing Alternatives**
Analyst: SE

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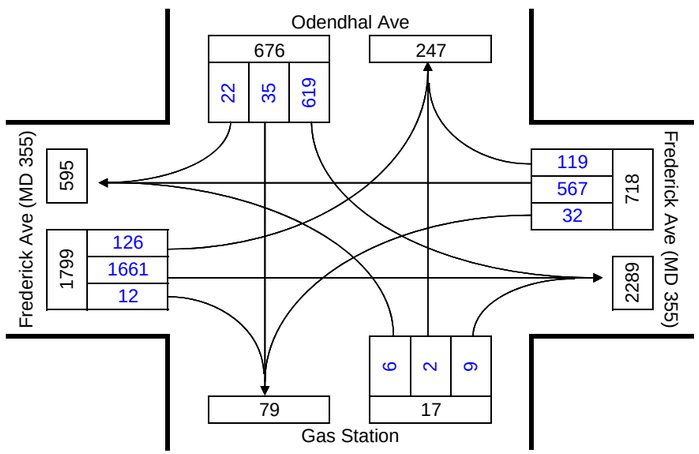
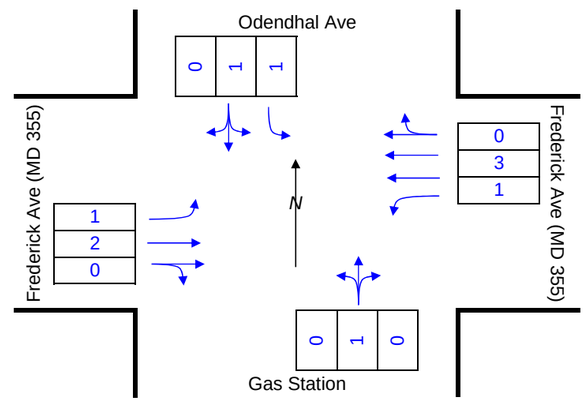
Vienna, Virginia 22182
(703) 847-3071

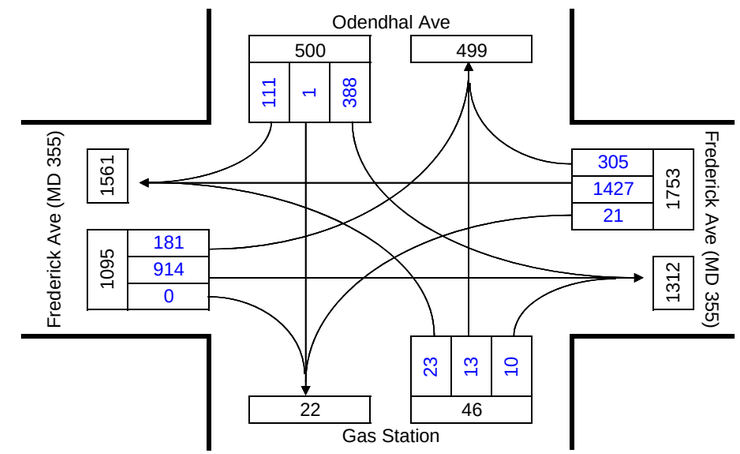
Morning Peak Hour (7-8 AM)



Lane Configuration



Evening Peak Hour (5-6 PM)



N-S Split Phase? N E-W Split Phase? N

Signal Phases

Intersection Control:

Signal: X Stop: _____
Split: _____ Ways: _____
# of Phases: _____
Cycle Length: _____ sec.

No. of Lanes	Lane Use Factor
1	1.00
2	0.53
3	0.37
4	0.30
Dbl-lft	0.53

LOS	Critical Lane Volume	
A	0	999
B	1000	1149
C	1150	1299
D	1300	1449
E	1450	1600
F	1601	9999

Opposing Volume (vph)	PCE
<= 199	1.1
<= 599	2.0
<= 799	3.0
<= 999	4.0
> 1000	5.0

AM Peak Hour

Phase	Movement	(1) Volume	(2) Lane Use Factor	Lane Volume (1) x (2)	(3) Opposing Lefts	(4) Left Turn Lane Use Factor	Lane Volume (3) x (4)	Critical Lane Volume	C
	SB	676	0.53	358	6	1.00	6	364	C
	NB	17	1.00	17	619	0.53	328	345	
	EB	1673	0.53	887	32	1.00	32	919	C
	WB	686	0.37	254	126	1.00	126	380	
C: Critical Volume							Total	1283	
							V/C	0.80	
							LOS	C	

PM Peak Hour

Phase	Movement	(1) Volume	(2) Lane Use Factor	Lane Volume (1) x (2)	(3) Opposing Lefts	(4) Left Turn Lane Use Factor	Lane Volume (3) x (4)	Critical Lane Volume	C
	SB	500	0.53	265	23	1.00	23.4	288	C
	NB	47	1.00	47	388	0.53	205.534	253	
	EB	914	0.53	484	21	1.00	21.4	506	
	WB	1732	0.37	641	181	1.00	181.2	822	C
C: Critical Volume							Total	1110	
							V/C	0.69	
							LOS	B	

Critical Lane Volume
Level of Service Worksheet

Intersection **Frederick Ave (MD 355) / Chestnut St**
Major Approach: Frederick Ave (MD 355)
Minor Approach: Chestnut St
City/State: Gaithersburg, MD
Scenario: **2025 - Dual-Lane Median Reduced Impact and Lane Repurposing Alternatives**
Analyst: SE

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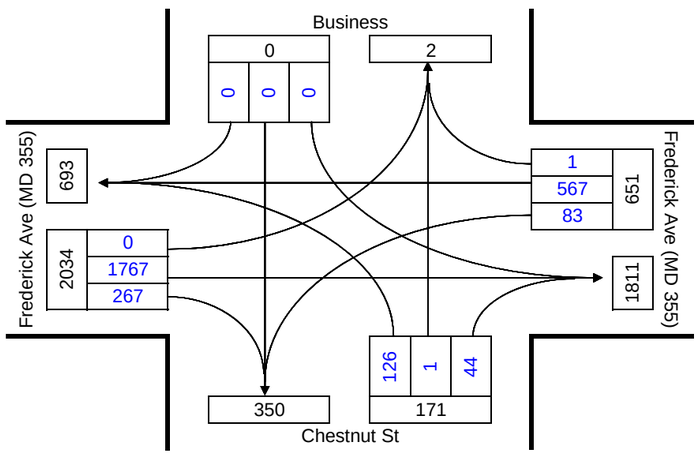
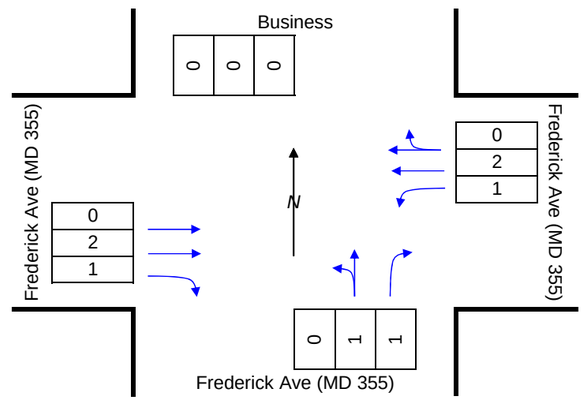
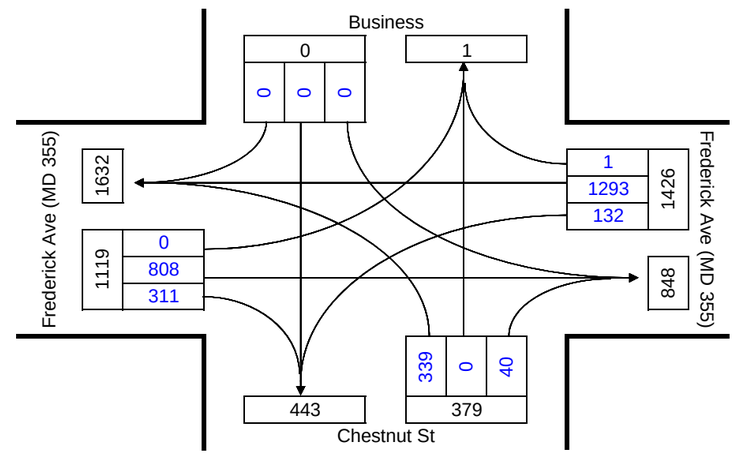
Morning Peak Hour (7-8 AM)



Lane Configuration



Evening Peak Hour (5-6 PM)



N-S Split Phase? N E-W Split Phase? N

Signal Phases

Intersection Control:

Signal: X Stop: _____
Split: _____ Ways: _____
# of Phases: _____
Cycle Length: _____ sec.

No. of Lanes	Lane Use Factor
1	1.00
2	0.53
3	0.37
4	0.30
Dbl-lft	0.53

LOS	Critical Lane Volume	
A	0	999
B	1000	1149
C	1150	1299
D	1300	1449
E	1450	1600
F	1601	9999

Opposing Volume (vph)	PCE
<= 199	1.1
<= 599	2.0
<= 799	3.0
<= 999	4.0
> 1000	5.0

AM Peak Hour

Phase	Movement	(1) Volume	(2) Lane Use Factor	Lane Volume (1) x (2)	(3) Opposing Lefts	(4) Left Turn Lane Use Factor	Lane Volume (3) x (4)	Critical Lane Volume	C
	SB	0	0.00	0	0	1.00	0	0	
	NB	127	1.00	127	0	1.00	0	127	C
	EB	1767	0.53	937	83	1.00	83	1020	C
	WB	568	0.53	301	0	1.00	0	301	
C: Critical Volume							Total	1147	
							V/C	0.72	
							LOS	B	

PM Peak Hour

Phase	Movement	(1) Volume	(2) Lane Use Factor	Lane Volume (1) x (2)	(3) Opposing Lefts	(4) Left Turn Lane Use Factor	Lane Volume (3) x (4)	Critical Lane Volume	C
	SB	0	0.00	0	0	1.00	0	0	
	NB	339	1.00	339	0	1.00	0	339	C
	EB	808	0.53	428	132	1.00	132	560	
	WB	1294	0.53	686	0	1.00	0	686	C
C: Critical Volume							Total	1025	
							V/C	0.64	
							LOS	B	

Critical Lane Volume
Level of Service Worksheet

Intersection **Frederick Ave (MD 355) / Summit Ave**
Major Approach: Frederick Ave (MD 355)
Minor Approach: Summit Ave
City/State: Gaithersburg, MD
Scenario: **2025 - Dual-Lane Median Reduced Impact and Lane Repurposing Alternatives**
Analyst: SE

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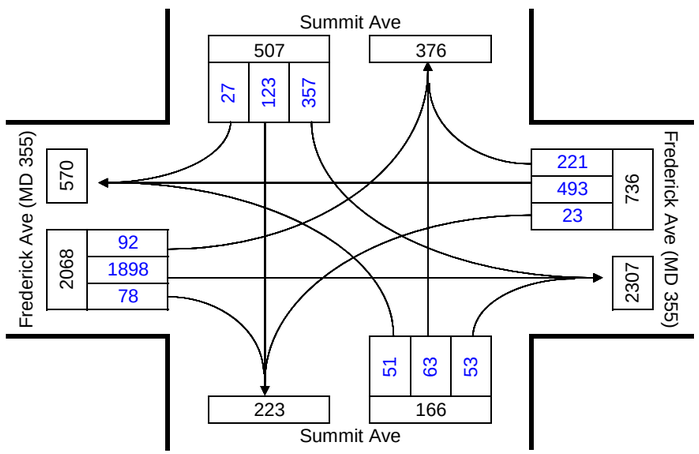
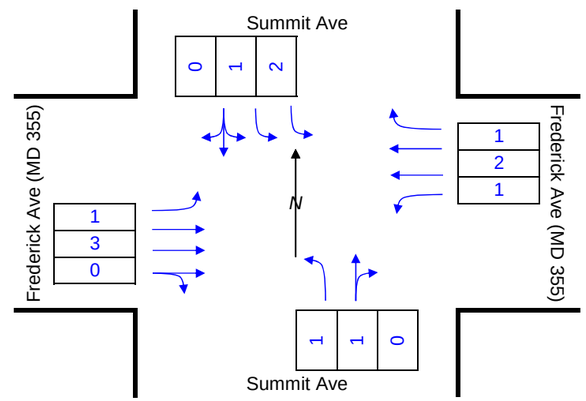
Vienna, Virginia 22182
(703) 847-3071

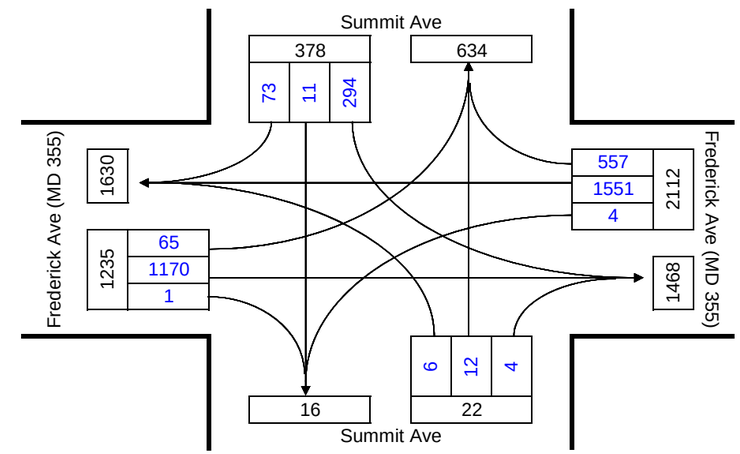
Morning Peak Hour (7-8 AM)



Lane Configuration



Evening Peak Hour (5-6 PM)



N-S Split Phase? Y E-W Split Phase? N

Signal Phases

Intersection Control:

Signal: X Stop: _____
Split: X Ways: _____
# of Phases: _____
Cycle Length: _____ sec.

No. of Lanes	Lane Use Factor
1	1.00
2	0.53
3	0.37
4	0.30
Dbl-lft	0.53

LOS	Critical Lane Volume	
A	0	999
B	1000	1149
C	1150	1299
D	1300	1449
E	1450	1600
F	1601	9999

Opposing Volume (vph)	PCE
<= 199	1.1
<= 599	2.0
<= 799	3.0
<= 999	4.0
> 1000	5.0

AM Peak Hour

Phase	Movement	(1) Volume	(2) Lane Use Factor	Lane Volume (1) x (2)	(3) Opposing Lefts	(4) Left Turn Lane Use Factor	Lane Volume (3) x (4)	Critical Lane Volume	C
	SB	507	0.37	187	51	1.00	51	187	C
	NB	116	1.00	116	357	0.53	189	116	C
	EB	1975	0.37	731	23	1.00	23	754	C
	WB	493	0.53	261	92	1.00	92	354	
C: Critical Volume							Total	1057	
							V/C	0.66	
							LOS	B	

PM Peak Hour

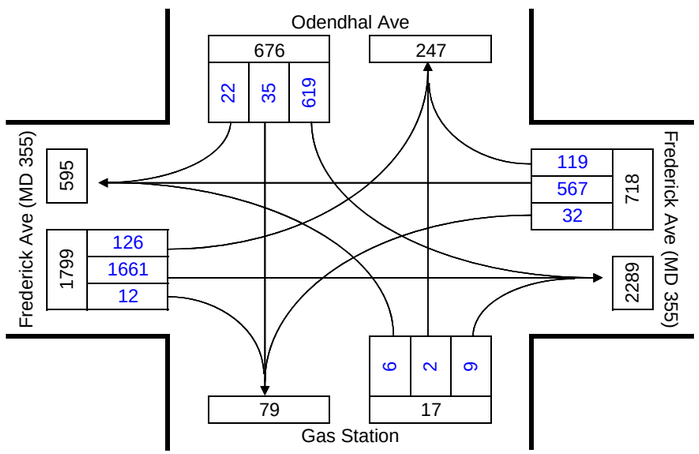
Phase	Movement	(1) Volume	(2) Lane Use Factor	Lane Volume (1) x (2)	(3) Opposing Lefts	(4) Left Turn Lane Use Factor	Lane Volume (3) x (4)	Critical Lane Volume	C
	SB	378	0.37	140	6	1.00	6	140	C
	NB	16	1.00	16	294	0.53	156	16	C
	EB	1171	0.37	433	4	1.00	4	437	
	WB	1551	0.53	822	65	1.00	64.6	887	C
C: Critical Volume							Total	1042	
							V/C	0.65	
							LOS	B	

Critical Lane Volume
Level of Service Worksheet

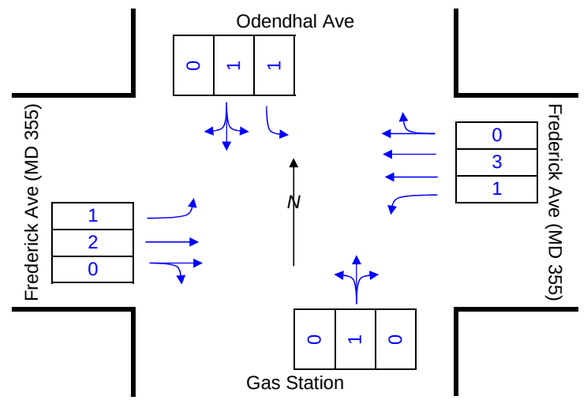
Intersection **Frederick Ave (MD 355) / Odendhal Ave**
Major Approach: Frederick Ave (MD 355)
Minor Approach: Odendhal Ave
City/State: Gaithersburg, MD
Scenario: **2025 - Single-Lane Median Reduced Impact Alternative**
Analyst: SE

8300 Boone Boulevard, Suite 700
Vienna, Virginia 22182
(703) 847-3071

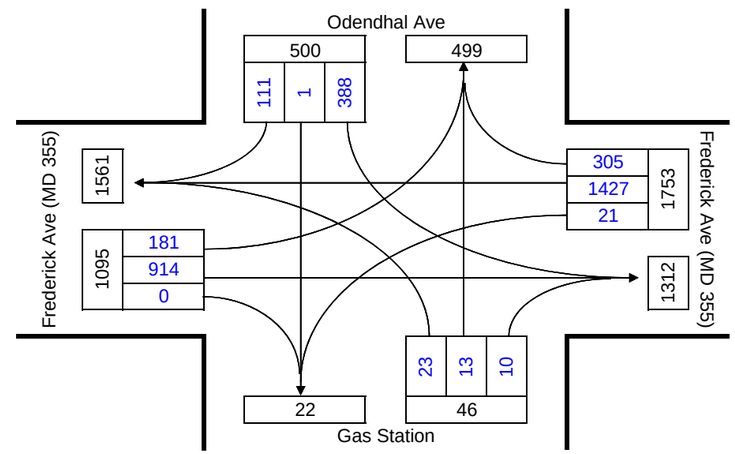
Morning Peak Hour (7-8 AM)



Lane Configuration



Evening Peak Hour (5-6 PM)



N-S Split Phase? N E-W Split Phase? N

Signal Phases

Intersection Control:

Signal: X Stop: _____
Split: _____ Ways: _____
# of Phases: _____
Cycle Length: _____ sec.

