White Flint Sector Plan
Mobility and Transportation Network

Planning Board Worksession #1
February 12, 2009

Discussion Topics

1. More Efficient Travel Behavior
2. Land Use / Transportation Balance
3. Recommended Infrastructure
4. Recommended Policies
5. Implementation and Staging

MORE EFFICIENT TRAVEL BEHAVIOR

Considerations

- Density
- Diversity
- Design
- Destinations
- Distance to transit

MORE EFFICIENT TRAVEL BEHAVIOR

DENSITY

100 Single Family units =
103 peak hour trips

275 High Rise units =
106 peak hour trips

No. of Units	Single-Family		Townhouse		Garden Apartment		High-Rise Apartments	
	AM	PM	AM	PM	AM	PM	AM	PM
1	1	1	0	1	0	0	0	0
5	5	6	2	4	2	2	2	2
10	10	11	5	8	4	5	4	5
15	14	17	7	12	7	7	6	7
20	19	22	10	17	9	10	8	9
25	24	28	12	21	11	12	10	12
30	29	33	14	25	13	14	12	14
35	33	39	17	29	15	17	14	16
40	38	44	19	33	18	19	16	18
45	43	50	22	37	20	22	18	21
50	48	56	24	42	22	24	20	23
55	52	61	26	46	24	26	22	25
60	57	67	29	50	26	29	24	28
65	62	72	31	54	29	31	26	30
70	67	78	34	58	31	34	28	32
75	72	83	36	62	33	36	30	35
80	75	87	38	66	35	39	32	37
85	78	91	41	71	37	41	34	39
90	81	95	43	75	39	43	36	41
95	84	99	46	79	41	46	39	44
100	87	103	48	83	43	46	40	46
110	93	111	53	88	47	53	43	49
120	99	119	59	93	51	57	46	53
130	106	128	64	97	55	62	49	56
140	112	136	69	102	59	67	52	60
150	118	144	75	107	64	72	55	63
160	124	152	80	112	67	76	57	66
170	130	160	85	117	71	81	60	70
180	137	169	90	121	75	86	63	73
190	143	177	96	126	79	90	66	77
200	149	185	101	131	83	95	69	80
210	155	193	106	136	87	100	72	83
220	161	201	112	141	91	104	75	87
230	168	210	117	145	95	109	78	90
240	174	218	122	150	99	114	81	94
250	180	226	128	155	103	119	84	97
275	196	247	141	167	113	130	91	106
300	211	267	154	179	123	142	98	114
325	227	288	167	191	133	154	105	123
350	242	308	181	203	143	166	113	131
375	258	329	194	215	153	177	120	140
400	273	349	207	227	164	189	127	148
425	289	370	220	239	173	201	134	157
450	304	390	234	251	183	213	142	165
475	320	411	247	263	193	224	149	174
500	320	431	260	275	203	236	156	182

MORE EFFICIENT TRAVEL BEHAVIOR

DESIGN

Table 5
Graduated and Maximum Trip Credits Related to Congestion Standards

Non-Automobile Transportation Facility	Trip Credit vs Congestion Standard		
	1350-1500	1550-1600	1800
100 linear feet of five-foot wide sidewalk	0.5	0.75	1.0
100 linear feet of eight-foot wide bike path	0.5	0.75	1.0
Curb Extension/Pedestrian Refuge Island/Handicap Ramp	2.0	3.0	4.0
Accessible or Countdown Pedestrian Signals/ Intersection	1.0	2.0	3.0
Bus Shelter	5.0	7.5	10.0
"Super" Bus Shelter	10.0	15.0	20.0
Bus Bench with Pad	0.5	0.75	1.0
Information Kiosk	1.5	3.0	4.5
Bike Locker (set of eight)	2.0	3.0	4.0
Real-Time Transit Information Sign	10.0	15.0	20.0
Static Transit Information Sign	0.25	0.4	0.5
Maximum Trip Credits	60	90	120

DIVERSITY – RESIDENTIAL COMMUNITIES

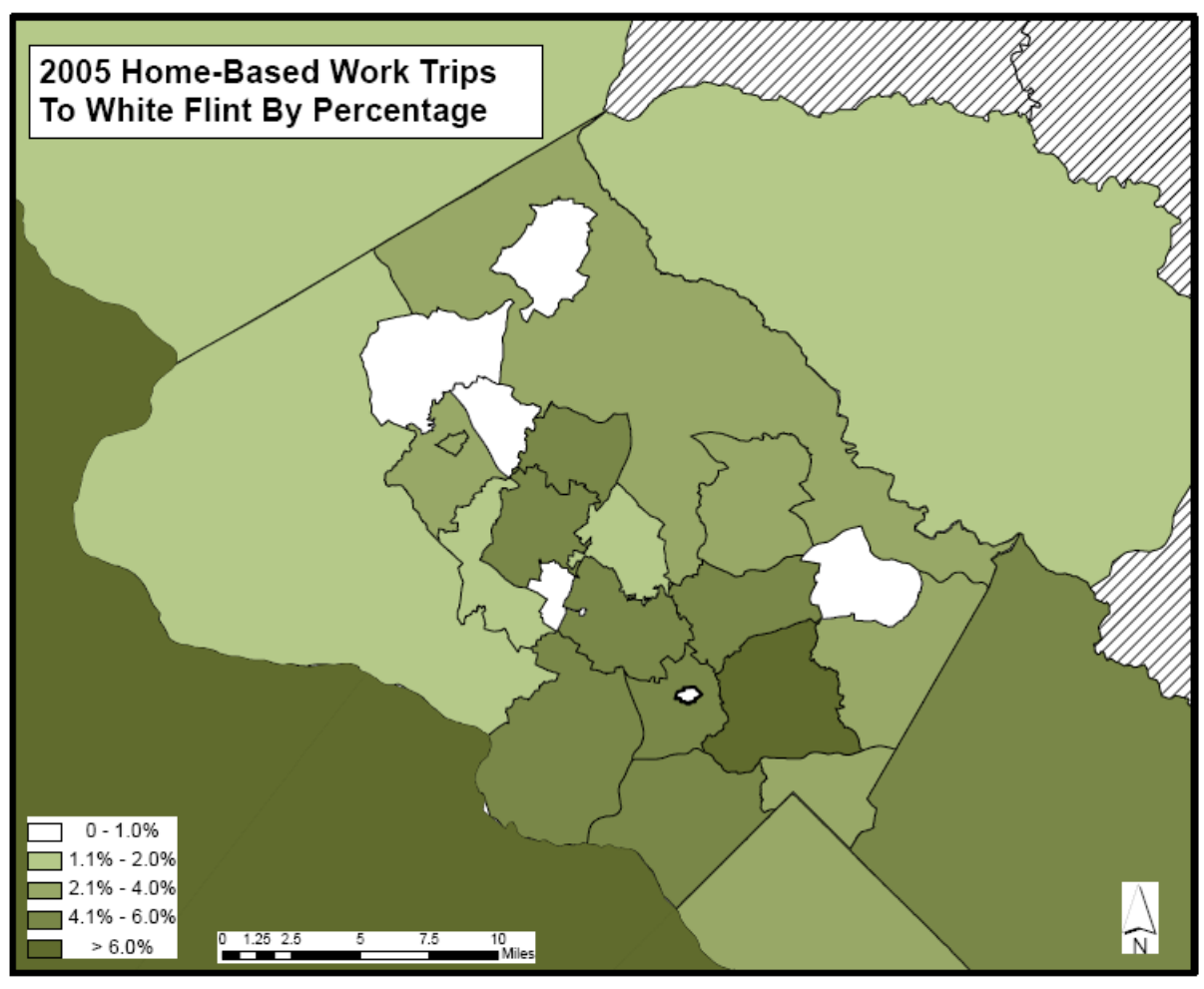
	Characteristics of High Rise Residential Development			
	Silver Spring	Bethesda	North Bethesda	Countywide
Number of units	6775	11105	3500	36695
Average age	37.2	50.2	57.9	48.4
Percent 5-17	13%	3%	3%	7%
Percent 65+	13%	7%	40%	31%
Average HH Size	1.64	1.45	1.40	1.56
Median HH Income	$47,385	$77,650	$56,340	$51,970
Percent rental	96%	58%	53%	68%
Average monthly rent	$1,187	$1,594	$1,495	$1,241
Average monthly to own	n/a	$1,397	$1,293	$1,137
Average # cars	0.9	1.0	1.1	1.0
Employees/unit	1.06	0.88	0.72	0.85
% Drive alone to work	48%	53%	53%	57%
% Transit to work	40%	23%	38%	29%

White Flint is a niche in continuum between Silver Spring and Bethesda

MORE EFFICIENT TRAVEL BEHAVIOR

DIVERSITY AND DESTINATIONS

- White Flint “donut”
- Circumferential travel
- Corridor cities



MORE EFFICIENT TRAVEL BEHAVIOR

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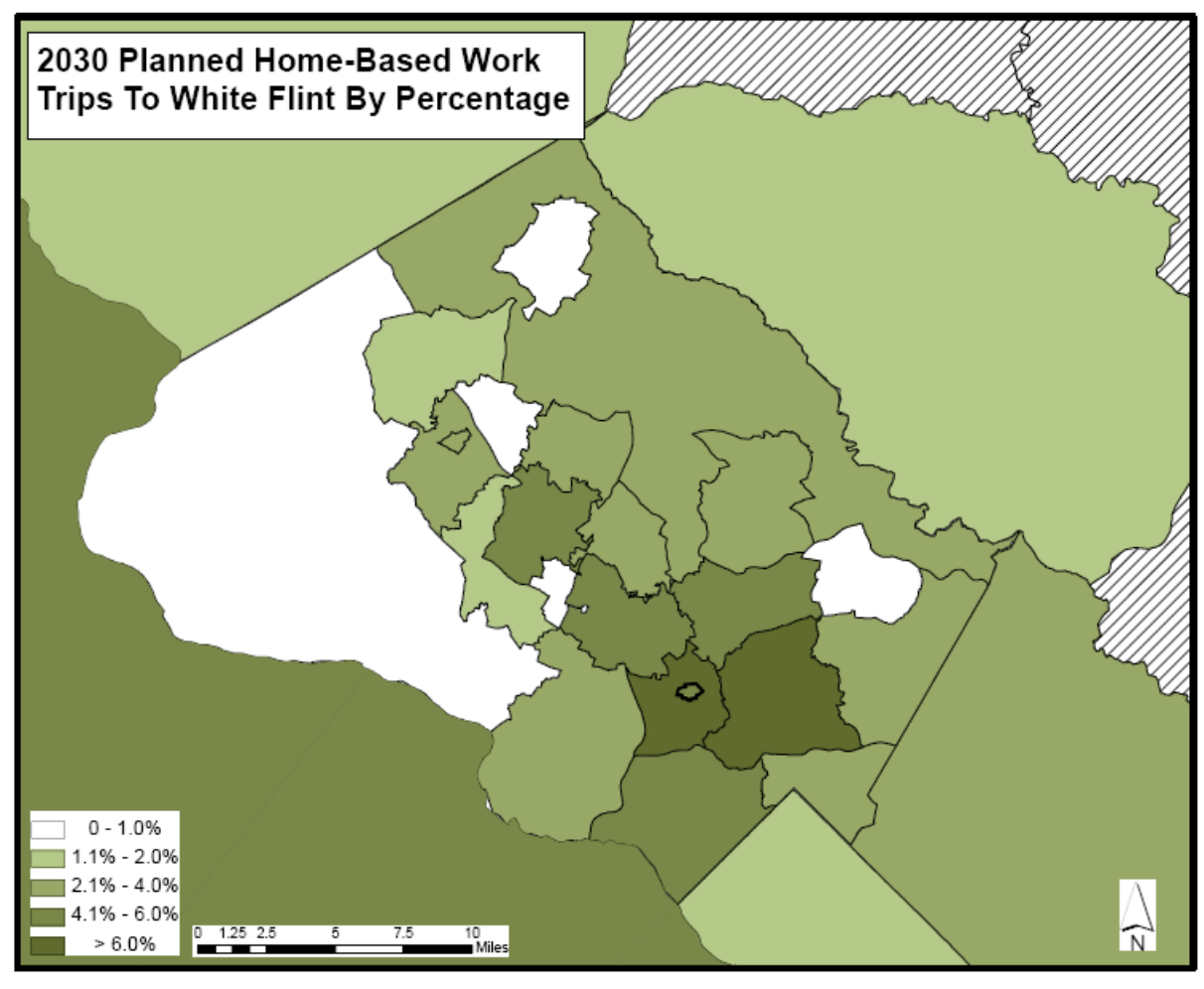
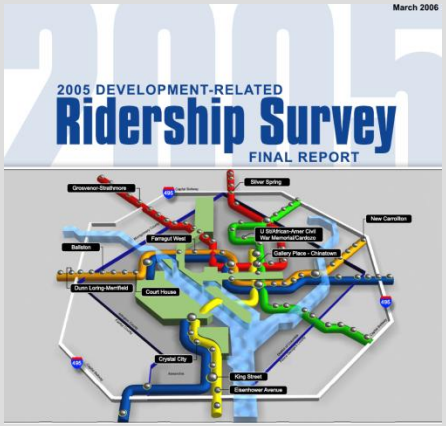