No. of Lanes	Lane Use Factor
1	1.00
2	0.53
3	0.37
4	0.30
Dbl-lft	0.53

LOS	Critical Lane Volume	
A	0	999
B	1000	1149
C	1150	1299
D	1300	1449
E	1450	1600
F	1601	9999

Opposing Volume (vph)	PCE
<= 199	1.1
<= 599	2.0
<= 799	3.0
<= 999	4.0
> 1000	5.0

AM Peak Hour

Phase	Movement	(1) Volume	(2) Lane Use Factor	Lane Volume (1) x (2)	(3) Opposing Lefts	(4) Left Turn Lane Use Factor	Lane Volume (3) x (4)	Critical Lane Volume	C
	SB	676	0.53	358	6	1.00	6	364	C
	NB	17	1.00	17	619	0.53	328	345	
	EB	1673	0.53	887	32	1.00	32	919	C
	WB	686	0.37	254	126	1.00	126	380	
C: Critical Volume							Total	1283	
							V/C	0.80	
							LOS	C	

PM Peak Hour

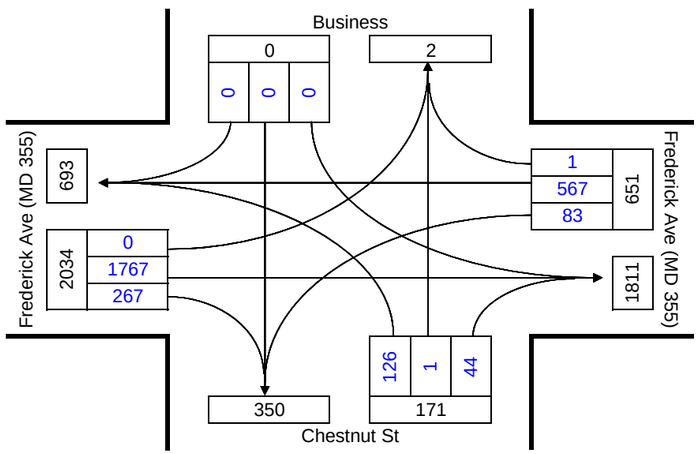
Phase	Movement	(1) Volume	(2) Lane Use Factor	Lane Volume (1) x (2)	(3) Opposing Lefts	(4) Left Turn Lane Use Factor	Lane Volume (3) x (4)	Critical Lane Volume	C
	SB	500	0.53	265	23	1.00	23.4	288	C
	NB	47	1.00	47	388	0.53	205.534	253	
	EB	914	0.53	484	21	1.00	21.4	506	
	WB	1732	0.37	641	181	1.00	181.2	822	C
C: Critical Volume							Total	1110	
							V/C	0.69	
							LOS	B	

Critical Lane Volume
Level of Service Worksheet

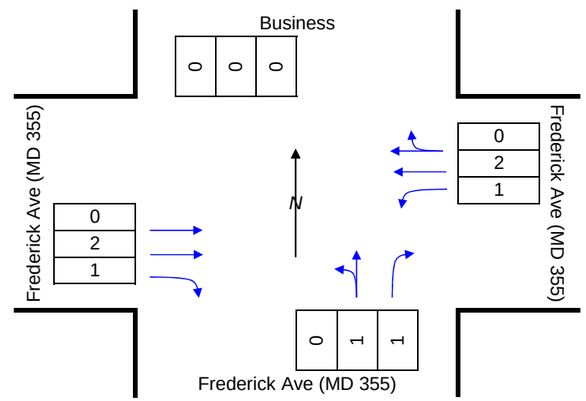
Intersection **Frederick Ave (MD 355) / Chestnut St**
Major Approach: Frederick Ave (MD 355)
Minor Approach: Chestnut St
City/State: Gaithersburg, MD
Scenario: **2025 - Single-Lane Median Reduced Impact Alternative**
Analyst: SE

8300 Boone Boulevard, Suite 700
Vienna, Virginia 22182
(703) 847-3071

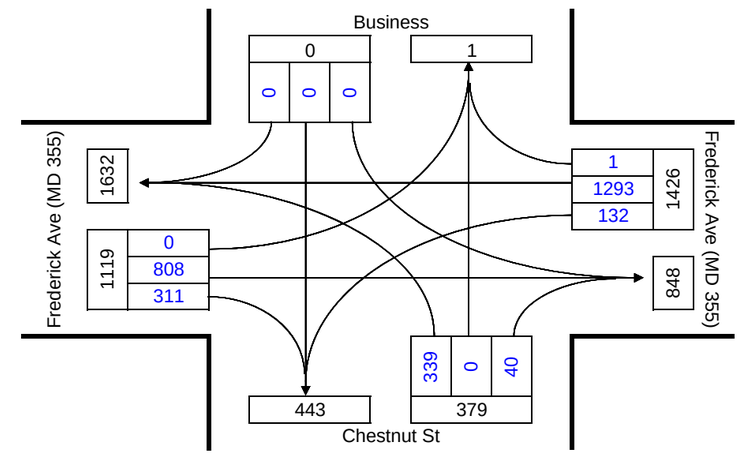
Morning Peak Hour (7-8 AM)



Lane Configuration



Evening Peak Hour (5-6 PM)



N-S Split Phase? N E-W Split Phase? N

Signal Phases

Intersection Control:

Signal: X Stop: _____
Split: _____ Ways: _____
# of Phases: _____
Cycle Length: _____ sec.

No. of Lanes	Lane Use Factor
1	1.00
2	0.53
3	0.37
4	0.30
Dbl-lft	0.53

LOS	Critical Lane Volume	
A	0	999
B	1000	1149
C	1150	1299
D	1300	1449
E	1450	1600
F	1601	9999

Opposing Volume (vph)	PCE
<= 199	1.1
<= 599	2.0
<= 799	3.0
<= 999	4.0
> 1000	5.0

AM Peak Hour

Phase	Movement	(1) Volume	(2) Lane Use Factor	Lane Volume (1) x (2)	(3) Opposing Lefts	(4) Left Turn Lane Use Factor	Lane Volume (3) x (4)	Critical Lane Volume	C
	SB	0	0.00	0	0	1.00	0	0	
	NB	127	1.00	127	0	1.00	0	127	C
	EB	1767	0.53	937	83	1.00	83	1020	C
	WB	568	0.53	301	0	1.00	0	301	
C: Critical Volume							Total	1147	
							V/C	0.72	
							LOS	B	

PM Peak Hour

Phase	Movement	(1) Volume	(2) Lane Use Factor	Lane Volume (1) x (2)	(3) Opposing Lefts	(4) Left Turn Lane Use Factor	Lane Volume (3) x (4)	Critical Lane Volume	C
	SB	0	0.00	0	0	1.00	0	0	
	NB	339	1.00	339	0	1.00	0	339	C
	EB	808	0.53	428	132	1.00	132	560	
	WB	1294	0.53	686	0	1.00	0	686	C
C: Critical Volume							Total	1025	
							V/C	0.64	
							LOS	B	

Critical Lane Volume
Level of Service Worksheet

Intersection **Frederick Ave (MD 355) / Summit Ave**
Major Approach: Frederick Ave (MD 355)
Minor Approach: Summit Ave
City/State: Gaithersburg, MD
Scenario: **2025 - Single-Lane Median Reduced Impact Alternative**
Analyst: SE

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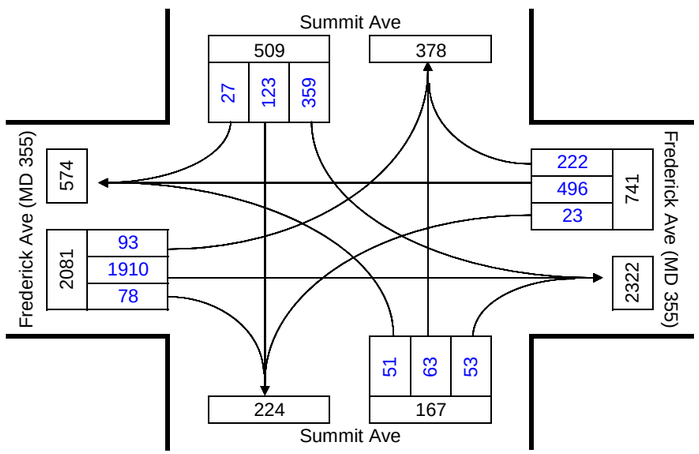
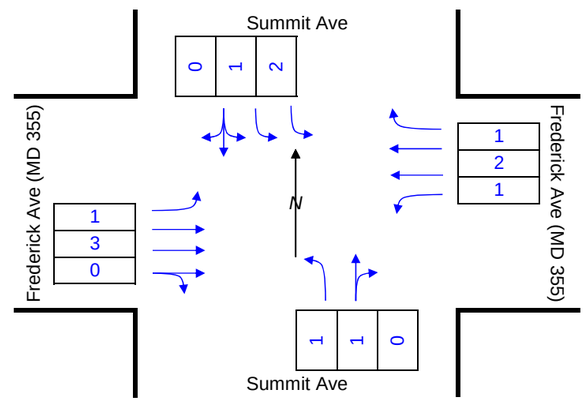
Vienna, Virginia 22182
(703) 847-3071

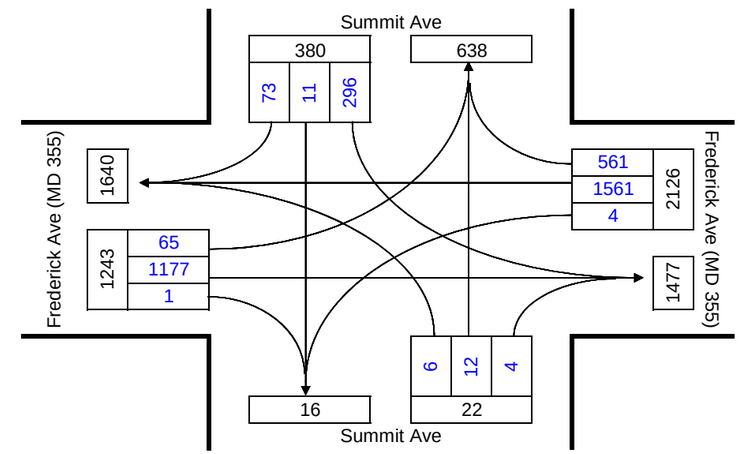
Morning Peak Hour (7-8 AM)



Lane Configuration



Evening Peak Hour (5-6 PM)



N-S Split Phase? Y E-W Split Phase? N

Signal Phases

Intersection Control:

Signal: X Stop: _____
Split: X Ways: _____
# of Phases: _____
Cycle Length: _____ sec.

No. of Lanes	Lane Use Factor
1	1.00
2	0.53
3	0.37
4	0.30
Dbl-lft	0.53

LOS	Critical Lane Volume	
A	0	999
B	1000	1149
C	1150	1299
D	1300	1449
E	1450	1600
F	1601	9999

Opposing Volume (vph)	PCE
<= 199	1.1
<= 599	2.0
<= 799	3.0
<= 999	4.0
> 1000	5.0

AM Peak Hour

Phase	Movement	(1) Volume	(2) Lane Use Factor	Lane Volume (1) x (2)	(3) Opposing Lefts	(4) Left Turn Lane Use Factor	Lane Volume (3) x (4)	Critical Lane Volume	C
	SB	509	0.37	188	51	1.00	51	188	C
	NB	116	1.00	116	359	0.53	190	116	C
	EB	1988	0.37	736	23	1.00	23	759	C
	WB	496	0.53	263	93	1.00	93	356	
C: Critical Volume							Total	1063	
							V/C	0.66	
							LOS	B	

PM Peak Hour

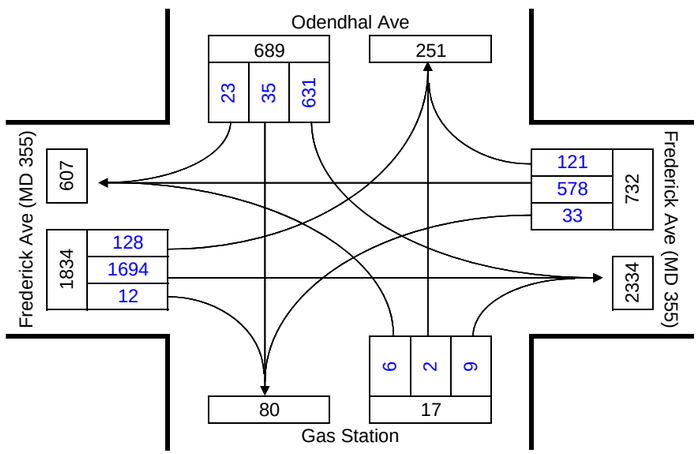
Phase	Movement	(1) Volume	(2) Lane Use Factor	Lane Volume (1) x (2)	(3) Opposing Lefts	(4) Left Turn Lane Use Factor	Lane Volume (3) x (4)	Critical Lane Volume	C
	SB	380	0.37	141	6	1.00	6	141	C
	NB	16	1.00	16	296	0.53	157	16	C
	EB	1178	0.37	436	4	1.00	4	440	
	WB	1561	0.53	827	65	1.00	65	892	C
C: Critical Volume							Total	1049	
							V/C	0.66	
							LOS	B	

Critical Lane Volume
Level of Service Worksheet

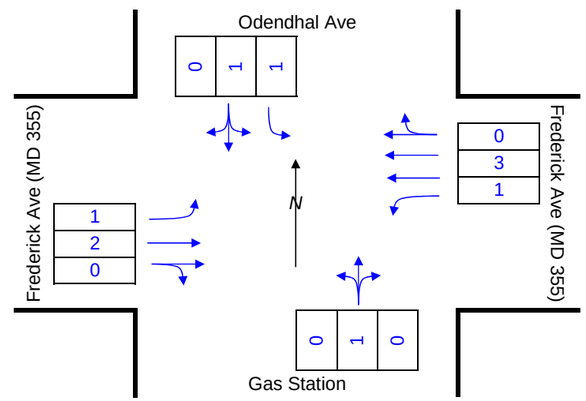
Intersection **Frederick Ave (MD 355) / Odendhal Ave**
Major Approach: Frederick Ave (MD 355)
Minor Approach: Odendhal Ave
City/State: Gaithersburg, MD
Scenario: **2025 - Hybrid Median Guideway Alternative**
Analyst: SE

8300 Boone Boulevard, Suite 700
Vienna, Virginia 22182
(703) 847-3071

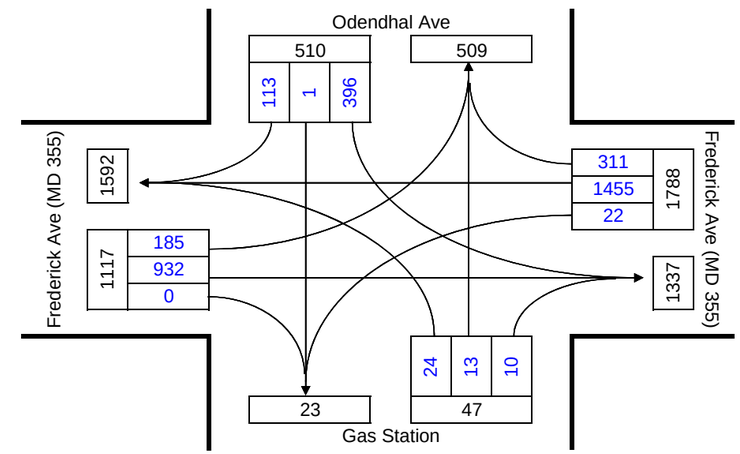
Morning Peak Hour (7-8 AM)



Lane Configuration



Evening Peak Hour (5-6 PM)



N-S Split Phase? N E-W Split Phase? N

Signal Phases

Intersection Control:

Signal: X Stop: _____
Split: _____ Ways: _____
# of Phases: _____
Cycle Length: _____ sec.