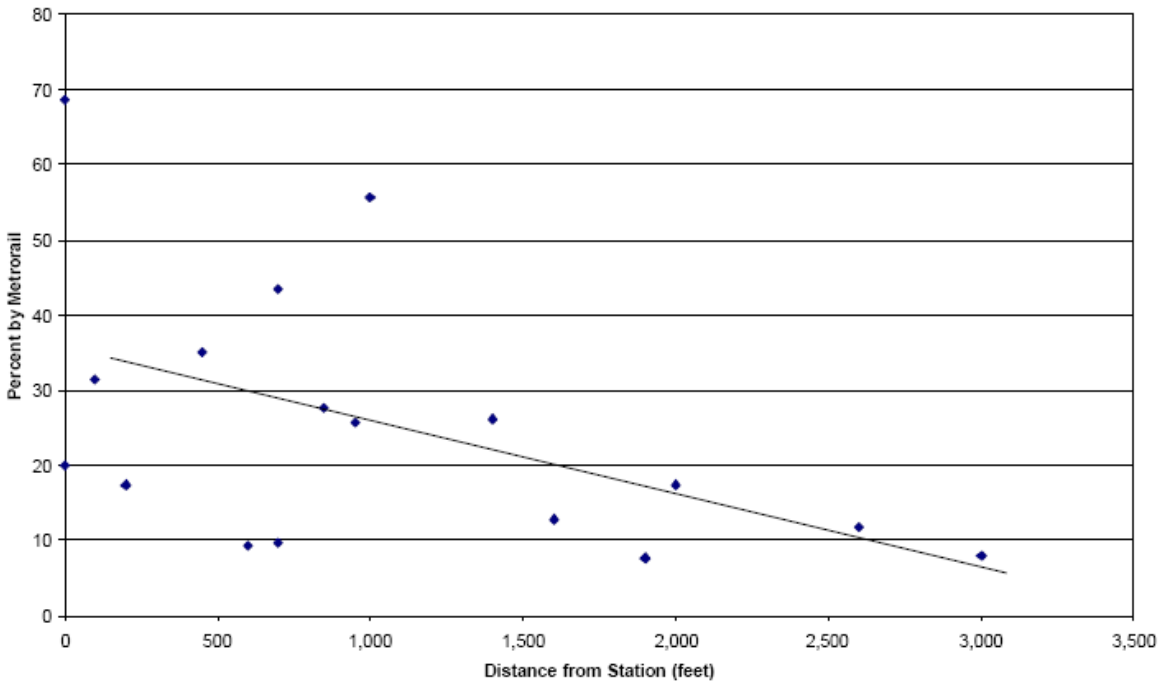
MORE EFFICIENT TRAVEL BEHAVIOR

DISTANCE TO TRANSIT



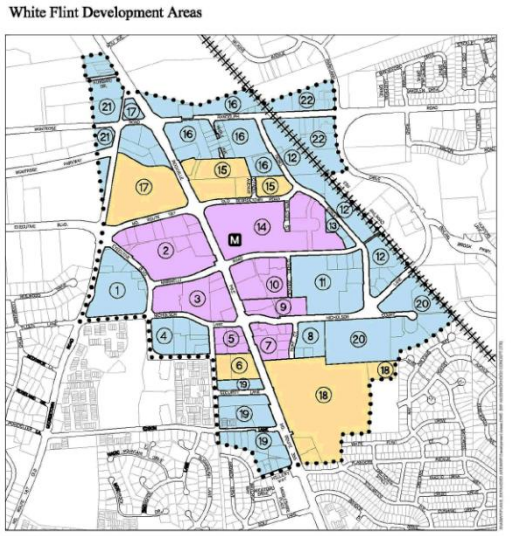
Mode shares decrease linearly with door-to-door distance to transit