No. of Lanes	Lane Use Factor
1	1.00
2	0.53
3	0.37
4	0.30
Dbl-lft	0.53

LOS	Critical Lane Volume	
A	0	999
B	1000	1149
C	1150	1299
D	1300	1449
E	1450	1600
F	1601	9999

Opposing Volume (vph)	PCE
<= 199	1.1
<= 599	2.0
<= 799	3.0
<= 999	4.0
> 1000	5.0

AM Peak Hour

Phase	Movement	(1) Volume	(2) Lane Use Factor	Lane Volume (1) x (2)	(3) Opposing Lefts	(4) Left Turn Lane Use Factor	Lane Volume (3) x (4)	Critical Lane Volume	C
	SB	689	0.53	365	6	1.00	6	371	C
	NB	18	1.00	18	631	0.53	334	352	
	EB	1706	0.53	904	33	1.00	33	937	C
	WB	700	0.37	259	128	1.00	128	387	
C: Critical Volume							Total	1308	
							V/C	0.82	
							LOS	D	

PM Peak Hour

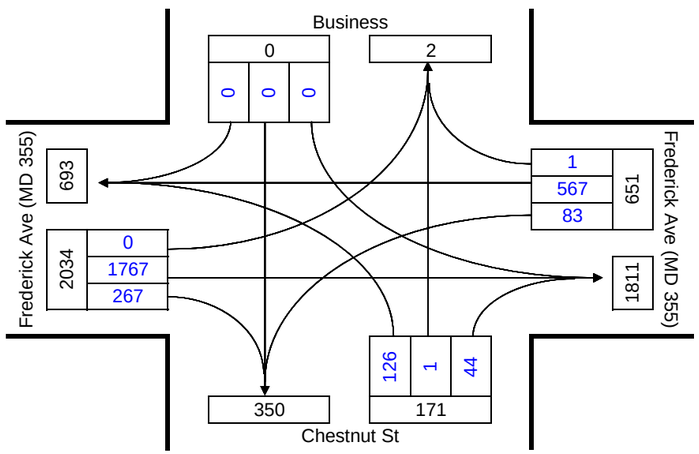
Phase	Movement	(1) Volume	(2) Lane Use Factor	Lane Volume (1) x (2)	(3) Opposing Lefts	(4) Left Turn Lane Use Factor	Lane Volume (3) x (4)	Critical Lane Volume	C
	SB	510	0.53	270	24	1.00	23.8	294	C
	NB	48	1.00	48	396	0.53	209.615	257	
	EB	932	0.53	494	22	1.00	21.9	516	
	WB	1766	0.37	653	185	1.00	184.8	838	C
C: Critical Volume							Total	1132	
							V/C	0.71	
							LOS	B	

Critical Lane Volume
Level of Service Worksheet

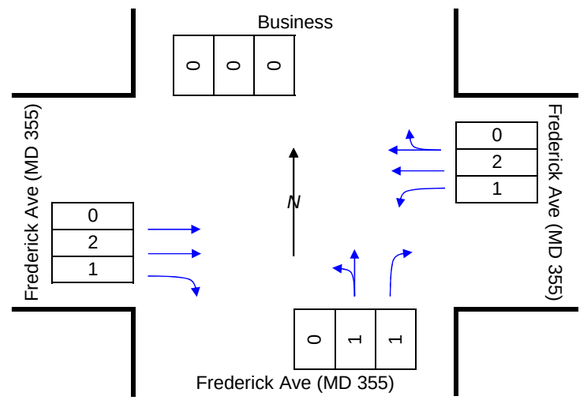
Intersection **Frederick Ave (MD 355) / Chestnut St**
Major Approach: Frederick Ave (MD 355)
Minor Approach: Chestnut St
City/State: Gaithersburg, MD
Scenario: **2025 - Hybrid Median Guideway Alternative**
Analyst: SE

8300 Boone Boulevard, Suite 700
Vienna, Virginia 22182
(703) 847-3071

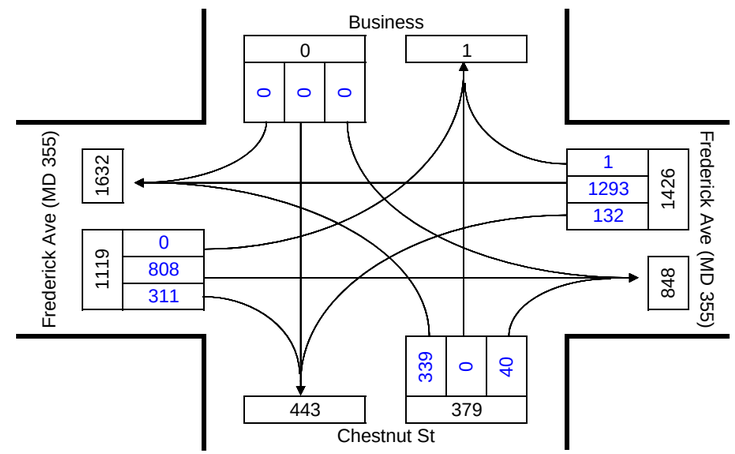
Morning Peak Hour (7-8 AM)



Lane Configuration



Evening Peak Hour (5-6 PM)



N-S Split Phase? N E-W Split Phase? N

Signal Phases

Intersection Control:

Signal: X Stop: _____
Split: _____ Ways: _____
# of Phases: _____
Cycle Length: _____ sec.

No. of Lanes	Lane Use Factor
1	1.00
2	0.53
3	0.37
4	0.30
Dbl-lft	0.53

LOS	Critical Lane Volume	
A	0	999
B	1000	1149
C	1150	1299
D	1300	1449
E	1450	1600
F	1601	9999

Opposing Volume (vph)	PCE
<= 199	1.1
<= 599	2.0
<= 799	3.0
<= 999	4.0
> 1000	5.0

AM Peak Hour

Phase	Movement	(1) Volume	(2) Lane Use Factor	Lane Volume (1) x (2)	(3) Opposing Lefts	(4) Left Turn Lane Use Factor	Lane Volume (3) x (4)	Critical Lane Volume	C
	SB	0	0.00	0	0	1.00	0	0	
	NB	127	1.00	127	0	1.00	0	127	C
	EB	1767	0.53	937	83	1.00	83	1020	C
	WB	568	0.53	301	0	1.00	0	301	
C: Critical Volume							Total	1147	
							V/C	0.72	
							LOS	B	

PM Peak Hour

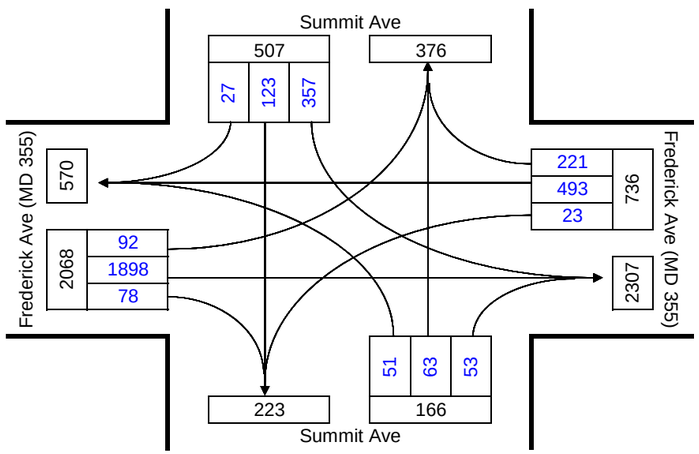
Phase	Movement	(1) Volume	(2) Lane Use Factor	Lane Volume (1) x (2)	(3) Opposing Lefts	(4) Left Turn Lane Use Factor	Lane Volume (3) x (4)	Critical Lane Volume	C
	SB	0	0.00	0	0	1.00	0	0	
	NB	339	1.00	339	0	1.00	0	339	C
	EB	808	0.53	428	132	1.00	132	560	
	WB	1294	0.53	686	0	1.00	0	686	C
C: Critical Volume							Total	1025	
							V/C	0.64	
							LOS	B	

Critical Lane Volume
Level of Service Worksheet

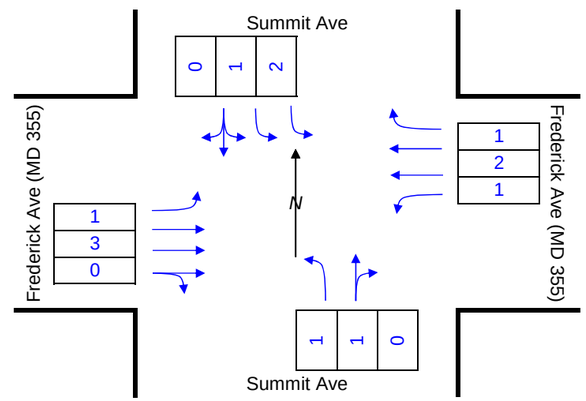
Intersection **Frederick Ave (MD 355) / Summit Ave**
Major Approach: Frederick Ave (MD 355)
Minor Approach: Summit Ave
City/State: Gaithersburg, MD
Scenario: **2025 - Hybrid Median Guideway Alternative**
Analyst: SE

8300 Boone Boulevard, Suite 700
Vienna, Virginia 22182
(703) 847-3071

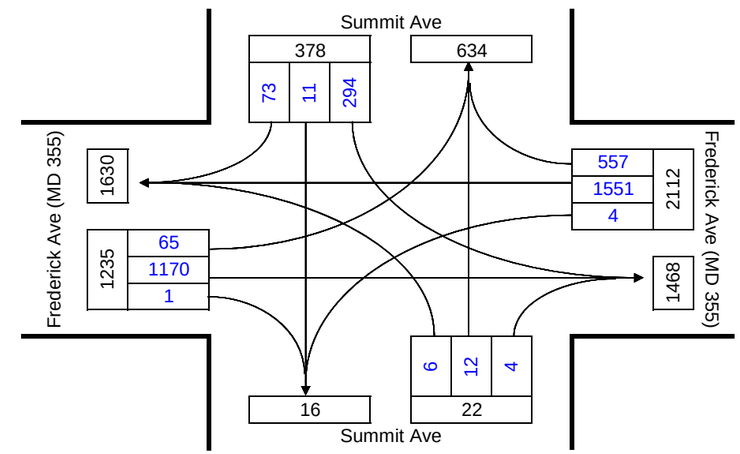
Morning Peak Hour (7-8 AM)



Lane Configuration



Evening Peak Hour (5-6 PM)



N-S Split Phase? Y E-W Split Phase? N

Signal Phases

Intersection Control:

Signal: X Stop: _____
Split: X Ways: _____
# of Phases: _____
Cycle Length: _____ sec.

No. of Lanes	Lane Use Factor
1	1.00
2	0.53
3	0.37
4	0.30
Dbl-lft	0.53

LOS	Critical Lane Volume	
A	0	999
B	1000	1149
C	1150	1299
D	1300	1449
E	1450	1600
F	1601	9999

Opposing Volume (vph)	PCE
<= 199	1.1
<= 599	2.0
<= 799	3.0
<= 999	4.0
> 1000	5.0

AM Peak Hour

Phase	Movement	(1) Volume	(2) Lane Use Factor	Lane Volume (1) x (2)	(3) Opposing Lefts	(4) Left Turn Lane Use Factor	Lane Volume (3) x (4)	Critical Lane Volume	C
	SB	507	0.37	187	51	1.00	51	187	C
	NB	116	1.00	116	357	0.53	189	116	C
	EB	1975	0.37	731	23	1.00	23	754	C
	WB	493	0.53	261	92	1.00	92	354	
C: Critical Volume							Total	1057	
							V/C	0.66	
							LOS	B	

PM Peak Hour

Phase	Movement	(1) Volume	(2) Lane Use Factor	Lane Volume (1) x (2)	(3) Opposing Lefts	(4) Left Turn Lane Use Factor	Lane Volume (3) x (4)	Critical Lane Volume	C
	SB	378	0.37	140	6	1.00	6	140	C
	NB	16	1.00	16	294	0.53	156	16	C
	EB	1171	0.37	433	4	1.00	4	437	
	WB	1551	0.53	822	65	1.00	64.6	887	C
C: Critical Volume							Total	1042	
							V/C	0.65	
							LOS	B	

HCS 2010: Multilane Highways Release 6.65

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	DLL
Agency/Co:	VHB
Date:	8/4/2015
Analysis Period:	Weekday AM Peak Hour
Highway:	Frederick Road (MD 355)
From/To:	Chestnut Ave. to Summit Ave.
Jurisdiction:	Gaithersburg, MD
Analysis Year:	2014 Existing
Project ID:	Gaithersburg MD 355 RTS Feasibility Planning

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	0.0	ft	0.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	6.0	ft	6.0	ft
Access points per mile	23		14	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	1.3	mph	1.3	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	5.8	mph	3.5	mph
Free-flow speed	38.0	mph	40.2	mph

VOLUME

Direction	1		2	
Volume, V	1728	vph	534	vph
Peak-hour factor, PHF	0.92		0.92	
Peak 15-minute volume, v15	470		145	
Trucks and buses	3	%	3	%
Recreational vehicles	0	%	0	%
Terrain type	Level		Level	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	3		3	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.985		0.985	
Flow rate, vp	635	pcphpl	196	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	635	pcphpl	196	pcphpl
Free-flow speed, FFS	38.0	mph	40.2	mph
Avg. passenger-car travel speed, S		mph		mph
Level of service, LOS				
Density, D		pc/mi/ln		pc/mi/ln

_____ Bicycle Level of Service _____

Posted speed limit, Sp		55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	626.1	193.5
Effective width of outside lane, We	12.00	12.00
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	5.03	4.44
Bicycle LOS	E	D

Overall results are not computed when free-flow speed is less than 45 mph.

HCS 2010: Multilane Highways Release 6.65

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst: DLL
Agency/Co: VHB
Date: 8/4/2015
Analysis Period: Weekday AM Peak Hour
Highway: Frederick Road (MD 355)
From/To: Odendhal Road to Chestnut Ave.
Jurisdiction: Gaithersburg, MD
Analysis Year: 2014 Existing
Project ID: Gaithersburg MD 355 RTS Feasibility Planning

FREE-FLOW SPEED

Direction	1		2	
Lane width	10.5	ft	10.5	ft
Lateral clearance:				
Right edge	0.0	ft	0.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	6.0	ft	6.0	ft
Access points per mile	33		40	
Median type	Undivided		Undivided	
Free-flow speed:	Base		Base	
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW	6.6	mph	6.6	mph
Lateral clearance adjustment, FLC	1.3	mph	1.3	mph
Median type adjustment, FM	1.6	mph	1.6	mph
Access points adjustment, FA	8.3	mph	10.0	mph
Free-flow speed	27.3	mph	25.5	mph

VOLUME

Direction	1		2	
Volume, V	1984	vph	587	vph
Peak-hour factor, PHF	0.92		0.92	
Peak 15-minute volume, v15	539		160	
Trucks and buses	3	%	3	%
Recreational vehicles	0	%	0	%
Terrain type	Level		Level	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	3		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.985		0.985	
Flow rate, vp	729	pcphpl	323	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	729	pcphpl	323	pcphpl
Free-flow speed, FFS	27.3	mph	25.5	mph
Avg. passenger-car travel speed, S		mph		mph
Level of service, LOS				
Density, D		pc/mi/ln		pc/mi/ln

_____ Bicycle Level of Service _____

Posted speed limit, Sp		55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	718.8	319.0
Effective width of outside lane, We	10.50	10.50
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	5.27	4.86
Bicycle LOS	E	E

Overall results are not computed when free-flow speed is less than 45 mph.

HCS 2010: Multilane Highways Release 6.65

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst: DLL
Agency/Co: VHB
Date: 8/4/2015
Analysis Period: Weekday PM Peak Hour
Highway: Frederick Road (MD 355)
From/To: Chestnut Ave. to Summit Ave.
Jurisdiction: Gaithersburg, MD
Analysis Year: 2014 Existing
Project ID: Gaithersburg MD 355 RTS Feasibility Planning

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	0.0	ft	0.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	6.0	ft	6.0	ft
Access points per mile	23		14	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	1.3	mph	1.3	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	5.8	mph	3.5	mph
Free-flow speed	38.0	mph	40.2	mph

VOLUME

Direction	1		2	
Volume, V	1065	vph	1396	vph
Peak-hour factor, PHF	0.92		0.92	
Peak 15-minute volume, v15	289		379	
Trucks and buses	3	%	3	%
Recreational vehicles	0	%	0	%
Terrain type	Level		Level	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	3		3	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.985		0.985	
Flow rate, vp	391	pcphpl	513	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	391	pcphpl	513	pcphpl
Free-flow speed, FFS	38.0	mph	40.2	mph
Avg. passenger-car travel speed, S		mph		mph
Level of service, LOS				
Density, D		pc/mi/ln		pc/mi/ln

_____ Bicycle Level of Service _____

Posted speed limit, Sp		55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	385.9	505.8
Effective width of outside lane, We	12.00	12.00
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	4.79	4.93
Bicycle LOS	E	E

Overall results are not computed when free-flow speed is less than 45 mph.

HCS 2010: Multilane Highways Release 6.65

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	DLL
Agency/Co:	VHB
Date:	8/4/2015
Analysis Period:	Weekday PM Peak Hour
Highway:	Frederick Road (MD 355)
From/To:	Odendhal Road to Chestnut Ave.
Jurisdiction:	Gaithersburg, MD
Analysis Year:	2014 Existing
Project ID:	Gaithersburg MD 355 RTS Feasibility Planning

FREE-FLOW SPEED

Direction	1		2	
Lane width	10.5	ft	10.5	ft
Lateral clearance:				
Right edge	0.0	ft	0.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	6.0	ft	6.0	ft
Access points per mile	33		40	
Median type	Undivided		Undivided	
Free-flow speed:	Base		Base	
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW	6.6	mph	6.6	mph
Lateral clearance adjustment, FLC	1.3	mph	1.3	mph
Median type adjustment, FM	1.6	mph	1.6	mph
Access points adjustment, FA	8.3	mph	10.0	mph
Free-flow speed	27.3	mph	25.5	mph

VOLUME

Direction	1		2	
Volume, V	1177	vph	1484	vph
Peak-hour factor, PHF	0.92		0.92	
Peak 15-minute volume, v15	320		403	
Trucks and buses	3	%	3	%
Recreational vehicles	0	%	0	%
Terrain type	Level		Level	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	3		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.985		0.985	
Flow rate, vp	432	pcphpl	818	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	432	pcphpl	818	pcphpl
Free-flow speed, FFS	27.3	mph	25.5	mph
Avg. passenger-car travel speed, S		mph		mph
Level of service, LOS				
Density, D		pc/mi/ln		pc/mi/ln

_____ Bicycle Level of Service _____

Posted speed limit, Sp		55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	426.4	806.5
Effective width of outside lane, We	10.50	10.50
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	5.01	5.33
Bicycle LOS	E	E

Overall results are not computed when free-flow speed is less than 45 mph.