Figure 14
Office Commute Metrorail Usage by Distance from Station

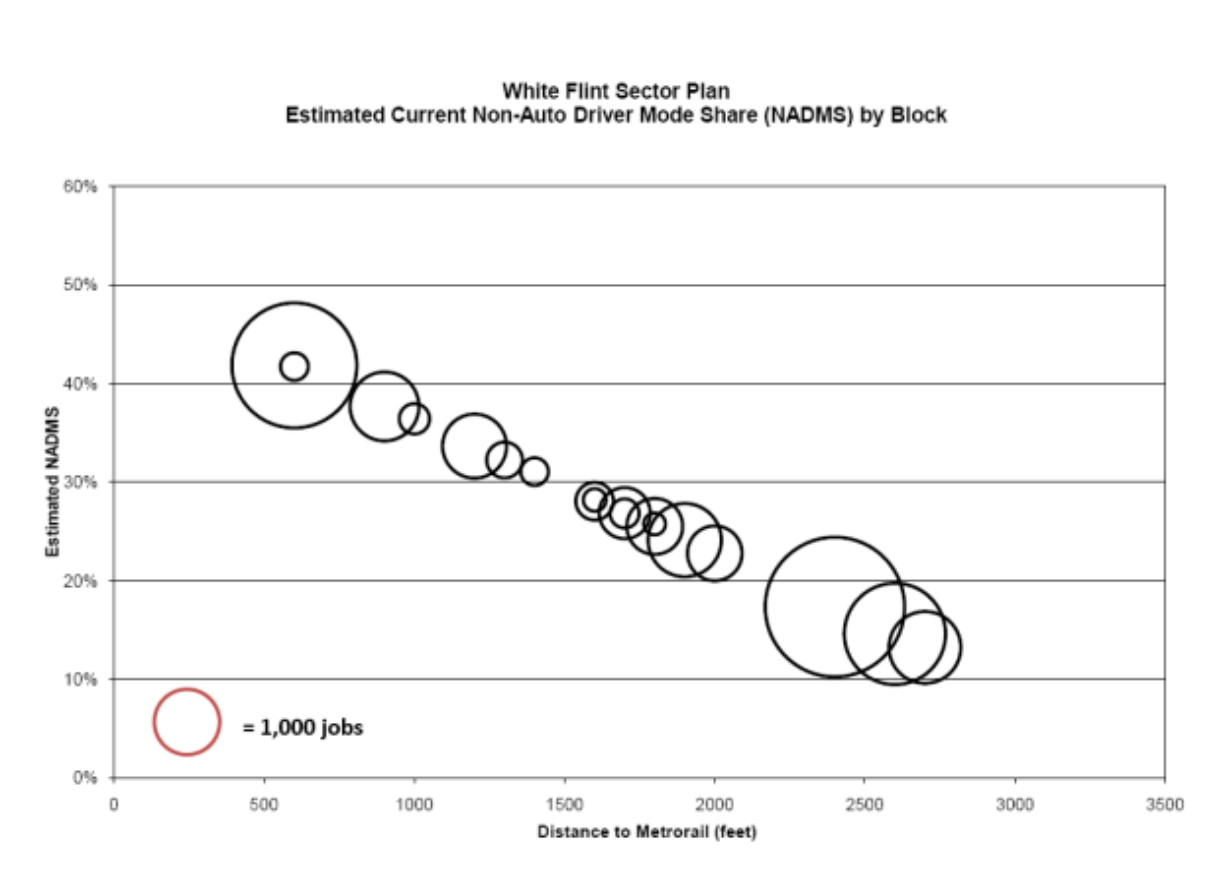


MORE EFFICIENT TRAVEL BEHAVIOR

DISTANCE TO TRANSIT

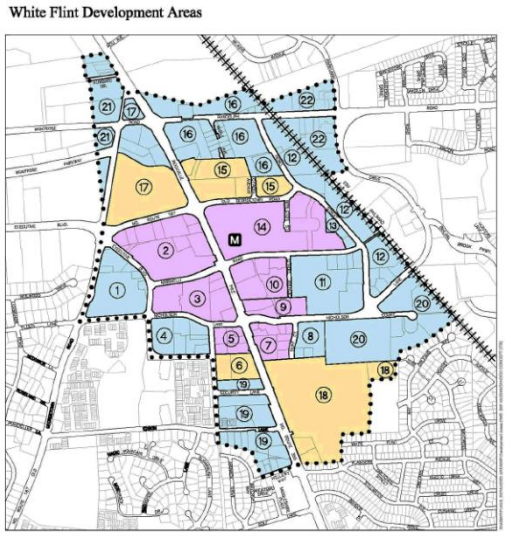


Currently, most jobs are not close to Metrorail

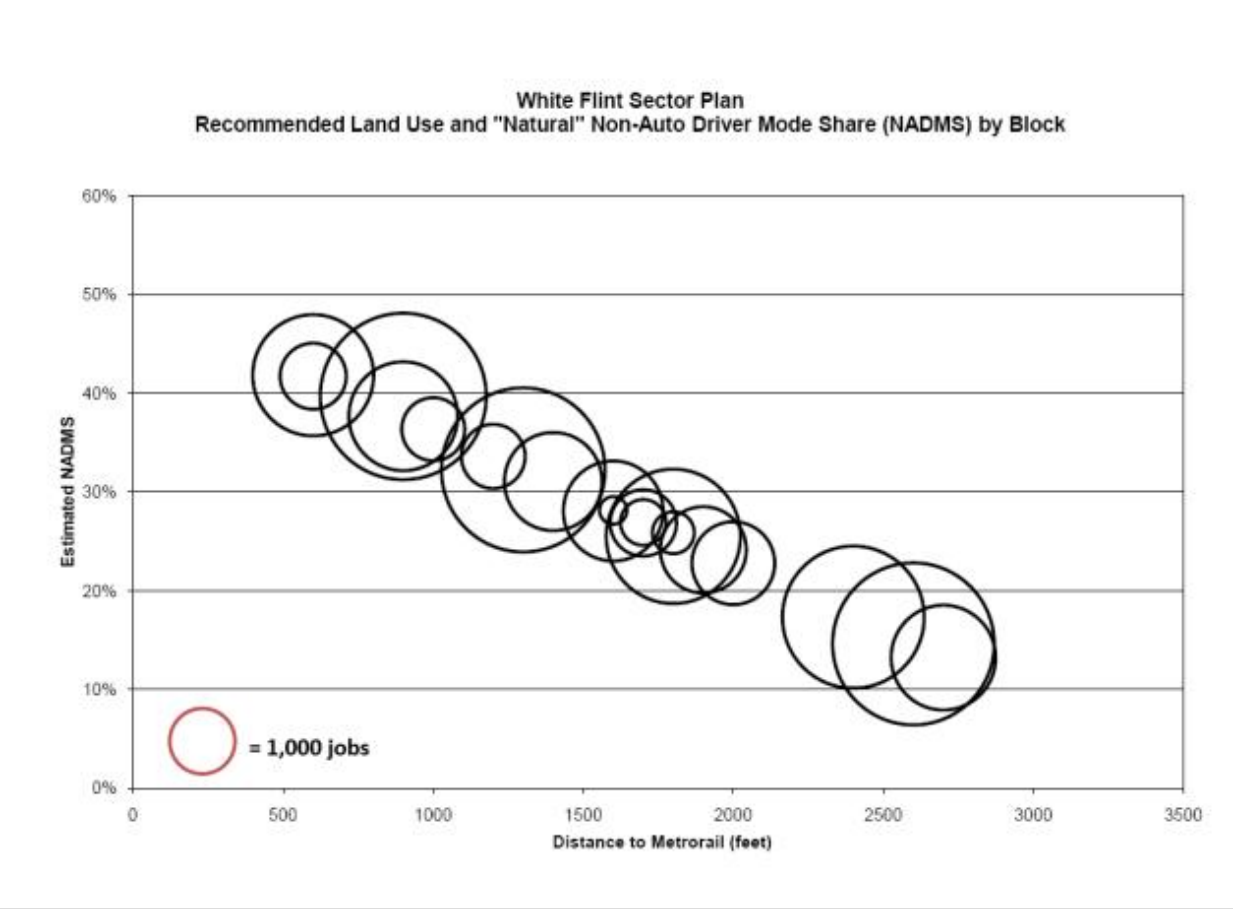


MORE EFFICIENT TRAVEL BEHAVIOR

DISTANCE TO TRANSIT

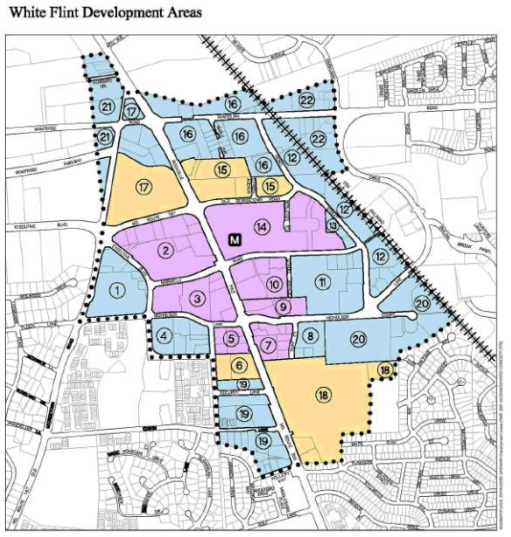


Planned land use improves density proximity to Metrorail