HCS 2010: Multilane Highways Release 6.65

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	DLL
Agency/Co:	VHB
Date:	8/4/2015
Analysis Period:	Weekday AM Peak Hour
Highway:	Frederick Road (MD 355)
From/To:	Chestnut Ave. to Summit Ave.
Jurisdiction:	Gaithersburg, MD
Analysis Year:	2025 RTS Mixed Traffic
Project ID:	Gaithersburg MD 355 RTS Feasibility Planning

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	0.0	ft	0.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	6.0	ft	6.0	ft
Access points per mile	23		14	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	1.3	mph	1.3	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	5.8	mph	3.5	mph
Free-flow speed	38.0	mph	40.2	mph

VOLUME

Direction	1		2	
Volume, V	2065	vph	651	vph
Peak-hour factor, PHF	0.92		0.92	
Peak 15-minute volume, v15	561		177	
Trucks and buses	3	%	3	%
Recreational vehicles	0	%	0	%
Terrain type	Level		Level	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	3		3	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.985		0.985	
Flow rate, vp	759	pcphpl	239	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	759	pcphpl	239	pcphpl
Free-flow speed, FFS	38.0	mph	40.2	mph
Avg. passenger-car travel speed, S		mph		mph
Level of service, LOS				
Density, D		pc/mi/ln		pc/mi/ln

_____ Bicycle Level of Service _____

Posted speed limit, Sp		55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	748.2	235.9
Effective width of outside lane, We	12.00	12.00
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	5.12	4.54
Bicycle LOS	E	E

Overall results are not computed when free-flow speed is less than 45 mph.

HCS 2010: Multilane Highways Release 6.65

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	DLL
Agency/Co:	VHB
Date:	8/4/2015
Analysis Period:	Weekday AM Peak Hour
Highway:	Frederick Road (MD 355)
From/To:	Odendhal Road to Chestnut Ave.
Jurisdiction:	Gaithersburg, MD
Analysis Year:	2025 RTS Mixed Traffic
Project ID:	Gaithersburg MD 355 RTS Feasibility Planning

FREE-FLOW SPEED

Direction	1		2	
Lane width	10.5	ft	10.5	ft
Lateral clearance:				
Right edge	0.0	ft	0.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	6.0	ft	6.0	ft
Access points per mile	33		40	
Median type	Undivided		Undivided	
Free-flow speed:	Base		Base	
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW	6.6	mph	6.6	mph
Lateral clearance adjustment, FLC	1.3	mph	1.3	mph
Median type adjustment, FM	1.6	mph	1.6	mph
Access points adjustment, FA	8.3	mph	10.0	mph
Free-flow speed	27.3	mph	25.5	mph

VOLUME

Direction	1		2	
Volume, V	2379	vph	704	vph
Peak-hour factor, PHF	0.92		0.92	
Peak 15-minute volume, v15	646		191	
Trucks and buses	3	%	3	%
Recreational vehicles	0	%	0	%
Terrain type	Level		Level	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	3		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.985		0.985	
Flow rate, vp	874	pcphpl	388	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	874	pcphpl	388	pcphpl
Free-flow speed, FFS	27.3	mph	25.5	mph
Avg. passenger-car travel speed, S		mph		mph
Level of service, LOS				
Density, D		pc/mi/ln		pc/mi/ln

_____ Bicycle Level of Service _____

Posted speed limit, Sp		55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	862.0	382.6
Effective width of outside lane, We	10.50	10.50
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	5.37	4.95
Bicycle LOS	E	E

Overall results are not computed when free-flow speed is less than 45 mph.

HCS 2010: Multilane Highways Release 6.65

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	DLL
Agency/Co:	VHB
Date:	8/4/2015
Analysis Period:	Weekday PM Peak Hour
Highway:	Frederick Road (MD 355)
From/To:	Chestnut Ave. to Summit Ave.
Jurisdiction:	Gaithersburg, MD
Analysis Year:	2025 RTS Mixed Traffic
Project ID:	Gaithersburg MD 355 RTS Feasibility Planning

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	0.0	ft	0.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	6.0	ft	6.0	ft
Access points per mile	23		14	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	1.3	mph	1.3	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	5.8	mph	3.5	mph
Free-flow speed	38.0	mph	40.2	mph

VOLUME

Direction	1		2	
Volume, V	1273	vph	2126	vph
Peak-hour factor, PHF	0.92		0.92	
Peak 15-minute volume, v15	346		578	
Trucks and buses	3	%	3	%
Recreational vehicles	0	%	0	%
Terrain type	Level		Level	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	3		3	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.985		0.985	
Flow rate, vp	468	pcphpl	781	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	468	pcphpl	781	pcphpl
Free-flow speed, FFS	38.0	mph	40.2	mph
Avg. passenger-car travel speed, S		mph		mph
Level of service, LOS				
Density, D		pc/mi/ln		pc/mi/ln

_____ Bicycle Level of Service _____

Posted speed limit, Sp		55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	461.2	770.3
Effective width of outside lane, We	12.00	12.00
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	4.88	5.14
Bicycle LOS	E	E

Overall results are not computed when free-flow speed is less than 45 mph.

HCS 2010: Multilane Highways Release 6.65

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	DLL
Agency/Co:	VHB
Date:	8/4/2015
Analysis Period:	Weekday PM Peak Hour
Highway:	Frederick Road (MD 355)
From/To:	Odendhal Road to Chestnut Ave.
Jurisdiction:	Gaithersburg, MD
Analysis Year:	2025 RTS Mixed Traffic
Project ID:	Gaithersburg MD 355 RTS Feasibility Planning

FREE-FLOW SPEED

Direction	1		2	
Lane width	10.5	ft	10.5	ft
Lateral clearance:				
Right edge	0.0	ft	0.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	6.0	ft	6.0	ft
Access points per mile	33		40	
Median type	Undivided		Undivided	
Free-flow speed:	Base		Base	
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW	6.6	mph	6.6	mph
Lateral clearance adjustment, FLC	1.3	mph	1.3	mph
Median type adjustment, FM	1.6	mph	1.6	mph
Access points adjustment, FA	8.3	mph	10.0	mph
Free-flow speed	27.3	mph	25.5	mph

VOLUME

Direction	1		2	
Volume, V	1410	vph	1780	vph
Peak-hour factor, PHF	0.92		0.92	
Peak 15-minute volume, v15	383		484	
Trucks and buses	3	%	3	%
Recreational vehicles	0	%	0	%
Terrain type	Level		Level	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	3		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.985		0.985	
Flow rate, vp	518	pcphpl	981	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	518	pcphpl	981	pcphpl
Free-flow speed, FFS	27.3	mph	25.5	mph
Avg. passenger-car travel speed, S		mph		mph
Level of service, LOS				
Density, D		pc/mi/ln		pc/mi/ln

_____ Bicycle Level of Service _____

Posted speed limit, Sp		55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	510.9	967.4
Effective width of outside lane, We	10.50	10.50
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	5.10	5.42
Bicycle LOS	E	E

Overall results are not computed when free-flow speed is less than 45 mph.

HCS 2010: Multilane Highways Release 6.65

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	DLL
Agency/Co:	VHB
Date:	8/4/2015
Analysis Period:	Weekday AM Peak Hour
Highway:	Frederick Road (MD 355)
From/To:	Chestnut Ave. to Summit Ave.
Jurisdiction:	Gaithersburg, MD
Analysis Year:	2025 RTS Standard & Min. Alts.
Project ID:	Gaithersburg MD 355 RTS Feasibility Planning

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	0.0	ft	0.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	6.0	ft	6.0	ft
Access points per mile	23		14	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	1.3	mph	1.3	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	5.8	mph	3.5	mph
Free-flow speed	38.0	mph	40.2	mph

VOLUME

Direction	1		2	
Volume, V	2081	vph	741	vph
Peak-hour factor, PHF	0.92		0.92	
Peak 15-minute volume, v15	565		201	
Trucks and buses	3	%	3	%
Recreational vehicles	0	%	0	%
Terrain type	Level		Level	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	3		3	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.985		0.985	
Flow rate, vp	765	pcphpl	272	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	765	pcphpl	272	pcphpl
Free-flow speed, FFS	38.0	mph	40.2	mph
Avg. passenger-car travel speed, S		mph		mph
Level of service, LOS				
Density, D		pc/mi/ln		pc/mi/ln

_____ Bicycle Level of Service _____

Posted speed limit, Sp		55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	754.0	268.5
Effective width of outside lane, We	12.00	12.00
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	5.13	4.60
Bicycle LOS	E	E

Overall results are not computed when free-flow speed is less than 45 mph.

HCS 2010: Multilane Highways Release 6.65

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	DLL
Agency/Co:	VHB
Date:	8/4/2015
Analysis Period:	Weekday AM Peak Hour
Highway:	Frederick Road (MD 355)
From/To:	Odendhal Road to Chestnut Ave.
Jurisdiction:	Gaithersburg, MD
Analysis Year:	2025 RTS Standard & Min. Alts.
Project ID:	Gaithersburg MD 355 RTS Feasibility Planning

FREE-FLOW SPEED

Direction	1		2	
Lane width	10.5	ft	10.5	ft
Lateral clearance:				
Right edge	0.0	ft	0.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	6.0	ft	6.0	ft
Access points per mile	33		40	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW	6.6	mph	6.6	mph
Lateral clearance adjustment, FLC	1.3	mph	1.3	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	8.3	mph	10.0	mph
Free-flow speed	28.9	mph	27.1	mph

VOLUME

Direction	1		2	
Volume, V	2349	vph	737	vph
Peak-hour factor, PHF	0.92		0.92	
Peak 15-minute volume, v15	638		200	
Trucks and buses	3	%	3	%
Recreational vehicles	0	%	0	%
Terrain type	Level		Level	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	3		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.985		0.985	
Flow rate, vp	863	pcphpl	406	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	863	pcphpl	406	pcphpl
Free-flow speed, FFS	28.9	mph	27.1	mph
Avg. passenger-car travel speed, S		mph		mph
Level of service, LOS				
Density, D		pc/mi/ln		pc/mi/ln

_____ Bicycle Level of Service _____

Posted speed limit, Sp		55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	851.1	400.5
Effective width of outside lane, We	10.50	10.50
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	5.36	4.98
Bicycle LOS	E	E

Overall results are not computed when free-flow speed is less than 45 mph.

HCS 2010: Multilane Highways Release 6.65

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	DLL
Agency/Co:	VHB
Date:	8/4/2015
Analysis Period:	Weekday PM Peak Hour
Highway:	Frederick Road (MD 355)
From/To:	Chestnut Ave. to Summit Ave.
Jurisdiction:	Gaithersburg, MD
Analysis Year:	2025 RTS Standard & Min. Alts
Project ID:	Gaithersburg MD 355 RTS Feasibility Planning

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	0.0	ft	0.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	6.0	ft	6.0	ft
Access points per mile	23		14	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	1.3	mph	1.3	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	5.8	mph	3.5	mph
Free-flow speed	38.0	mph	40.2	mph

VOLUME

Direction	1		2	
Volume, V	1243	vph	1640	vph
Peak-hour factor, PHF	0.92		0.92	
Peak 15-minute volume, v15	338		446	
Trucks and buses	3	%	3	%
Recreational vehicles	0	%	0	%
Terrain type	Level		Level	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	3		3	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.985		0.985	
Flow rate, vp	457	pcphpl	603	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	457	pcphpl	603	pcphpl
Free-flow speed, FFS	38.0	mph	40.2	mph
Avg. passenger-car travel speed, S		mph		mph
Level of service, LOS				
Density, D		pc/mi/ln		pc/mi/ln

_____ Bicycle Level of Service _____

Posted speed limit, Sp		55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	450.4	594.2
Effective width of outside lane, We	12.00	12.00
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	4.87	5.01
Bicycle LOS	E	E

Overall results are not computed when free-flow speed is less than 45 mph.

HCS 2010: Multilane Highways Release 6.65

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	DLL
Agency/Co:	VHB
Date:	8/4/2015
Analysis Period:	Weekday PM Peak Hour
Highway:	Frederick Road (MD 355)
From/To:	Odendhal Road to Chestnut Ave.
Jurisdiction:	Gaithersburg, MD
Analysis Year:	2025 RTS Standard & Min. Alts
Project ID:	Gaithersburg MD 355 RTS Feasibility Planning

FREE-FLOW SPEED

Direction	1		2	
Lane width	10.5	ft	10.5	ft
Lateral clearance:				
Right edge	0.0	ft	0.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	6.0	ft	6.0	ft
Access points per mile	33		40	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW	6.6	mph	6.6	mph
Lateral clearance adjustment, FLC	1.3	mph	1.3	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	8.3	mph	10.0	mph
Free-flow speed	28.9	mph	27.1	mph

VOLUME

Direction	1		2	
Volume, V	1346	vph	1799	vph
Peak-hour factor, PHF	0.92		0.92	
Peak 15-minute volume, v15	366		489	
Trucks and buses	3	%	3	%
Recreational vehicles	0	%	0	%
Terrain type	Level		Level	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	3		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.985		0.985	
Flow rate, vp	494	pcphpl	992	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	494	pcphpl	992	pcphpl
Free-flow speed, FFS	28.9	mph	27.1	mph
Avg. passenger-car travel speed, S		mph		mph
Level of service, LOS				
Density, D		pc/mi/ln		pc/mi/ln

_____ Bicycle Level of Service _____

Posted speed limit, Sp		55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	487.7	977.7
Effective width of outside lane, We	10.50	10.50
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	5.08	5.43
Bicycle LOS	E	E

Overall results are not computed when free-flow speed is less than 45 mph.

HCS 2010: Multilane Highways Release 6.65

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	DLL
Agency/Co:	VHB
Date:	8/4/2015
Analysis Period:	Weekday AM Peak Hour
Highway:	Frederick Road (MD 355)
From/To:	Chestnut Ave. to Summit Ave.
Jurisdiction:	Gaithersburg, MD
Analysis Year:	2025 RTS Dual RI & Lane Repur.
Project ID:	Gaithersburg MD 355 RTS Feasibility Planning

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	0.0	ft	0.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	6.0	ft	6.0	ft
Access points per mile	23		14	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	1.3	mph	1.3	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	5.8	mph	3.5	mph
Free-flow speed	38.0	mph	40.2	mph

VOLUME

Direction	1		2	
Volume, V	2068	vph	651	vph
Peak-hour factor, PHF	0.92		0.92	
Peak 15-minute volume, v15	562		177	
Trucks and buses	3	%	3	%
Recreational vehicles	0	%	0	%
Terrain type	Level		Level	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	3		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.985		0.985	
Flow rate, vp	760	pcphpl	359	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	760	pcphpl	359	pcphpl
Free-flow speed, FFS	38.0	mph	40.2	mph
Avg. passenger-car travel speed, S		mph		mph
Level of service, LOS				
Density, D		pc/mi/ln		pc/mi/ln

_____ Bicycle Level of Service _____

Posted speed limit, Sp		55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	749.3	353.8
Effective width of outside lane, We	12.00	12.00
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	5.13	4.75
Bicycle LOS	E	E

Overall results are not computed when free-flow speed is less than 45 mph.

HCS 2010: Multilane Highways Release 6.65

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	DLL
Agency/Co:	VHB
Date:	8/4/2015
Analysis Period:	Weekday AM Peak Hour
Highway:	Frederick Road (MD 355)
From/To:	Odendhal Road to Chestnut Ave.
Jurisdiction:	Gaithersburg, MD
Analysis Year:	2025 RTS Dual RI & Lane Repur.
Project ID:	Gaithersburg MD 355 RTS Feasibility Planning

FREE-FLOW SPEED

Direction	1		2	
Lane width	10.5	ft	10.5	ft
Lateral clearance:				
Right edge	0.0	ft	0.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	6.0	ft	6.0	ft
Access points per mile	33		40	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW	6.6	mph	6.6	mph
Lateral clearance adjustment, FLC	1.3	mph	1.3	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	8.3	mph	10.0	mph
Free-flow speed	28.9	mph	27.1	mph

VOLUME

Direction	1		2	
Volume, V	2289	vph	718	vph
Peak-hour factor, PHF	0.92		0.92	
Peak 15-minute volume, v15	622		195	
Trucks and buses	3	%	3	%
Recreational vehicles	0	%	0	%
Terrain type	Level		Level	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.985		0.985	
Flow rate, vp	1262	pcphpl	396	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	1262	pcphpl	396	pcphpl
Free-flow speed, FFS	28.9	mph	27.1	mph
Avg. passenger-car travel speed, S		mph		mph
Level of service, LOS				
Density, D		pc/mi/ln		pc/mi/ln

_____ Bicycle Level of Service _____

Posted speed limit, Sp		55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	1244.0	390.2
Effective width of outside lane, We	10.50	10.50
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	5.55	4.96
Bicycle LOS	F	E

Overall results are not computed when free-flow speed is less than 45 mph.

HCS 2010: Multilane Highways Release 6.65

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	DLL
Agency/Co:	VHB
Date:	8/4/2015
Analysis Period:	Weekday PM Peak Hour
Highway:	Frederick Road (MD 355)
From/To:	Chestnut Ave. to Summit Ave.
Jurisdiction:	Gaithersburg, MD
Analysis Year:	2025 RTS Dual RI & Lane Repur.
Project ID:	Gaithersburg MD 355 RTS Feasibility Planning

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	0.0	ft	0.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	6.0	ft	6.0	ft
Access points per mile	23		14	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	1.3	mph	1.3	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	5.8	mph	3.5	mph
Free-flow speed	38.0	mph	40.2	mph

VOLUME

Direction	1		2	
Volume, V	1235	vph	1630	vph
Peak-hour factor, PHF	0.92		0.92	
Peak 15-minute volume, v15	336		443	
Trucks and buses	3	%	3	%
Recreational vehicles	0	%	0	%
Terrain type	Level		Level	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	3		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.985		0.985	
Flow rate, vp	454	pcphpl	899	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	454	pcphpl	899	pcphpl
Free-flow speed, FFS	38.0	mph	40.2	mph
Avg. passenger-car travel speed, S		mph		mph
Level of service, LOS				
Density, D		pc/mi/ln		pc/mi/ln

_____ Bicycle Level of Service _____

Posted speed limit, Sp		55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	447.5	885.9
Effective width of outside lane, We	12.00	12.00
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	4.86	5.21
Bicycle LOS	E	E

Overall results are not computed when free-flow speed is less than 45 mph.