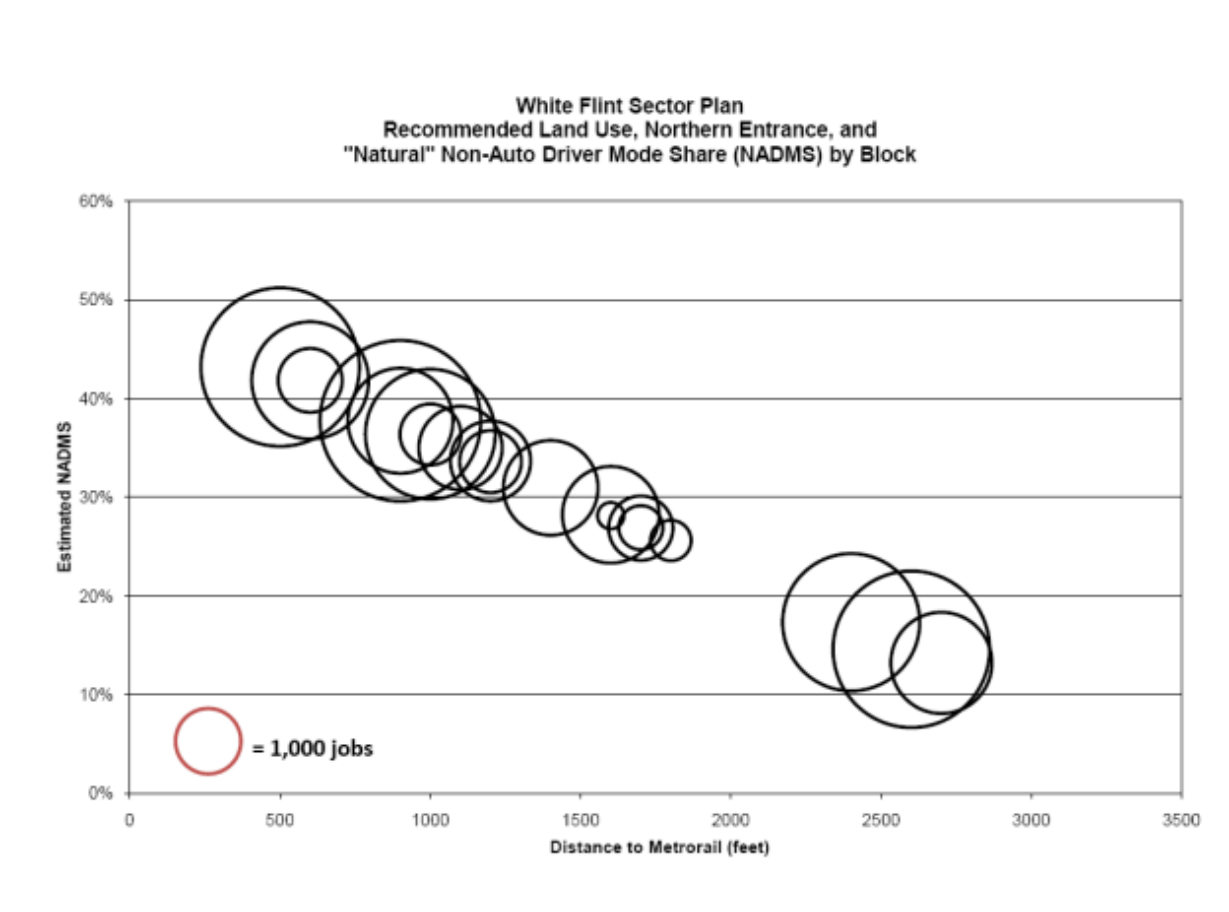


MORE EFFICIENT TRAVEL BEHAVIOR

DISTANCE TO TRANSIT



Northern Metrorail station entrance further improves proximity to Metrorail



MORE EFFICIENT TRAVEL BEHAVIOR

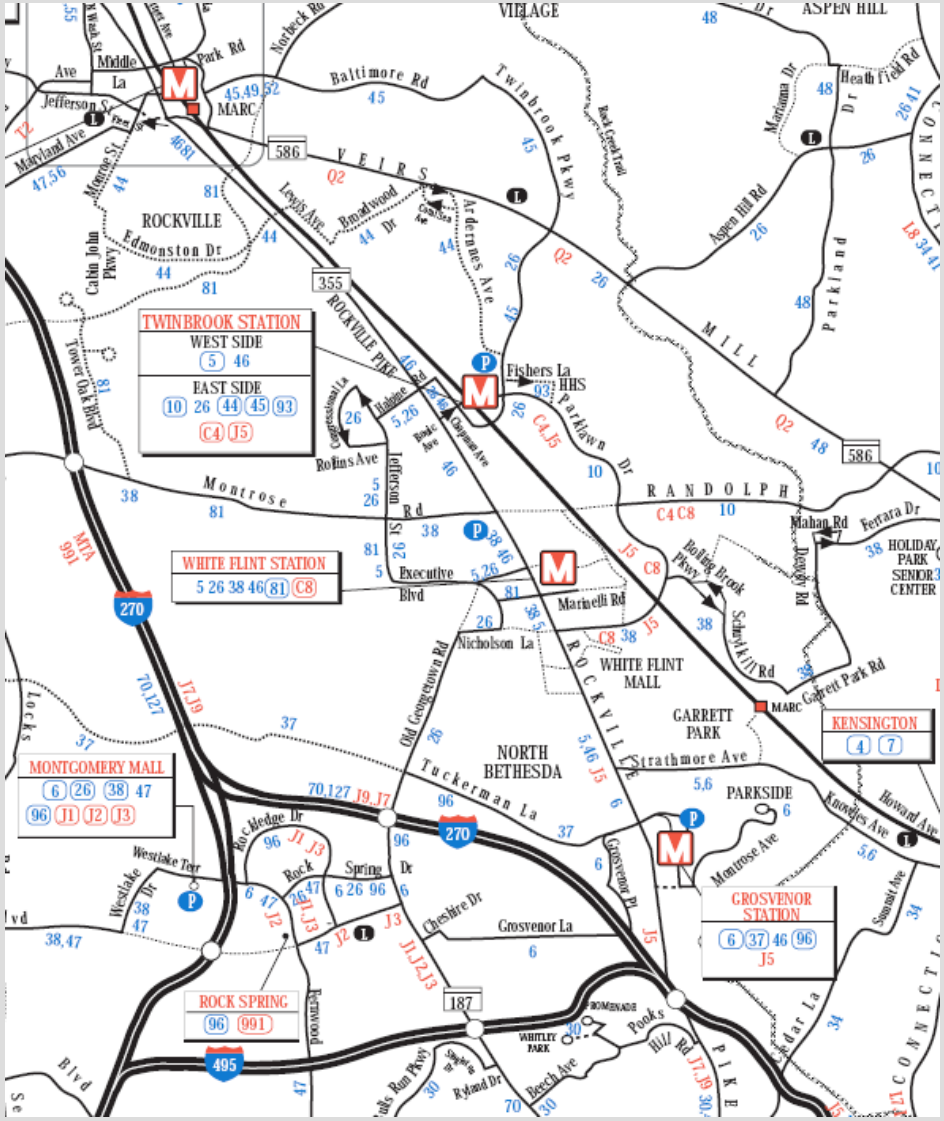
CURRENT CONDITIONS – TRANSIT AND TDM

<u>White Flint Employees</u>

- 74% drive to work (61% goal)
- 20% take transit (2/3 rail)
- 6% walk/bike/other

<u>White Flint Residents</u>

- Focus on high-rise
- 0.7 employees/residence
- 58% drive to work (72% goal)

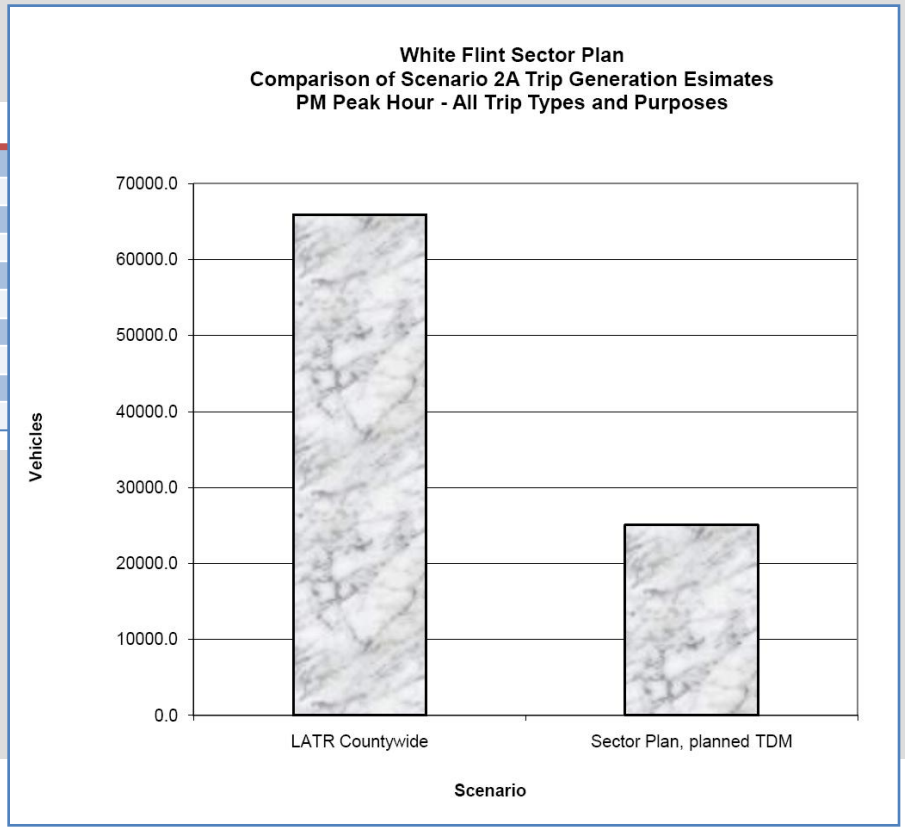


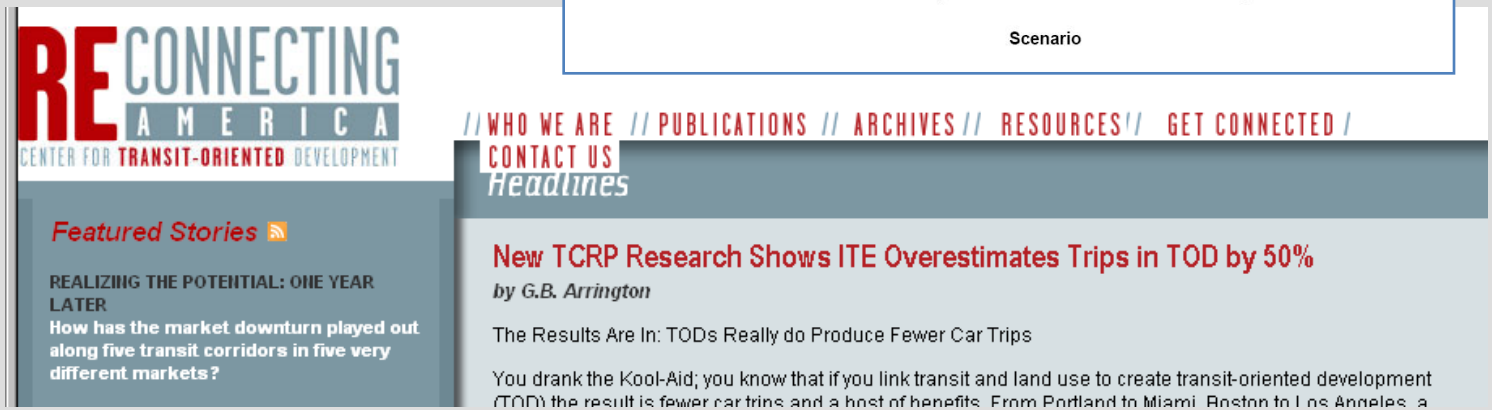
MORE EFFICIENT TRAVEL BEHAVIOR

MORE EFFICIENT TRAVEL

Figure 29: Local Area Model Peak Hour Trip Generation

Land Use	Units	AM	PM
Office (at 26% NADMS)	1000 Square Feet	1.36	1.28
Office (at 39% NADMS)	1000 Square Feet	1.22	1.16
Retail (at 26% NADMS)	1000 Square Feet	0.70	1.75
Retail (at 39% NADMS)	1000 Square Feet	0.67	1.70
Industrial (at 26% NADMS)	1000 Square Feet	1.10	1.10
Industrial (at 39% NADMS)	1000 Square Feet	1.03	1.03
Other Commercial(at 26% NADMS)	1000 Square Feet	1.30	1.30
Other Commercial(at 39% NADMS)	1000 Square Feet	1.21	1.21
Multi-family residential	Dwelling unit	0.40	0.46