HCS 2010: Multilane Highways Release 6.65

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	DLL
Agency/Co:	VHB
Date:	8/4/2015
Analysis Period:	Weekday PM Peak Hour
Highway:	Frederick Road (MD 355)
From/To:	Odendhal Road to Chestnut Ave.
Jurisdiction:	Gaithersburg, MD
Analysis Year:	2025 RTS Dual RI & Lane Repur.
Project ID:	Gaithersburg MD 355 RTS Feasibility Planning

FREE-FLOW SPEED

Direction	1		2	
Lane width	10.5	ft	10.5	ft
Lateral clearance:				
Right edge	0.0	ft	0.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	6.0	ft	6.0	ft
Access points per mile	33		40	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW	6.6	mph	6.6	mph
Lateral clearance adjustment, FLC	1.3	mph	1.3	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	8.3	mph	10.0	mph
Free-flow speed	28.9	mph	27.1	mph

VOLUME

Direction	1		2	
Volume, V	1312	vph	1753	vph
Peak-hour factor, PHF	0.92		0.92	
Peak 15-minute volume, v15	357		476	
Trucks and buses	3	%	3	%
Recreational vehicles	0	%	0	%
Terrain type	Level		Level	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.985		0.985	
Flow rate, vp	723	pcphpl	967	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	723	pcphpl	967	pcphpl
Free-flow speed, FFS	28.9	mph	27.1	mph
Avg. passenger-car travel speed, S		mph		mph
Level of service, LOS				
Density, D		pc/mi/ln		pc/mi/ln

_____ Bicycle Level of Service _____

Posted speed limit, Sp		55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	713.0	952.7
Effective width of outside lane, We	10.50	10.50
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	5.27	5.42
Bicycle LOS	E	E

Overall results are not computed when free-flow speed is less than 45 mph.

HCS 2010: Multilane Highways Release 6.65

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst: DLL
Agency/Co: VHB
Date: 8/4/2015
Analysis Period: Weekday AM Peak Hour
Highway: Frederick Road (MD 355)
From/To: Chestnut Ave. to Summit Ave.
Jurisdiction: Gaithersburg, MD
Analysis Year: 2025 RTS Single-lane RI
Project ID: Gaithersburg MD 355 RTS Feasibility Planning

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	0.0	ft	0.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	6.0	ft	6.0	ft
Access points per mile	23		14	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	1.3	mph	1.3	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	5.8	mph	3.5	mph
Free-flow speed	38.0	mph	40.2	mph

VOLUME

Direction	1		2	
Volume, V	2081	vph	651	vph
Peak-hour factor, PHF	0.92		0.92	
Peak 15-minute volume, v15	565		177	
Trucks and buses	3	%	3	%
Recreational vehicles	0	%	0	%
Terrain type	Level		Level	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	3		3	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.985		0.985	
Flow rate, vp	765	pcphpl	239	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	765	pcphpl	239	pcphpl
Free-flow speed, FFS	38.0	mph	40.2	mph
Avg. passenger-car travel speed, S		mph		mph
Level of service, LOS				
Density, D		pc/mi/ln		pc/mi/ln

_____ Bicycle Level of Service _____

Posted speed limit, Sp		55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	754.0	235.9
Effective width of outside lane, We	12.00	12.00
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	5.13	4.54
Bicycle LOS	E	E

Overall results are not computed when free-flow speed is less than 45 mph.

HCS 2010: Multilane Highways Release 6.65

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst: DLL
Agency/Co: VHB
Date: 8/4/2015
Analysis Period: Weekday AM Peak Hour
Highway: Frederick Road (MD 355)
From/To: Odendhal Road to Chestnut Ave.
Jurisdiction: Gaithersburg, MD
Analysis Year: 2025 RTS Single-lane RI
Project ID: Gaithersburg MD 355 RTS Feasibility Planning

FREE-FLOW SPEED

Direction	1		2	
Lane width	10.5	ft	10.5	ft
Lateral clearance:				
Right edge	0.0	ft	0.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	6.0	ft	6.0	ft
Access points per mile	33		40	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW	6.6	mph	6.6	mph
Lateral clearance adjustment, FLC	1.3	mph	1.3	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	8.3	mph	10.0	mph
Free-flow speed	28.9	mph	27.1	mph

VOLUME

Direction	1		2	
Volume, V	2289	vph	718	vph
Peak-hour factor, PHF	0.92		0.92	
Peak 15-minute volume, v15	622		195	
Trucks and buses	3	%	3	%
Recreational vehicles	0	%	0	%
Terrain type	Level		Level	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.985		0.985	
Flow rate, vp	1262	pcphpl	396	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	1262	pcphpl	396	pcphpl
Free-flow speed, FFS	28.9	mph	27.1	mph
Avg. passenger-car travel speed, S		mph		mph
Level of service, LOS				
Density, D		pc/mi/ln		pc/mi/ln

_____ Bicycle Level of Service _____

Posted speed limit, Sp		55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	1244.0	390.2
Effective width of outside lane, We	10.50	10.50
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	5.55	4.96
Bicycle LOS	F	E

Overall results are not computed when free-flow speed is less than 45 mph.

HCS 2010: Multilane Highways Release 6.65

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	DLL
Agency/Co:	VHB
Date:	8/4/2015
Analysis Period:	Weekday PM Peak Hour
Highway:	Frederick Road (MD 355)
From/To:	Chestnut Ave. to Summit Ave.
Jurisdiction:	Gaithersburg, MD
Analysis Year:	2025 RTS Single-lane RI
Project ID:	Gaithersburg MD 355 RTS Feasibility Planning

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	0.0	ft	0.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	6.0	ft	6.0	ft
Access points per mile	23		14	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	1.3	mph	1.3	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	5.8	mph	3.5	mph
Free-flow speed	38.0	mph	40.2	mph

VOLUME

Direction	1		2	
Volume, V	1243	vph	1640	vph
Peak-hour factor, PHF	0.92		0.92	
Peak 15-minute volume, v15	338		446	
Trucks and buses	3	%	3	%
Recreational vehicles	0	%	0	%
Terrain type	Level		Level	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	3		3	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.985		0.985	
Flow rate, vp	457	pcphpl	603	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	457	pcphpl	603	pcphpl
Free-flow speed, FFS	38.0	mph	40.2	mph
Avg. passenger-car travel speed, S		mph		mph
Level of service, LOS				
Density, D		pc/mi/ln		pc/mi/ln

_____ Bicycle Level of Service _____

Posted speed limit, Sp		55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	450.4	594.2
Effective width of outside lane, We	12.00	12.00
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	4.87	5.01
Bicycle LOS	E	E

Overall results are not computed when free-flow speed is less than 45 mph.

HCS 2010: Multilane Highways Release 6.65

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	DLL
Agency/Co:	VHB
Date:	8/4/2015
Analysis Period:	Weekday PM Peak Hour
Highway:	Frederick Road (MD 355)
From/To:	Odendhal Road to Chestnut Ave.
Jurisdiction:	Gaithersburg, MD
Analysis Year:	2025 RTS Single-lane RI
Project ID:	Gaithersburg MD 355 RTS Feasibility Planning

FREE-FLOW SPEED

Direction	1		2	
Lane width	10.5	ft	10.5	ft
Lateral clearance:				
Right edge	0.0	ft	0.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	6.0	ft	6.0	ft
Access points per mile	33		40	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW	6.6	mph	6.6	mph
Lateral clearance adjustment, FLC	1.3	mph	1.3	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	8.3	mph	10.0	mph
Free-flow speed	28.9	mph	27.1	mph

VOLUME

Direction	1		2	
Volume, V	1312	vph	1753	vph
Peak-hour factor, PHF	0.92		0.92	
Peak 15-minute volume, v15	357		476	
Trucks and buses	3	%	3	%
Recreational vehicles	0	%	0	%
Terrain type	Level		Level	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.985		0.985	
Flow rate, vp	723	pcphpl	967	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	723	pcphpl	967	pcphpl
Free-flow speed, FFS	28.9	mph	27.1	mph
Avg. passenger-car travel speed, S		mph		mph
Level of service, LOS				
Density, D		pc/mi/ln		pc/mi/ln

_____ Bicycle Level of Service _____

Posted speed limit, Sp		55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	713.0	952.7
Effective width of outside lane, We	10.50	10.50
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	5.27	5.42
Bicycle LOS	E	E

Overall results are not computed when free-flow speed is less than 45 mph.

HCS 2010: Multilane Highways Release 6.65

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	DLL
Agency/Co:	VHB
Date:	8/4/2015
Analysis Period:	Weekday AM Peak Hour
Highway:	Frederick Road (MD 355)
From/To:	Chestnut Ave. to Summit Ave.
Jurisdiction:	Gaithersburg, MD
Analysis Year:	2025 RTS Hybrid Dual/Single
Project ID:	Gaithersburg MD 355 RTS Feasibility Planning

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	0.0	ft	0.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	6.0	ft	6.0	ft
Access points per mile	23		14	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	1.3	mph	1.3	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	5.8	mph	3.5	mph
Free-flow speed	38.0	mph	40.2	mph

VOLUME

Direction	1		2	
Volume, V	2068	vph	651	vph
Peak-hour factor, PHF	0.92		0.92	
Peak 15-minute volume, v15	562		177	
Trucks and buses	3	%	3	%
Recreational vehicles	0	%	0	%
Terrain type	Level		Level	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	3		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.985		0.985	
Flow rate, vp	760	pcphpl	359	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	760	pcphpl	359	pcphpl
Free-flow speed, FFS	38.0	mph	40.2	mph
Avg. passenger-car travel speed, S		mph		mph
Level of service, LOS				
Density, D		pc/mi/ln		pc/mi/ln

_____ Bicycle Level of Service _____

Posted speed limit, Sp		55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	749.3	353.8
Effective width of outside lane, We	12.00	12.00
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	5.13	4.75
Bicycle LOS	E	E

Overall results are not computed when free-flow speed is less than 45 mph.

HCS 2010: Multilane Highways Release 6.65

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	DLL
Agency/Co:	VHB
Date:	8/4/2015
Analysis Period:	Weekday AM Peak Hour
Highway:	Frederick Road (MD 355)
From/To:	Odendhal Road to Chestnut Ave.
Jurisdiction:	Gaithersburg, MD
Analysis Year:	2025 RTS Hybrid Dual/Single
Project ID:	Gaithersburg MD 355 RTS Feasibility Planning

FREE-FLOW SPEED

Direction	1		2	
Lane width	10.5	ft	10.5	ft
Lateral clearance:				
Right edge	0.0	ft	0.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	6.0	ft	6.0	ft
Access points per mile	33		40	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW	6.6	mph	6.6	mph
Lateral clearance adjustment, FLC	1.3	mph	1.3	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	8.3	mph	10.0	mph
Free-flow speed	28.9	mph	27.1	mph

VOLUME

Direction	1		2	
Volume, V	2334	vph	732	vph
Peak-hour factor, PHF	0.92		0.92	
Peak 15-minute volume, v15	634		199	
Trucks and buses	3	%	3	%
Recreational vehicles	0	%	0	%
Terrain type	Level		Level	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	3		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.985		0.985	
Flow rate, vp	858	pcphpl	403	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	858	pcphpl	403	pcphpl
Free-flow speed, FFS	28.9	mph	27.1	mph
Avg. passenger-car travel speed, S		mph		mph
Level of service, LOS				
Density, D		pc/mi/ln		pc/mi/ln

_____ Bicycle Level of Service _____

Posted speed limit, Sp		55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	845.7	397.8
Effective width of outside lane, We	10.50	10.50
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	5.36	4.97
Bicycle LOS	E	E

Overall results are not computed when free-flow speed is less than 45 mph.

HCS 2010: Multilane Highways Release 6.65

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	DLL
Agency/Co:	VHB
Date:	8/4/2015
Analysis Period:	Weekday PM Peak Hour
Highway:	Frederick Road (MD 355)
From/To:	Chestnut Ave. to Summit Ave.
Jurisdiction:	Gaithersburg, MD
Analysis Year:	2025 RTS Hybrid Dual/Single
Project ID:	Gaithersburg MD 355 RTS Feasibility Planning

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	0.0	ft	0.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	6.0	ft	6.0	ft
Access points per mile	23		14	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	1.3	mph	1.3	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	5.8	mph	3.5	mph
Free-flow speed	38.0	mph	40.2	mph

VOLUME

Direction	1		2	
Volume, V	1235	vph	1630	vph
Peak-hour factor, PHF	0.92		0.92	
Peak 15-minute volume, v15	336		443	
Trucks and buses	3	%	3	%
Recreational vehicles	0	%	0	%
Terrain type	Level		Level	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	3		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.985		0.985	
Flow rate, vp	454	pcphpl	899	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	454	pcphpl	899	pcphpl
Free-flow speed, FFS	38.0	mph	40.2	mph
Avg. passenger-car travel speed, S		mph		mph
Level of service, LOS				
Density, D		pc/mi/ln		pc/mi/ln

_____ Bicycle Level of Service _____

Posted speed limit, Sp		55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	447.5	885.9
Effective width of outside lane, We	12.00	12.00
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	4.86	5.21
Bicycle LOS	E	E

Overall results are not computed when free-flow speed is less than 45 mph.

HCS 2010: Multilane Highways Release 6.65

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	DLL
Agency/Co:	VHB
Date:	8/4/2015
Analysis Period:	Weekday PM Peak Hour
Highway:	Frederick Road (MD 355)
From/To:	Odendhal Road to Chestnut Ave.
Jurisdiction:	Gaithersburg, MD
Analysis Year:	2025 RTS Hybrid Dual/Single
Project ID:	Gaithersburg MD 355 RTS Feasibility Planning

FREE-FLOW SPEED

Direction	1		2	
Lane width	10.5	ft	10.5	ft
Lateral clearance:				
Right edge	0.0	ft	0.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	6.0	ft	6.0	ft
Access points per mile	33		40	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW	6.6	mph	6.6	mph
Lateral clearance adjustment, FLC	1.3	mph	1.3	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	8.3	mph	10.0	mph
Free-flow speed	28.9	mph	27.1	mph

VOLUME

Direction	1		2	
Volume, V	1337	vph	1788	vph
Peak-hour factor, PHF	0.92		0.92	
Peak 15-minute volume, v15	363		486	
Trucks and buses	3	%	3	%
Recreational vehicles	0	%	0	%
Terrain type	Level		Level	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	3		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.985		0.985	
Flow rate, vp	491	pcphpl	986	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	491	pcphpl	986	pcphpl
Free-flow speed, FFS	28.9	mph	27.1	mph
Avg. passenger-car travel speed, S		mph		mph
Level of service, LOS				
Density, D		pc/mi/ln		pc/mi/ln

_____ Bicycle Level of Service _____

Posted speed limit, Sp		55
Percent of segment with occupied on-highway parking	0	0
Pavement rating, P	3	3
Flow rate in outside lane, vOL	484.4	971.7
Effective width of outside lane, We	10.50	10.50
Effective speed factor, St	4.79	4.79
Bicycle LOS Score, BLOS	5.07	5.43
Bicycle LOS	E	E

Overall results are not computed when free-flow speed is less than 45 mph.

	MD 355 Southbound				MD 355 Northbound			
	Odendhal Ave to Chestnut Street		Chestnut Street to Summit Ave		Odendhal Ave to Chestnut Street		Chestnut Street to Summit Ave	
Condition	Flow-Rate	FFS	Flow-Rate	FFS	Flow-Rate	FFS	Flow-Rate	FFS
Existing Condition								
Weekday AM Peak Hour	729	27.3	635	38.0	323	25.5	196	40.2
Weekday PM Peak Hour	432	27.3	391	38.0	818	25.5	513	40.2
2025 Mixed Traffic								
Weekday AM Peak Hour	874	27.3	759	38.0	388	25.5	239	40.2
Weekday PM Peak Hour	518	27.3	468	38.0	981	25.5	781	40.2
2025 RTS Dual-lane Standard								
Weekday AM Peak Hour	863	28.9	765	38.0	406	27.1	272	40.2
Weekday PM Peak Hour	494	28.9	457	38.0	992	27.1	603	40.2
2025 RTS Dual-lane Minimum								
Weekday AM Peak Hour	863	28.9	765	38.0	406	27.1	272	40.2
Weekday PM Peak Hour	494	28.9	457	38.0	992	27.1	603	40.2
2025 RTS Dual-lane Reduced Impact								
Weekday AM Peak Hour	1,262	28.9	760	38.0	396	27.1	359	40.2
Weekday PM Peak Hour	723	28.9	454	38.0	967	27.1	899	40.2
2025 RTS Single-lane Standard								
Weekday AM Peak Hour	863	28.9	765	38.0	406	27.1	272	40.2
Weekday PM Peak Hour	494	28.9	457	38.0	992	27.1	603	40.2
2025 RTS Single-lane Minimum								
Weekday AM Peak Hour	863	28.9	765	38.0	406	27.1	272	40.2
Weekday PM Peak Hour	494	28.9	457	38.0	992	27.1	603	40.2
2025 RTS Single-lane Reduced Impact								
Weekday AM Peak Hour	1,262	28.9	765	38.0	396	27.1	239	40.2
Weekday PM Peak Hour	723	28.9	457	38.0	967	27.1	603	40.2
2025 RTS Lane Repurposing								
Weekday AM Peak Hour	1,262	28.9	760	38.0	396	27.1	359	40.2
Weekday PM Peak Hour	723	28.9	454	38.0	967	27.1	899	40.2
2025 RTS Hybrid Dual/Single Lane								
Weekday AM Peak Hour	858	28.9	760	38.0	403	27.1	359	40.2
Weekday PM Peak Hour	491	28.9	454	38.0	986	27.1	899	40.2