LAND USE / TRANSPORTATION BALANCE

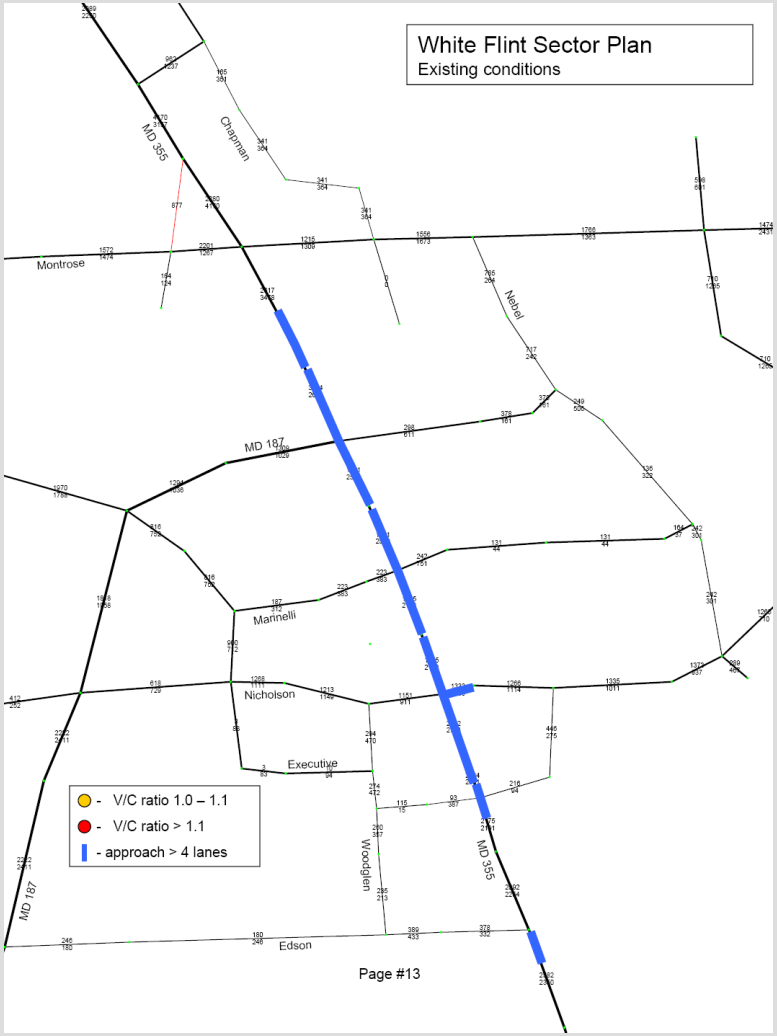
Current conditions
- The Pike
- Transit and TDM

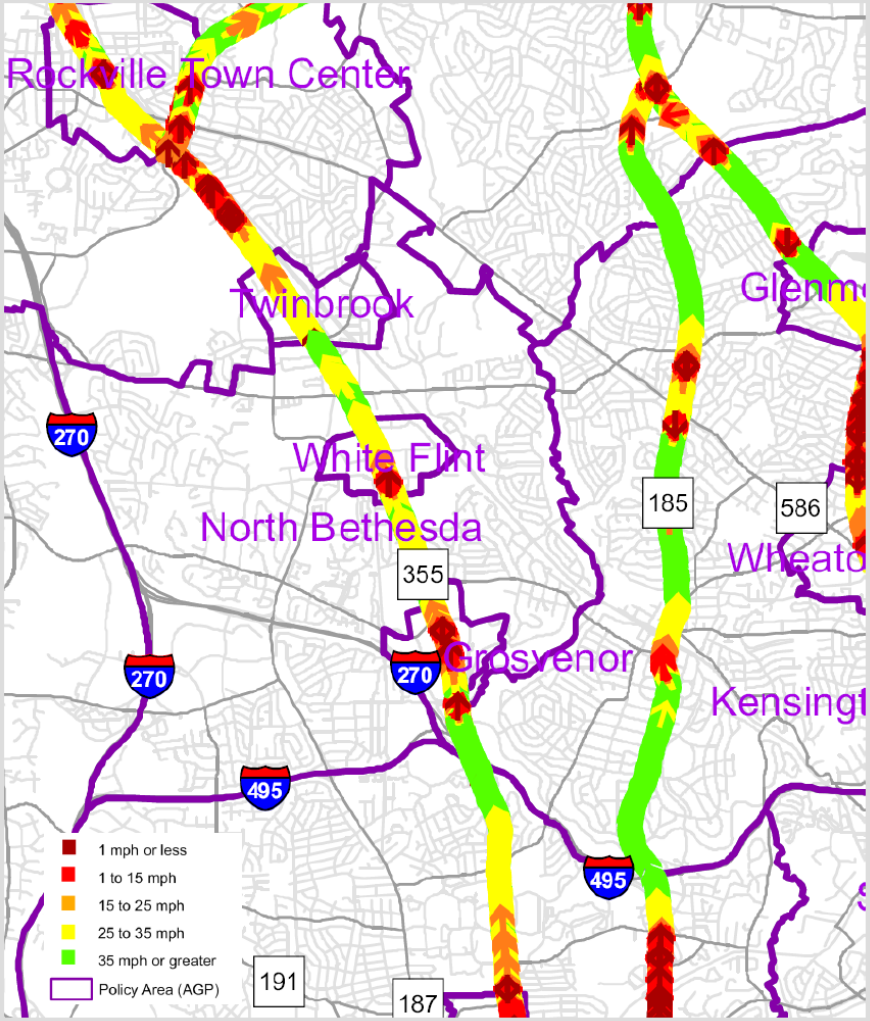
Staff Analysis Tools
- TRAVEL/3 travel demand model
- Cordon Line Analyses
- Local Area Model (LAM)

County Council findings
- Policy Area Mobility Review
- Local Area Transportation Review