	MD 355 Southbound				MD 355 Northbound			
	Odendhal Ave to Chestnut Street		Chestnut Street to Summit Ave		Odendhal Ave to Chestnut Street		Chestnut Street to Summit Ave	
Condition	Density	LOS	Density	LOS	Density	LOS	Density	LOS
Existing Condition								
Weekday AM Peak Hour	26.7	D	16.7	B	12.7	B	4.9	A
Weekday PM Peak Hour	15.8	B	10.3	A	32.1	D	12.8	B
2025 Mixed Traffic								
Weekday AM Peak Hour	32.0	D	20.0	C	15.2	B	5.9	A
Weekday PM Peak Hour	19.0	C	12.3	B	38.5	E	19.4	C
2025 RTS Dual-lane Standard								
Weekday AM Peak Hour	29.9	D	20.1	C	15.0	B	6.8	A
Weekday PM Peak Hour	17.1	B	12.0	B	36.6	E	15.0	B
2025 RTS Dual-lane Minimum								
Weekday AM Peak Hour	29.9	D	20.1	C	15.0	B	6.8	A
Weekday PM Peak Hour	17.1	B	12.0	B	36.6	E	15.0	B
2025 RTS Dual-lane Reduced Impact								
Weekday AM Peak Hour	43.7	E	20.0	C	14.6	B	8.9	A
Weekday PM Peak Hour	25.0	C	11.9	B	35.7	E	22.4	C
2025 RTS Single-lane Standard								
Weekday AM Peak Hour	29.9	D	20.1	C	15.0	B	6.8	A
Weekday PM Peak Hour	17.1	B	12.0	B	36.6	E	15.0	B
2025 RTS Single-lane Minimum								
Weekday AM Peak Hour	29.9	D	20.1	C	15.0	B	6.8	A
Weekday PM Peak Hour	17.1	B	12.0	B	36.6	E	15.0	B
2025 RTS Single-lane Reduced Impact								
Weekday AM Peak Hour	43.7	E	20.1	C	14.6	B	5.9	A
Weekday PM Peak Hour	25.0	C	12.0	B	35.7	E	15.0	B
2025 RTS Lane Repurposing								
Weekday AM Peak Hour	43.7	E	20.0	C	14.6	B	8.9	A
Weekday PM Peak Hour	25.0	C	11.9	B	35.7	E	22.4	C
2025 RTS Hybrid Dual/Single Lane								
Weekday AM Peak Hour	29.7	D	20.0	C	14.9	B	8.9	A
Weekday PM Peak Hour	17.0	B	11.9	B	36.4	E	22.4	C

Gaithersburg Route 355 RTS
Capital Cost Estimates
Revised 8/19/2015

Dual Lane Median Standard BRT Alternative

		Guideway Treatments (per linear foot; PLF)																	Traffic Signal / Full Intersection Reconstruction Improvements (EACH) (in thousands)						
BRT Corridor	**Total Route Length**	**2 Lane Side**	**Repur-posing Lanes**	**Managed Lanes**	**2 Lane Median**	**1 Lane Median**	**Mixed Traffic**	**Median Cycle Track**	**Relocate Utility Poles**	**1 Lane Road Widen**	**2 Lane Road Widen**	**3 Lane Road Widen**	**10' high ret wall (PLF)**	**Bridges (SF)**	**Route Length**	**Route Length**	**Contingency**	**Total Guideway Cost**	**Queue Jump**	**TSP Per Int**	**Sig LT Turn Lane**	**Sig 2 LT Turn Lane**	**Total # Sig Inter**	**Contingency**	**Total Signalized Int. Cost**
Unit Cost (PLF), in thousands	*Miles*	*$1,000*	*$20*	*$20*	*$1,000*	*$800*	*$20*	*$380*	*$350*	*$550*	*$820*	*$1,370*	*$2,500*	*$450*	*feet*	*miles*			*$665*	*$80*	*$1,083*	*$2,157*			
Route 355 (North of Odendhal)	1.61	-	-	-	3,583		-	-	16,966	-	3,583		-	-	3,583	0.68	50%	$18,689,000	-	7	3	1	4	50%	$8,949,000
Focal Study Area	0.91	-	-	-	4,115	-	-	-	6,915	384	1,440	2,635	1,750	36,000	4,115	0.78	50%	$48,168,000	-	3	2	-	2	50%	$3,609,000
Route 355 (south of Summit)	1.23	-	-	-	5,097	-	-	-	12,994	-	5,097		-	-	5,097	0.97	50%	$20,737,000	-	4	3	-	3	50%	$5,353,500
Total Cost Entire Network	3.75	-	-	-	2	-	-	-	7.0	0	2	0			2.4	2.42		$87,594,000	-	14	8	1	9		$17,911,500

Gaithersburg Route 355 RTS
Capital Cost Estimates
Revised 8/19/2015

Dual Lane Median Standard BRT Alternative

	Stations / Station Intersection Reconstruction (EACH)												Land Acquisition							
BRT Corridor *Unit Cost (PLF), in thousands*	**2 Lane Side** *$2,440,000*	**Curb/ Manage/ Mixed** *$949,000*	**2 Lane Median (4 Lanes)** *$3,661,000*	**2 Lane Median (6 Lanes)** *$4,289,000*	**Rev 1 Lane Median (4 Lane)** *$3,943,000*	**Rev 1 Lane Median (6 Lane)** *$4,311,000*	**BiDirect 1 Lane Median (4 Lane)** *$3,458,000*	**BiDirect 1 Lane Median (6 Lane)** *$3,827,000*	**Total # Stations**	**Contingency**	**Total Station Cost**	**Subtotal Corridor Cost**	**Land Acquistion**	**Land Acquisition Contingency**	**Total Land Acquisition**	**MOT** *20%*	**Mobilization** *10%*	**Soft Costs** *23%*	**Total Corridor Cost**	**Cost/Mile**
Route 355 (North of Odendhal)				3					3	50%	$19,300,500	$46,939,000	$4,337,912	50%	$6,506,867	$9,387,800	$4,693,900	$10,561,000	**$78,088,567**	$48,502,000
Focal Study Area				1					1	50%	$6,433,500	$58,211,000	$15,798,687	50%	$23,698,031	$11,642,200	$5,821,100	$13,097,000	**$112,469,331**	$123,593,000
Route 355 (south of Summit)				1					1	50%	$6,433,500	$32,524,000	$7,642,197	50%	$11,463,295	$6,504,800	$3,252,400	$7,318,000	**$61,062,495**	$49,644,000
Total Cost Entire Network	0	0	0	5	0	0	0	0	5		$32,167,500	$137,674,000	$27,778,796		$41,668,194	$27,534,800	$13,767,400	$30,976,000	**$251,620,394**	$67,099,000

Gaithersburg Route 355 RTS
Capital Cost Estimates
Revised 8/19/2015

Dual Lane Median Minimum BRT Alternative

		Guideway Treatments (per linear foot; PLF)																	Traffic Signal / Full Intersection Reconstruction Improvements (EACH) (in thousands)						
BRT Corridor	**Total Route Length**	**2 Lane Side**	**Repur-posing Lanes**	**Managed Lanes**	**2 Lane Median**	**1 Lane Median**	**Mixed Traffic**	**Median Cycle Track**	**Relocate Utility Poles**	**1 Lane Road Widen**	**2 Lane Road Widen**	**3 Lane Road Widen**	**10' high ret wall (PLF)**	**Bridges (SF)**	**Route Length**	**Route Length**	**Contingency**	**Total Guideway Cost**	**Queue Jump**	**TSP Per Int**	**Sig LT Turn Lane**	**Sig 2 LT Turn Lane**	**Total # Sig Inter**	**Contingency**	**Total Signalized Int. Cost**
Unit Cost (PLF), in thousands	*Miles*	*$1,000*	*$20*	*$20*	*$1,000*	*$800*	*$20*	*$380*	*$350*	*$550*	*$820*	*$1,370*	*$2,500*	*$450*	*feet*	*miles*			*$665*	*$80*	*$1,083*	*$2,157*			
Route 355 (North of Odendhal)	1.61	-	-	-	3,583	-	-	-	16,966	-	4,283		-	-	3,583	0.68	50%	$19,550,000	-	7	3	1	4	50%	$8,949,000
Focal Study Area	0.91	-	-	-	4,115	-	-	-	3,925	1,181	2,283		1,750	36,000	4,115	0.78	50%	$42,878,000	-	3	2	-	2	50%	$3,609,000
Route 355 (south of Summit)	1.23	-	-	-	5,097	-	-	-	12,994	-	5,097		-	-	5,097	0.97	50%	$20,737,000	-	4	3	-	3	50%	$5,353,500
Total Cost Entire Network	3.75	-	-	-	2	-	-	-	6	0	2				2.4	2.42		$83,165,000	-	14	8	1	9		$17,911,500

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Dual Lane Median Minimum BRT Alternative

	Stations / Station Intersection Reconstruction (EACH)												Land Acquisition							
BRT Corridor *Unit Cost (PLF), in thousands*	**2 Lane Side** *$2,440,000*	**Curb/ Manage/ Mixed** *$949,000*	**2 Lane Median (4 Lanes)** *$3,661,000*	**2 Lane Median (6 Lanes)** *$4,289,000*	**Rev 1 Lane Median (4 Lane)** *$3,943,000*	**Rev 1 Lane Median (6 Lane)** *$4,311,000*	**BiDirect 1 Lane Median (4 Lane)** *$3,458,000*	**BiDirect 1 Lane Median (6 Lane)** *$3,827,000*	**Total # Stations**	**Contingency**	**Total Station Cost**	**Subtotal Corridor Cost**	**Land Acquistion**	**Land Acquisition Contingency**	**Total Land Acquisition**	**MOT** *20%*	**Mobilization** *10%*	**Soft Costs** *23%*	**Total Corridor Cost**	**Cost/Mile**
Route 355 (North of Odendhal)				3					3	50%	$19,300,500	$47,800,000	$5,029,665	50%	$7,544,497	$9,560,000	$4,780,000	$10,755,000	**$80,439,497**	$49,962,000
Focal Study Area				1					1	50%	$6,433,500	$52,921,000	$4,263,804	50%	$6,395,706	$10,584,200	$5,292,100	$11,907,000	**$87,100,006**	$95,714,000
Route 355 (south of Summit)				1					1	50%	$6,433,500	$32,524,000	$8,564,473	50%	$12,846,710	$6,504,800	$3,252,400	$7,318,000	**$62,445,910**	$50,769,000
Total Cost Entire Network	0	0	0	5	0	0	0	0	5		$32,167,500	$133,245,000	$17,857,942		$26,786,913	$26,649,000	$13,324,500	$29,980,000	**$229,985,413**	$61,329,000

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Dual Lane Median Reduced Impact BRT Alternative

		Guideway Treatments (per linear foot; PLF)																	Traffic Signal / Full Intersection Reconstruction Improvements (EACH) (in thousands)						
BRT Corridor	**Total Route Length**	**2 Lane Side**	**Repur-posing Lanes**	**Managed Lanes**	**2 Lane Median**	**1 Lane Median**	**Mixed Traffic**	**Median Cycle Track**	**Relocate Utility Poles**	**1 Lane Road Widen**	**2 Lane Road Widen**	**3 Lane Road Widen**	**10' high ret wall (PLF)**	**Bridges (SF)**	**Route Length**	**Route Length**	**Contingency**	**Total Guideway Cost**	**Queue Jump**	**TSP Per Int**	**Sig LT Turn Lane**	**Sig 2 LT Turn Lane**	**Total # Sig Inter**	**Contingency**	**Total Signalized Int. Cost**
Unit Cost (PLF), in thousands	*Miles*	*$1,000*	*$20*	*$20*	*$1,000*	*$800*	*$20*	*$380*	*$350*	*$550*	*$820*	*$1,370*	*$2,500*	*$450*	*feet*	*miles*			*$665*	*$80*	*$1,083*	*$2,157*			
Route 355 (North of Odendhal)	1.61	-	-	-	3,583	-	-	-	16,966	-	4,283		-	-	3,583	0.68	50%	$19,550,000	-	7	3	1	4	50%	$8,949,000
Focal Study Area	0.91	-		-	4,510	-	-	-	3,165	2,242	406	325	1,750	-	4,510	0.85	50%	$18,006,000	-	3	2	-	2	50%	$3,609,000
Route 355 (south of Summit)	1.23	-	-	-	5,097	-	-	-	12,994	-	5,097		-	-	5,097	0.97	50%	$20,737,000	-	4	3	-	3	50%	$5,353,500
Total Cost Entire Network	3.75	-	-	-	2	-	-	-	6	0	2				2.5	2.50		$58,293,000	-	14	8	1	9		$17,911,500

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Dual Lane Median Reduced Impact BRT Alternative

	Stations / Station Intersection Reconstruction (EACH)												Land Acquisition							
BRT Corridor *Unit Cost (PLF), in thousands*	**2 Lane Side** *$2,440,000*	**Curb/ Manage/ Mixed** *$949,000*	**2 Lane Median (4 Lanes)** *$3,661,000*	**2 Lane Median (6 Lanes)** *$4,289,000*	**Rev 1 Lane Median (4 Lane)** *$3,943,000*	**Rev 1 Lane Median (6 Lane)** *$4,311,000*	**BiDirect 1 Lane Median (4 Lane)** *$3,458,000*	**BiDirect 1 Lane Median (6 Lane)** *$3,827,000*	**Total # Stations**	**Contingency**	**Total Station Cost**	**Subtotal Corridor Cost**	**Land Acquistion**	**Land Acquisition Contingency**	**Total Land Acquisition**	**MOT** *20%*	**Mobilization** *10%*	**Soft Costs** *23%*	**Total Corridor Cost**	**Cost/Mile**
Route 355 (North of Odendhal)				3					3	50%	$19,300,500	$47,800,000	$5,029,665	50%	$7,544,497	$9,560,000	$4,780,000	$10,755,000	**$80,439,497**	$49,962,000
Focal Study Area				1					1	50%	$6,433,500	$28,049,000	$2,026,331	50%	$3,039,497	$5,609,800	$2,804,900	$6,311,000	**$45,814,197**	$50,345,000
Route 355 (south of Summit)				1					1	50%	$6,433,500	$32,524,000	$8,564,472	50%	$12,846,708	$6,504,800	$3,252,400	$7,318,000	**$62,445,908**	$50,769,000
Total Cost Entire Network	0	0	0	5	0	0	0	0	5		$32,167,500	$108,373,000	$15,620,468		$23,430,702	$21,674,600	$10,837,300	$24,384,000	**$188,699,602**	$50,320,000

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Single Lane Median Standard BRT Alternative

		Guideway Treatments (per linear foot; PLF)																	Traffic Signal / Full Intersection Reconstruction Improvements (EACH) (in thousands)						
BRT Corridor *Unit Cost (PLF), in thousands*	**Total Route Length** *Miles*	**2 Lane Side** *$1,000*	**Repur-posing Lanes** *$20*	**Managed Lanes** *$20*	**2 Lane Median** *$1,000*	**1 Lane Median** *$800*	**Mixed Traffic** *$20*	**Median Cycle Track** *$380*	**Relocate Utility Poles** *$350*	**1 Lane Road Widen** *$550*	**2 Lane Road Widen** *$820*	**3 Lane Road Widen** *$1,370*	**10' high ret wall (PLF)** *$2,500*	**Bridges (SF)** *$450*	**Route Length** *feet*	**Route Length** *miles*	**Contingency**	**Total Guideway Cost**	**Queue Jump** *$665*	**TSP Per Int** *$80*	**Sig LT Turn Lane** *$1,083*	**Sig 2 LT Turn Lane** *$2,157*	**Total # Sig Inter**	**Contingency**	**Total Signalized Int. Cost**
Route 355 (North of Odendhal)	1.61	-	-	-	3,583	-	-	-	16,966	-	4,283		-	-	3,583	0.68	50%	$19,550,000	-	7	3	1	4	50%	$8,949,000
Focal Study Area	0.91	-	-	-	-	4,115	-	-	4,660	1,639	2,200		1,750	36,000	4,115	0.78	50%	$42,305,000	-	3	2	-	2	50%	$3,609,000
Route 355 (south of Summit)	1.23	-	-	-	5,097	-	-	-	12,994	-	5,097		-	-	5,097	0.97	50%	$20,737,000	-	4	3	-	3	50%	$5,353,500
Total Cost Entire Network	3.75	-	-	-	2	1	-	-	7	0	2				2.4	2.42		$82,592,000	-	14	8	1	9		$17,911,500

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Single Lane Median Standard BRT Alternative

	Stations / Station Intersection Reconstruction (EACH)												Land Acquisition							
BRT Corridor	**2 Lane Side**	**Curb/ Manage/ Mixed**	**2 Lane Median (4 Lanes)**	**2 Lane Median (6 Lanes)**	**Rev 1 Lane Median (4 Lane)**	**Rev 1 Lane Median (6 Lane)**	**BiDirect 1 Lane Median (4 Lane)**	**BiDirect 1 Lane Median (6 Lane)**	**Total # Stations**	**Contingency**	**Total Station Cost**	**Subtotal Corridor Cost**	**Land Acquistion**	**Land Acquisition Contingency**	**Total Land Acquisition**	**MOT**	**Mobilization**	**Soft Costs**	**Total Corridor Cost**	**Cost/Mile**
Unit Cost (PLF), in thousands	*$2,440,000*	*$949,000*	*$3,661,000*	*$4,289,000*	*$3,943,000*	*$4,311,000*	*$3,458,000*	*$3,827,000*								*20%*	*10%*	*23%*		
Route 355 (North of Odendhal)				3					3	50%	$19,300,500	$47,800,000	$5,029,665	50%	$7,544,497	$9,560,000	$4,780,000	$10,755,000	**$80,439,497**	$49,962,000
Focal Study Area						1			1	50%	$6,466,500	$52,381,000	$9,297,169	50%	$13,945,753	$10,476,200	$5,238,100	$11,786,000	**$93,827,053**	$103,107,000
Route 355 (south of Summit)				1					1	50%	$6,433,500	$32,524,000	$8,564,472	50%	$12,846,708	$6,504,800	$3,252,400	$7,318,000	**$62,445,908**	$50,769,000
Total Cost Entire Network	0	0	0	4	0	1	0	0	5		$32,200,500	$132,705,000	$22,891,306		$34,336,958	$26,541,000	$13,270,500	$29,859,000	**$236,712,458**	$63,123,000

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Single Lane Median Minimum BRT Alternative

		Guideway Treatments (per linear foot; PLF)																	Traffic Signal / Full Intersection Reconstruction Improvements (EACH) (in thousands)						
BRT Corridor	**Total Route Length**	**2 Lane Side**	**Repur-posing Lanes**	**Managed Lanes**	**2 Lane Median**	**1 Lane Median**	**Mixed Traffic**	**Median Cycle Track**	**Relocate Utility Poles**	**1 Lane Road Widen**	**2 Lane Road Widen**	**3 Lane Road Widen**	**10' high ret wall (PLF)**	**Bridges (SF)**	**Route Length**	**Route Length**	**Contingency**	**Total Guideway Cost**	**Queue Jump**	**TSP Per Int**	**Sig LT Turn Lane**	**Sig 2 LT Turn Lane**	**Total # Sig Inter**	**Contingency**	**Total Signalized Int. Cost**
Unit Cost (PLF), in thousands	*Miles*	*$1,000*	*$20*	*$20*	*$1,000*	*$800*	*$20*	*$380*	*$350*	*$550*	*$820*	*$1,370*	*$2,500*	*$450*	*feet*	*miles*			*$665*	*$80*	*$1,083*	*$2,157*			
Route 355 (North of Odendhal)	1.61	-	-	-	3,583	-	-	-	16,966	-	4,283		-	-	3,583	0.68	50%	$19,550,000	-	7	3	1	4	50%	$8,949,000
Focal Study Area	0.91	-	-	-	-	4,115	-	-	4,950	2,506	180		1,750	36,000	4,115	0.78	50%	$40,688,000	-	3	2	-	2	50%	$3,609,000
Route 355 (south of Summit)	1.23	-	-	-	5,097	-	-	-	12,994	-	5,097		-	-	5,097	0.97	50%	$20,737,000	-	4	3	-	3	50%	$5,353,500
Total Cost Entire Network	3.75	-	-	-	2	1	-	-	7	0	2				2.4	2.42		$80,975,000	-	14	8	1	9		$17,911,500

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Single Lane Median Minimum BRT Alternative

	Stations / Station Intersection Reconstruction (EACH)												Land Acquisition							
BRT Corridor *Unit Cost (PLF), in thousands*	**2 Lane Side** *$2,440,000*	**Curb/ Manage/ Mixed** *$949,000*	**2 Lane Median (4 Lanes)** *$3,661,000*	**2 Lane Median (6 Lanes)** *$4,289,000*	**Rev 1 Lane Median (4 Lane)** *$3,943,000*	**Rev 1 Lane Median (6 Lane)** *$4,311,000*	**BiDirect 1 Lane Median (4 Lane)** *$3,458,000*	**BiDirect 1 Lane Median (6 Lane)** *$3,827,000*	**Total # Stations**	**Contingency**	**Total Station Cost**	**Subtotal Corridor Cost**	**Land Acquistion**	**Land Acquisition Contingency**	**Total Land Acquisition**	**MOT** *20%*	**Mobilization** *10%*	**Soft Costs** *23%*	**Total Corridor Cost**	**Cost/Mile**
Route 355 (North of Odendhal)				3					3	50%	$19,300,500	$47,800,000	$5,029,665	50%	$7,544,497	$9,560,000	$4,780,000	$10,755,000	**$80,439,497**	$49,962,000
Focal Study Area						1			1	50%	$6,466,500	$50,764,000	$1,700,191	50%	$2,550,287	$10,152,800	$5,076,400	$11,422,000	**$79,965,487**	$87,874,000
Route 355 (south of Summit)				1					1	50%	$6,433,500	$32,524,000	$8,564,472	50%	$12,846,708	$6,504,800	$3,252,400	$7,318,000	**$62,445,908**	$50,769,000
Total Cost Entire Network	0	0	0	4	0	1	0	0	5		$32,200,500	$131,088,000	$15,294,328		$22,941,493	$26,217,600	$13,108,800	$29,495,000	**$222,850,893**	$59,427,000

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Single Lane Median Reduced Impact BRT Alternative

		Guideway Treatments (per linear foot; PLF)																	Traffic Signal / Full Intersection Reconstruction Improvements (EACH) (in thousands)						
BRT Corridor	**Total Route Length**	**2 Lane Side**	**Repur-posing Lanes**	**Managed Lanes**	**2 Lane Median**	**1 Lane Median**	**Mixed Traffic**	**Median Cycle Track**	**Relocate Utility Poles**	**1 Lane Road Widen**	**2 Lane Road Widen**	**3 Lane Road Widen**	**10' high ret wall (PLF)**	**Bridges (SF)**	**Route Length**	**Route Length**	**Contingency**	**Total Guideway Cost**	**Queue Jump**	**TSP Per Int**	**Sig LT Turn Lane**	**Sig 2 LT Turn Lane**	**Total # Sig Inter**	**Contingency**	**Total Signalized Int. Cost**
Unit Cost (PLF), in thousands	*Miles*	*$1,000*	*$20*	*$20*	*$1,000*	*$800*	*$20*	*$380*	*$350*	*$550*	*$820*	*$1,370*	*$2,500*	*$450*	*feet*	*miles*			*$665*	*$80*	*$1,083*	*$2,157*			
Route 355 (North of Odendhal)	1.61	-	-	-	3,583	-	-	-	16,966	-	4,283		-	-	3,583	0.68	50%	$19,550,000	-	7	3	1	4	50%	$8,949,000
Focal Study Area	0.91	-	-	-	-	4,510	-	-	2,330	1,477			1,750	-	4,510	0.85	50%	$14,416,000	-	3	2	-	2	50%	$3,609,000
Route 355 (south of Summit)	1.23	-	-	-	5,097	-	-	-	12,994	-	5,097		-	-	5,097	0.97	50%	$20,737,000	-	4	3	-	3	50%	$5,353,500
Total Cost Entire Network	3.75	-	-	-	2	1	-	-	6	0	2				2.5	2.50		$54,703,000	-	14	8	1	9		$17,911,500

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Single Lane Median Reduced Impact BRT Alternativ

	Stations / Station Intersection Reconstruction (EACH)												Land Acquisition							
BRT Corridor *Unit Cost (PLF), in thousands*	**2 Lane Side** *$2,440,000*	**Curb/ Manage/ Mixed** *$949,000*	**2 Lane Median (4 Lanes)** *$3,661,000*	**2 Lane Median (6 Lanes)** *$4,289,000*	**Rev 1 Lane Median (4 Lane)** *$3,943,000*	**Rev 1 Lane Median (6 Lane)** *$4,311,000*	**BiDirect 1 Lane Median (4 Lane)** *$3,458,000*	**BiDirect 1 Lane Median (6 Lane)** *$3,827,000*	**Total # Stations**	**Contingency**	**Total Station Cost**	**Subtotal Corridor Cost**	**Land Acquistion**	**Land Acquisition Contingency**	**Total Land Acquisition**	**MOT** *20%*	**Mobilization** *10%*	**Soft Costs** *23%*	**Total Corridor Cost**	**Cost/Mile**
Route 355 (North of Odendhal)				3					3	50%	$19,300,500	$47,800,000	$5,029,665	50%	$7,544,497	$9,560,000	$4,780,000	$10,755,000	**$80,439,497**	$49,962,000
Focal Study Area						1			1	50%	$6,466,500	$24,492,000	$966,622	50%	$1,449,934	$4,898,400	$2,449,200	$5,511,000	**$38,800,534**	$42,638,000
Route 355 (south of Summit)				1					1	50%	$6,433,500	$32,524,000	$8,564,472	50%	$12,846,708	$6,504,800	$3,252,400	$7,318,000	**$62,445,908**	$50,769,000
Total Cost Entire Network	0	0	0	4	0	1	0	0	5		$32,200,500	$104,816,000	$14,560,760		$21,841,139	$20,963,200	$10,481,600	$23,584,000	**$181,685,939**	$48,450,000

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Hybrid Dual/Single Lane Median BRT Alternative

		Guideway Treatments (per linear foot; PLF)																	Traffic Signal / Full Intersection Reconstruction Improvements (EACH) (in thousands)						
BRT Corridor	**Total Route Length**	**2 Lane Side**	**Repur-posing Lanes**	**Managed Lanes**	**2 Lane Median**	**1 Lane Median**	**Mixed Traffic**	**Median Cycle Track**	**Relocate Utility Poles**	**1 Lane Road Widen**	**2 Lane Road Widen**	**3 Lane Road Widen**	**10' high ret wall (PLF)**	**Bridges (SF)**	**Route Length**	**Route Length**	**Contingency**	**Total Guideway Cost**	**Queue Jump**	**TSP Per Int**	**Sig LT Turn Lane**	**Sig 2 LT Turn Lane**	**Total # Sig Inter**	**Contingency**	**Total Signalized Int. Cost**
Unit Cost (PLF), in thousands	*Miles*	*$1,000*	*$20*	*$20*	*$1,000*	*$800*	*$20*	*$380*	*$350*	*$550*	*$820*	*$1,370*	*$2,500*	*$450*	*feet*	*miles*			*$665*	*$80*	*$1,083*	*$2,157*			
Route 355 (North of Odendhal)	1.61	-	-	-	3,583	-	-	-	16,966	-	4,283		-	-	3,583	0.68	50%	$19,550,000	-	7	3	1	4	50%	$8,949,000
Focal Study Area	0.91	-	-	-	2,755	1,755	-	-	5,954	2,577	400		1,750	-	5,210	0.99	50%	$18,545,000	-	3	2	-	2	50%	$3,609,000
Route 355 (south of Summit)	1.23	-	-	-	5,097	-	-	-	12,994	-	5,097		-	-	5,097	0.97	50%	$20,737,000	-	4	3	-	3	50%	$5,353,500
Total Cost Entire Network	3.75	-	-	-	2	0	-	-	7	0	2				2.6	2.63		$58,832,000	-	14	8	1	9		$17,911,500

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Hybrid Dual/Single Lane Median BRT Alternative

	Stations / Station Intersection Reconstruction (EACH)												Land Acquisition							
BRT Corridor *Unit Cost (PLF), in thousands*	**2 Lane Side** *$2,440,000*	**Curb/ Manage/ Mixed** *$949,000*	**2 Lane Median (4 Lanes)** *$3,661,000*	**2 Lane Median (6 Lanes)** *$4,289,000*	**Rev 1 Lane Median (4 Lane)** *$3,943,000*	**Rev 1 Lane Median (6 Lane)** *$4,311,000*	**BiDirect 1 Lane Median (4 Lane)** *$3,458,000*	**BiDirect 1 Lane Median (6 Lane)** *$3,827,000*	**Total # Stations**	**Contingency**	**Total Station Cost**	**Subtotal Corridor Cost**	**Land Acquistion**	**Land Acquisition Contingency**	**Total Land Acquisition**	**MOT** *20%*	**Mobilization** *10%*	**Soft Costs** *23%*	**Total Corridor Cost**	**Cost/Mile**
Route 355 (North of Odendhal)				3					3	50%	$19,300,500	$47,800,000	$5,029,665	50%	$7,544,497	$9,560,000	$4,780,000	$10,755,000	**$80,439,497**	$49,962,000
Focal Study Area				0.5		0.5			1	50%	$6,450,000	$28,604,000	$1,713,281	50%	$2,569,922	$5,720,800	$2,860,400	$6,436,000	**$46,191,122**	$50,759,000
Route 355 (south of Summit)				1					1	50%	$6,433,500	$32,524,000	$8,564,472	50%	$12,846,708	$6,504,800	$3,252,400	$7,318,000	**$62,445,908**	$50,769,000
Total Cost Entire Network	0	0	0	4.5	0	0.5	0	0	5		$32,184,000	$108,928,000	$15,307,418		$22,961,127	$21,785,600	$10,892,800	$24,509,000	**$189,076,527**	$50,420,000

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Lane Repurposing BRT Alternative

		Guideway Treatments (per linear foot; PLF)																	Traffic Signal / Full Intersection Reconstruction Improvements (EACH) (in thousands)						
BRT Corridor	**Total Route Length**	**2 Lane Side**	**Repur-posing Lanes**	**Managed Lanes**	**2 Lane Median**	**1 Lane Median**	**Mixed Traffic**	**Median Cycle Track**	**Relocate Utility Poles**	**1 Lane Road Widen**	**2 Lane Road Widen**	**3 Lane Road Widen**	**10' high ret wall (PLF)**	**Bridges (SF)**	**Route Length**	**Route Length**	**Contingency**	**Total Guideway Cost**	**Queue Jump**	**TSP Per Int**	**Sig LT Turn Lane**	**Sig 2 LT Turn Lane**	**Total # Sig Inter**	**Contingency**	**Total Signalized Int. Cost**
Unit Cost (PLF), in thousands	*Miles*	*$1,000*	*$20*	*$20*	*$1,000*	*$800*	*$20*	*$380*	*$350*	*$550*	*$820*	*$1,370*	*$2,500*	*$450*	*feet*	*miles*			*$665*	*$80*	*$1,083*	*$2,157*			
Route 355 (North of Odendhal)	1.61	-	-	-	6,360	-	-	-	16,966	-	4,283		-	-	6,360	1.20	50%	$23,715,000	-	7	3	1	4	50%	$8,949,000
Focal Study Area	0.91	-	5,210	-	-	-	-	-	2,905	1,069			1,750	-	5,210	0.99	50%	$9,126,000	-	3	2	-	2	50%	$3,609,000
Route 355 (south of Summit)	1.23	-	-	-	6,497	-	-	-	12,994	-	5,097		-	-	6,497	1.23	50%	$22,837,000	-	4	3	-	3	50%	$5,353,500
Total Cost Entire Network	3.75	-	1	-	2	-	-	-	6	0	2				3.4	3.42		$55,678,000	-	14	8	1	9		$17,911,500

Gaithersburg Route 355 RTS
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Lane Repurposing BRT Alternative

	Stations / Station Intersection Reconstruction (EACH)												Land Acquisition							
BRT Corridor *Unit Cost (PLF), in thousands*	**2 Lane Side** *$2,440,000*	**Curb/ Manage/ Mixed** *$949,000*	**2 Lane Median (4 Lanes)** *$3,661,000*	**2 Lane Median (6 Lanes)** *$4,289,000*	**Rev 1 Lane Median (4 Lane)** *$3,943,000*	**Rev 1 Lane Median (6 Lane)** *$4,311,000*	**BiDirect 1 Lane Median (4 Lane)** *$3,458,000*	**BiDirect 1 Lane Median (6 Lane)** *$3,827,000*	**Total # Stations**	**Contingency**	**Total Station Cost**	**Subtotal Corridor Cost**	**Land Acquistion**	**Land Acquisition Contingency**	**Total Land Acquisition**	**MOT** *20%*	**Mobilization** *10%*	**Soft Costs** *23%*	**Total Corridor Cost**	**Cost/Mile**
Route 355 (North of Odendhal)				3					3	50%	$19,300,500	$51,965,000	$5,029,665	50%	$7,544,497	$10,393,000	$5,196,500	$11,692,000	**$86,790,997**	$53,907,000
Focal Study Area				1					1	50%	$6,433,500	$19,169,000	$937,515	50%	$1,406,273	$3,833,800	$1,916,900	$4,313,000	**$30,638,973**	$33,669,000
Route 355 (south of Summit)				1					1	50%	$6,433,500	$34,624,000	$8,564,472	50%	$12,846,708	$6,924,800	$3,462,400	$7,790,000	**$65,647,908**	$53,372,000
Total Cost Entire Network	0	0	0	5	0	0	0	0	5		$32,167,500	$105,758,000	$14,531,652		$21,797,478	$21,151,600	$10,575,800	$23,795,000	**$183,077,878**	$48,821,000

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Mixed Traffic BRT Alternative

		Guideway Treatments (per linear foot; PLF)																	Traffic Signal / Full Intersection Reconstruction Improvements (EACH) (in thousands)						
BRT Corridor	**Total Route Length**	**2 Lane Side**	**Repur-posing Lanes**	**Managed Lanes**	**2 Lane Median**	**1 Lane Median**	**Mixed Traffic**	**Median Cycle Track**	**Relocate Utility Poles**	**1 Lane Road Widen**	**2 Lane Road Widen**	**3 Lane Road Widen**	**10' high ret wall (PLF)**	**Bridges (SF)**	**Route Length**	**Route Length**	**Contingency**	**Total Guideway Cost**	**Queue Jump**	**TSP Per Int**	**Sig LT Turn Lane**	**Sig 2 LT Turn Lane**	**Total # Sig Inter**	**Contingency**	**Total Signalized Int. Cost**
Unit Cost (PLF), in thousands	*Miles*	*$1,000*	*$20*	*$20*	*$1,000*	*$800*	*$20*	*$380*	*$350*	*$550*	*$820*	*$1,370*	*$2,500*	*$450*	*feet*	*miles*			*$665*	*$80*	*$1,083*	*$2,157*			
Route 355 (North of Odendhal)	1.61	-	-	-	5,660	-	-	-	16,966	-	3,583		-	-	5,660	1.07	50%	$21,804,000	-	7	3	1	4	50%	$8,949,000
Focal Study Area	0.91	-	-	-	-	-	5,210	-	-	-			-	-	5,210	0.99	50%	$156,000	-	3	-	-	-	50%	$360,000
Route 355 (south of Summit)	1.23	-	-	-	6,497	-	-	-	12,994	-	5,097		-	-	6,497	1.23	50%	$22,837,000	-	4	3	-	3	50%	$5,353,500
Total Cost Entire Network	3.75	-	-	-	2	-	1	-	6	-	2				3.3	3.29		$44,797,000	-	14	6	1	7		$14,662,500

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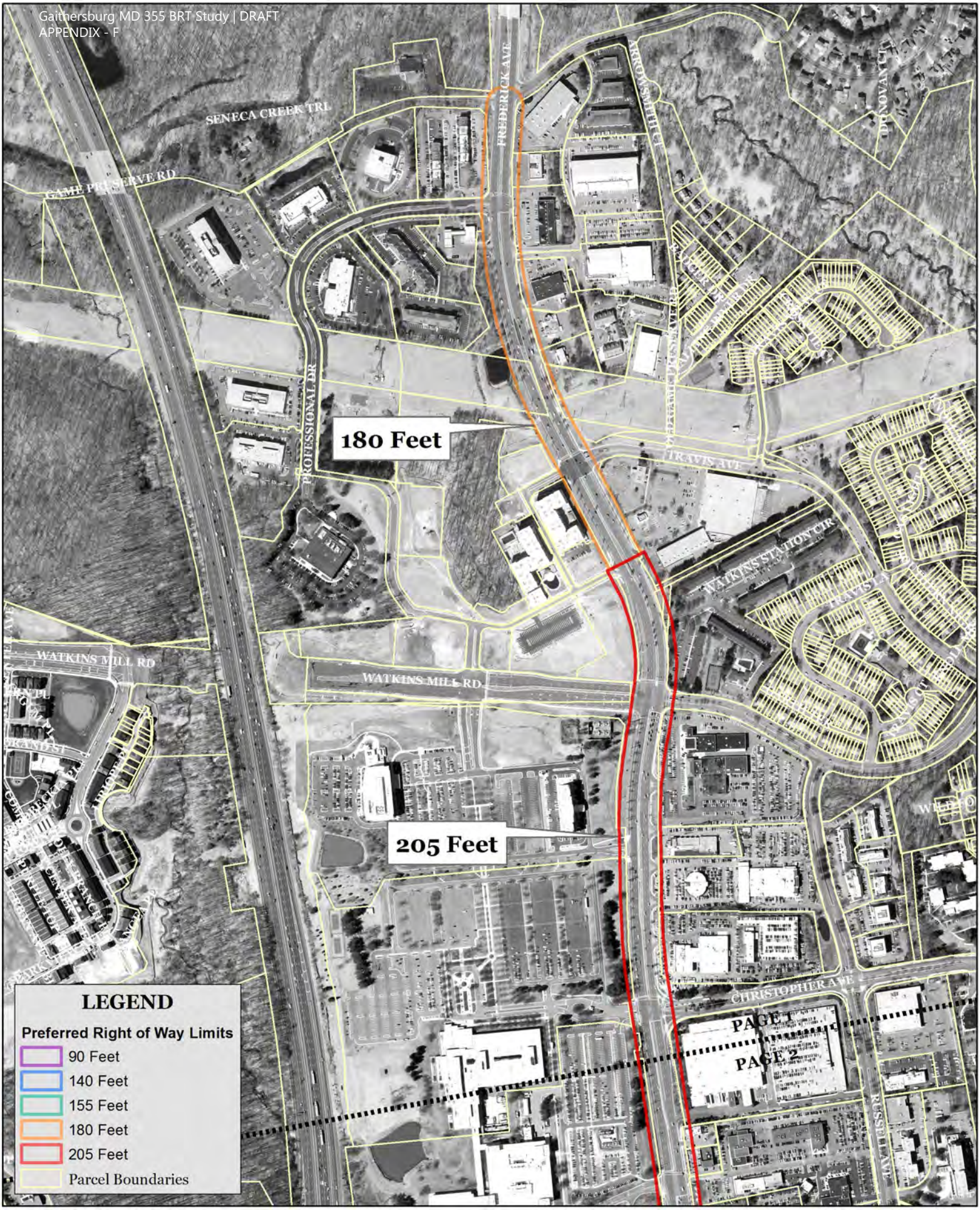
Mixed Traffic BRT Alternative

	Stations / Station Intersection Reconstruction (EACH)												Land Acquisition							
BRT Corridor *Unit Cost (PLF), in thousands*	**2 Lane Side** *$2,440,000*	**Curb/ Manage/ Mixed** *$949,000*	**2 Lane Median (4 Lanes)** *$3,661,000*	**2 Lane Median (6 Lanes)** *$4,289,000*	**Rev 1 Lane Median (4 Lane)** *$3,943,000*	**Rev 1 Lane Median (6 Lane)** *$4,311,000*	**BiDirect 1 Lane Median (4 Lane)** *$3,458,000*	**BiDirect 1 Lane Median (6 Lane)** *$3,827,000*	**Total # Stations**	**Contingency**	**Total Station Cost**	**Subtotal Corridor Cost**	**Land Acquistion**	**Land Acquisition Contingency**	**Total Land Acquisition**	**MOT** *20%*	**Mobilization** *10%*	**Soft Costs** *23%*	**Total Corridor Cost**	**Cost/Mile**
Route 355 (North of Odendhal)				3.5					3.5	50%	$22,517,250	$53,270,000	$5,142,429	50%	$7,713,644	$10,654,000	$5,327,000	$11,986,000	**$88,950,644**	$55,249,000
Focal Study Area		0.5							0.5	50%	$711,750	$1,228,000	$0	50%	$0	$245,600	$122,800	$276,000	**$1,872,400**	$2,058,000
Route 355 (south of Summit)				1					1	50%	$6,433,500	$34,624,000	$8,564,472	50%	$12,846,708	$6,924,800	$3,462,400	$7,790,000	**$65,647,908**	$53,372,000
Total Cost Entire Network	0	0.5	0	4.5	0	0	0	0	5		$29,662,500	$89,122,000	$13,706,901		$20,560,352	$17,824,400	$8,912,200	$20,052,000	**$156,470,952**	$41,726,000

Table 1: Conversion of Station Location Rating to Numeric Score

MD 355 BRT Station Locations	Ridership	Land Use	Existing Connection	Traffic Complications	Total
Professional Drive	1	2	3	4	**10**
Travis Avenue/Spectrum Avenue	1	3	3	4	**11**
Watkins Mill Road	2	4	4	2	**12**
Christopher Avenue	1	2	3	3	**9**
Montgomery Village Avenue (MD 124)	1	3	2	1	**7**
Lakeforest Boulevard/Perry Parkway	4	4	3	3	**14**
Odendhal Avenue	4	3	3	3	**13**
Chestnut Street/Walker Avenue	4	3	3	3	**13**
Brookes Avenue	2	1	1	1	**5**
Cedar Avenue/Fulks Corner Avenue	3	3	2	2	**10**
Summit Avenue	3	1	3	3	**10**
Education Boulevard	1	2	4	4	**11**
Deer Park Road	3	2	3	3	**11**
North Westland Drive	3	3	2	2	**11**

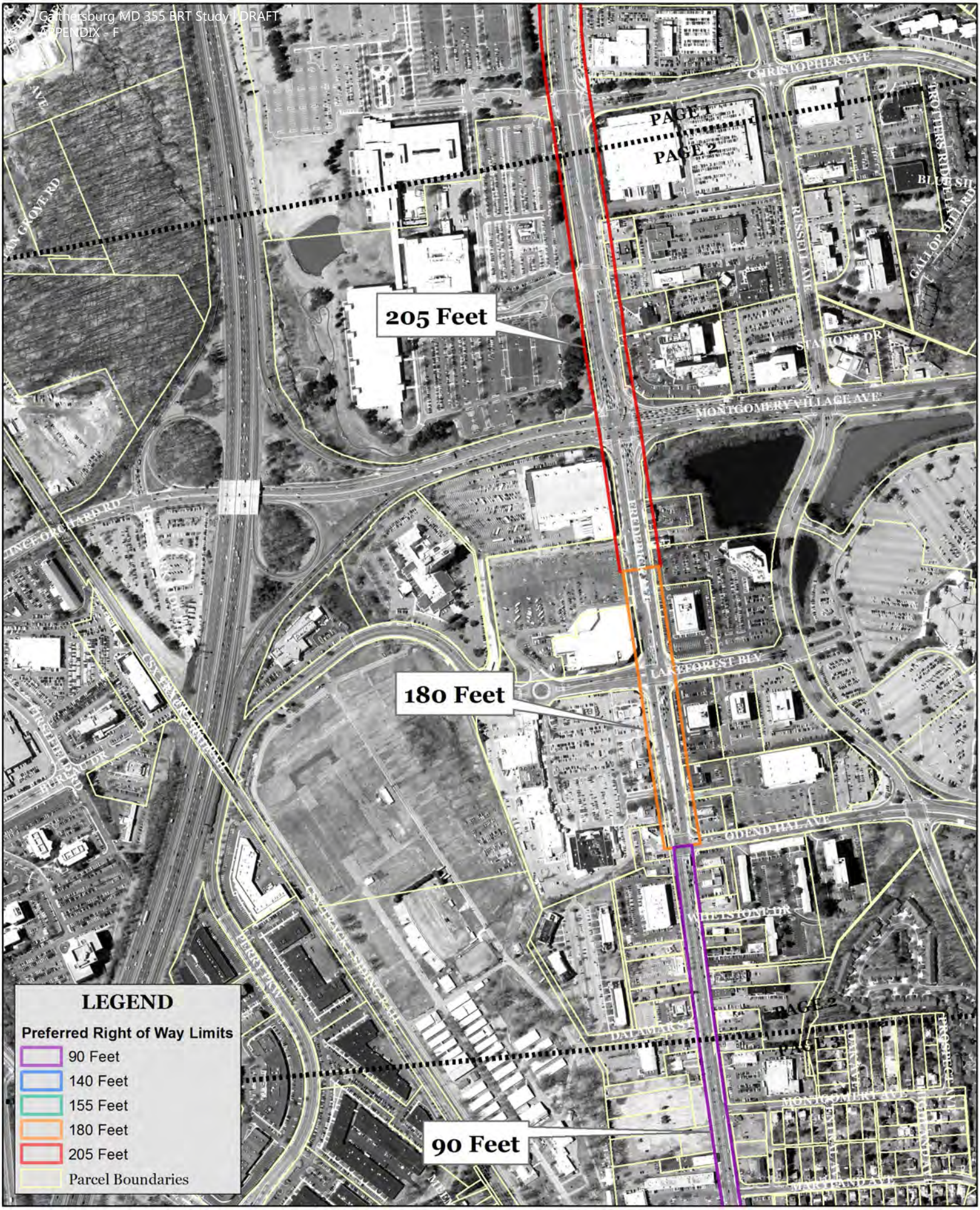
Rating	**Score**
●	4
◐	3
◑	2
○	1



Preferred Right of Way Limits - Page 1

Gaithersburg 355 BRT Study Corridor

0 250 500 Feet



Preferred Right of Way Limits - Page 2

Gaithersburg 355 BRT Study Corridor

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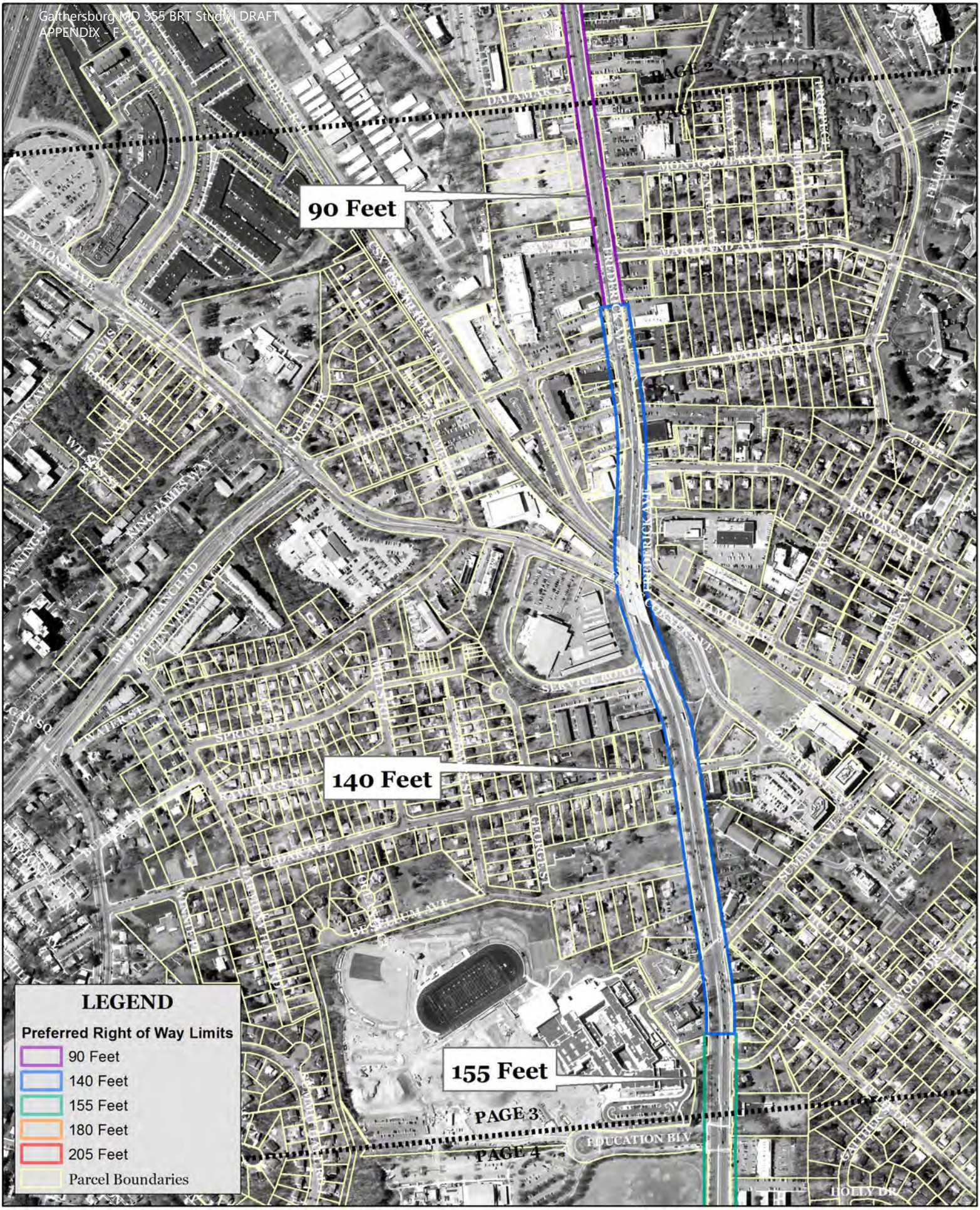
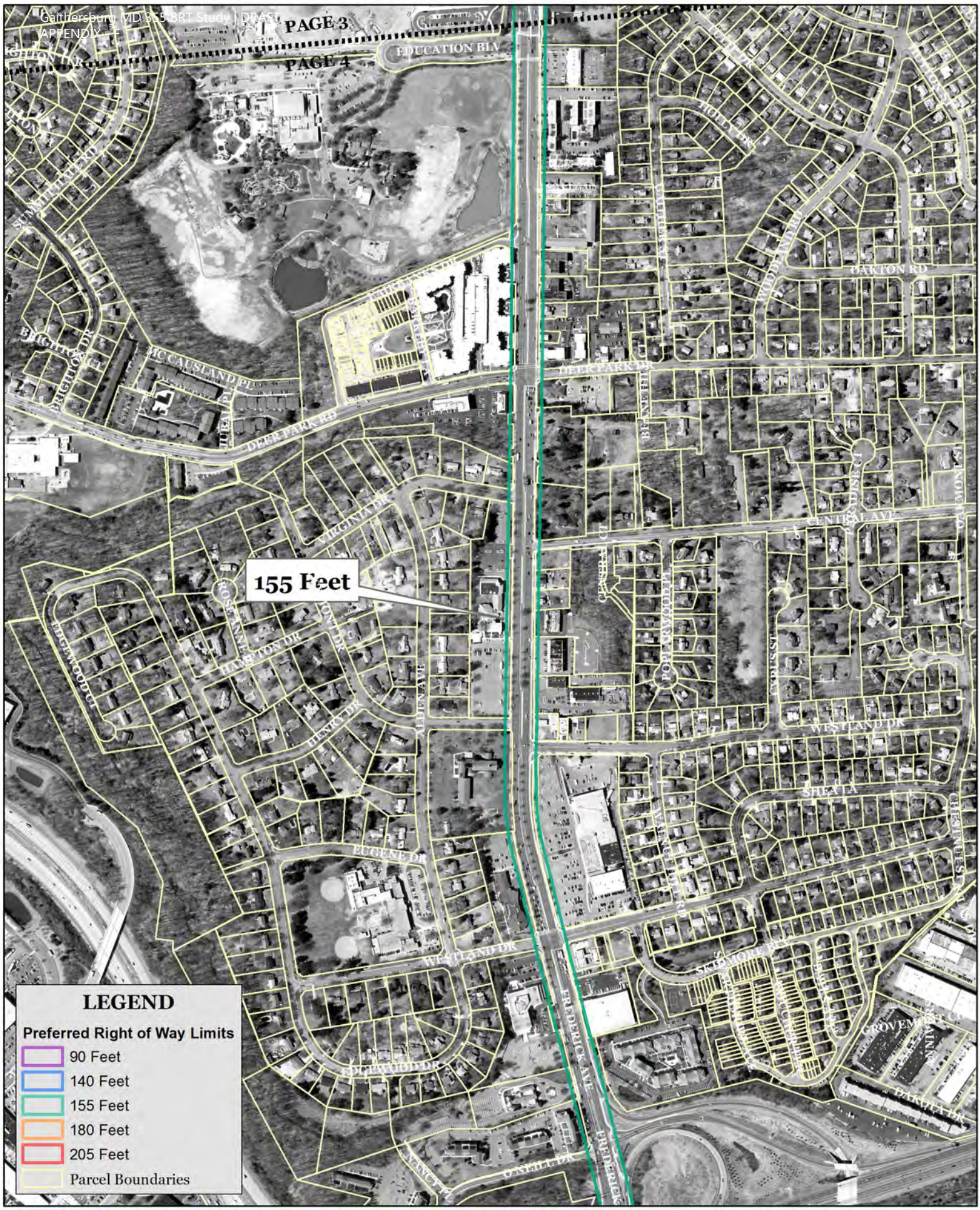


Preferred Right of Way Limits - Page 3

Gaithersburg 355 BRT Study Corridor

0 250 500 Feet



Preferred Right of Way Limits - Page 4

Gaithersburg 355 BRT Study Corridor

0 250 500 Feet