Other
- Metrorail capacity
- Zoning capacity / flexibility

CURRENT CONDITIONS – THE PIKE





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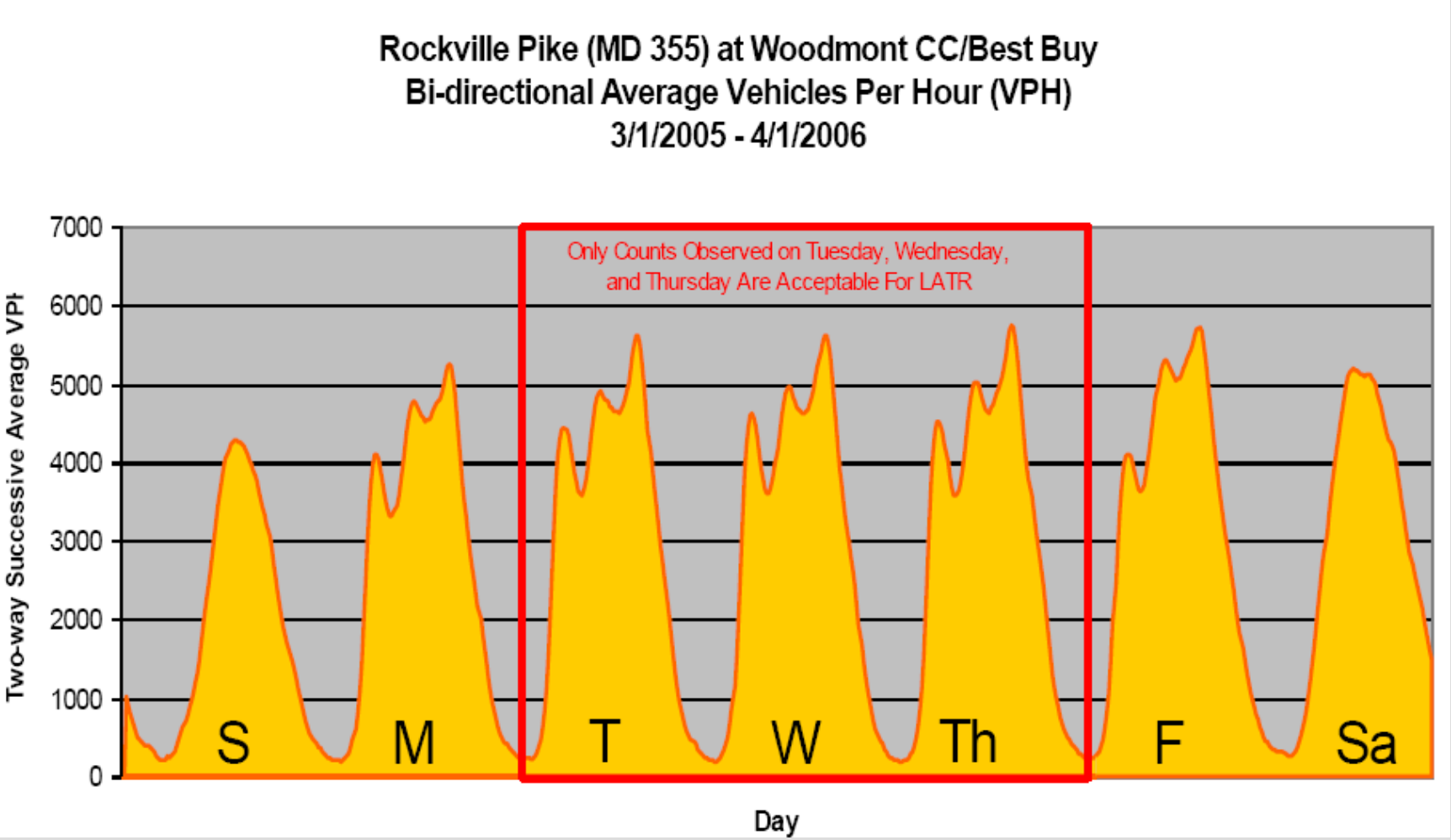
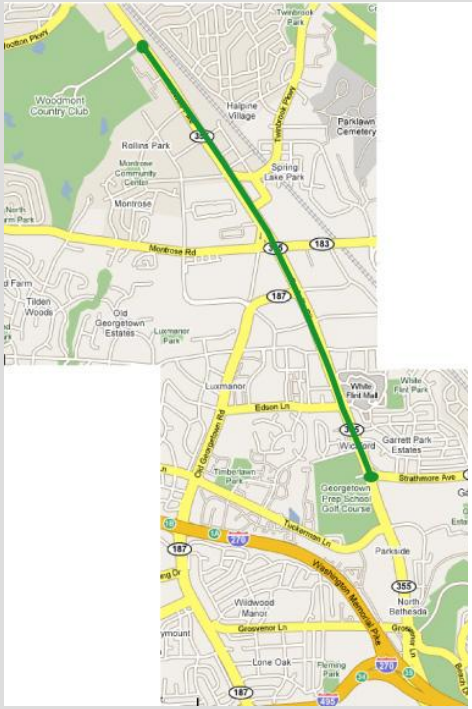
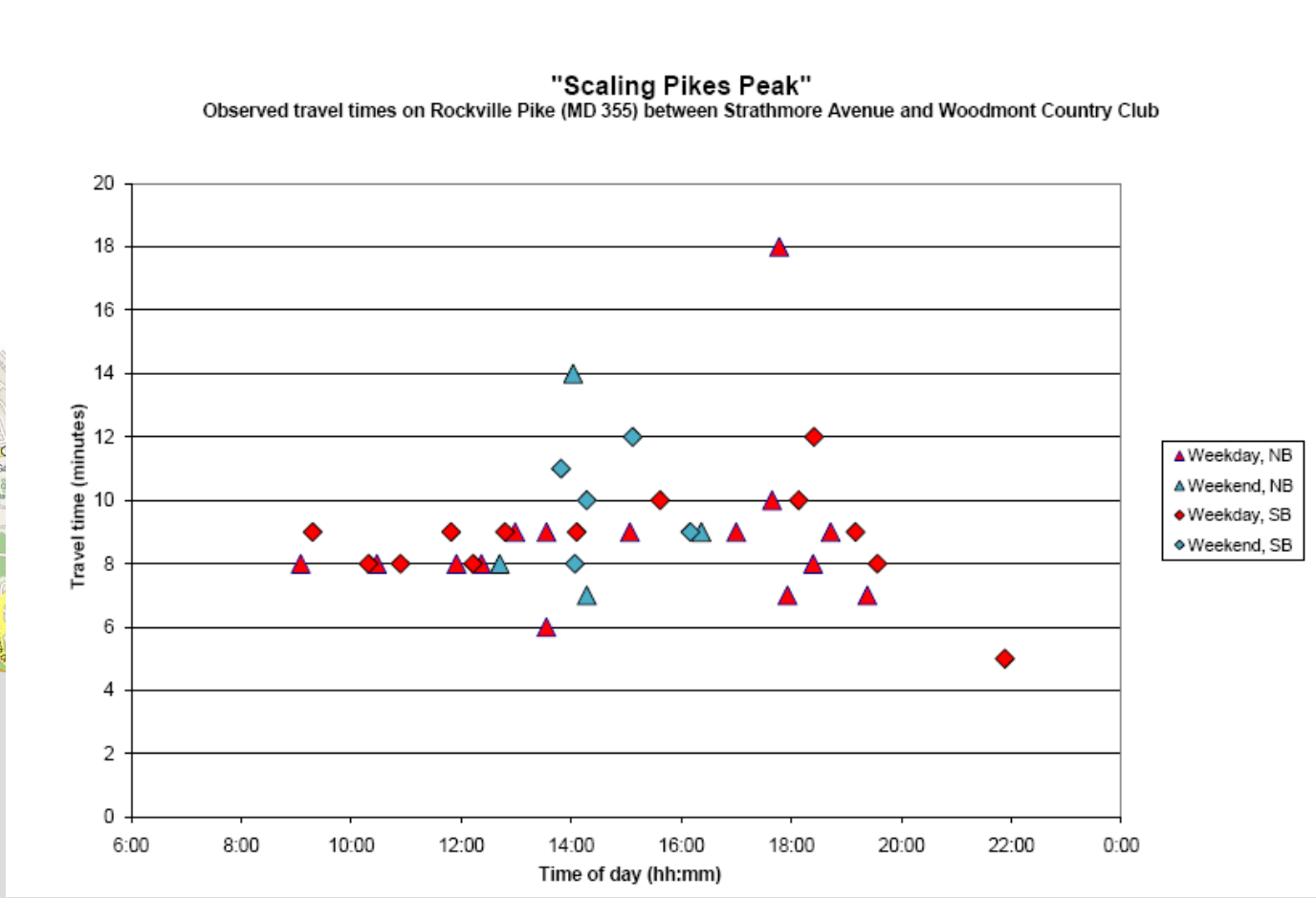
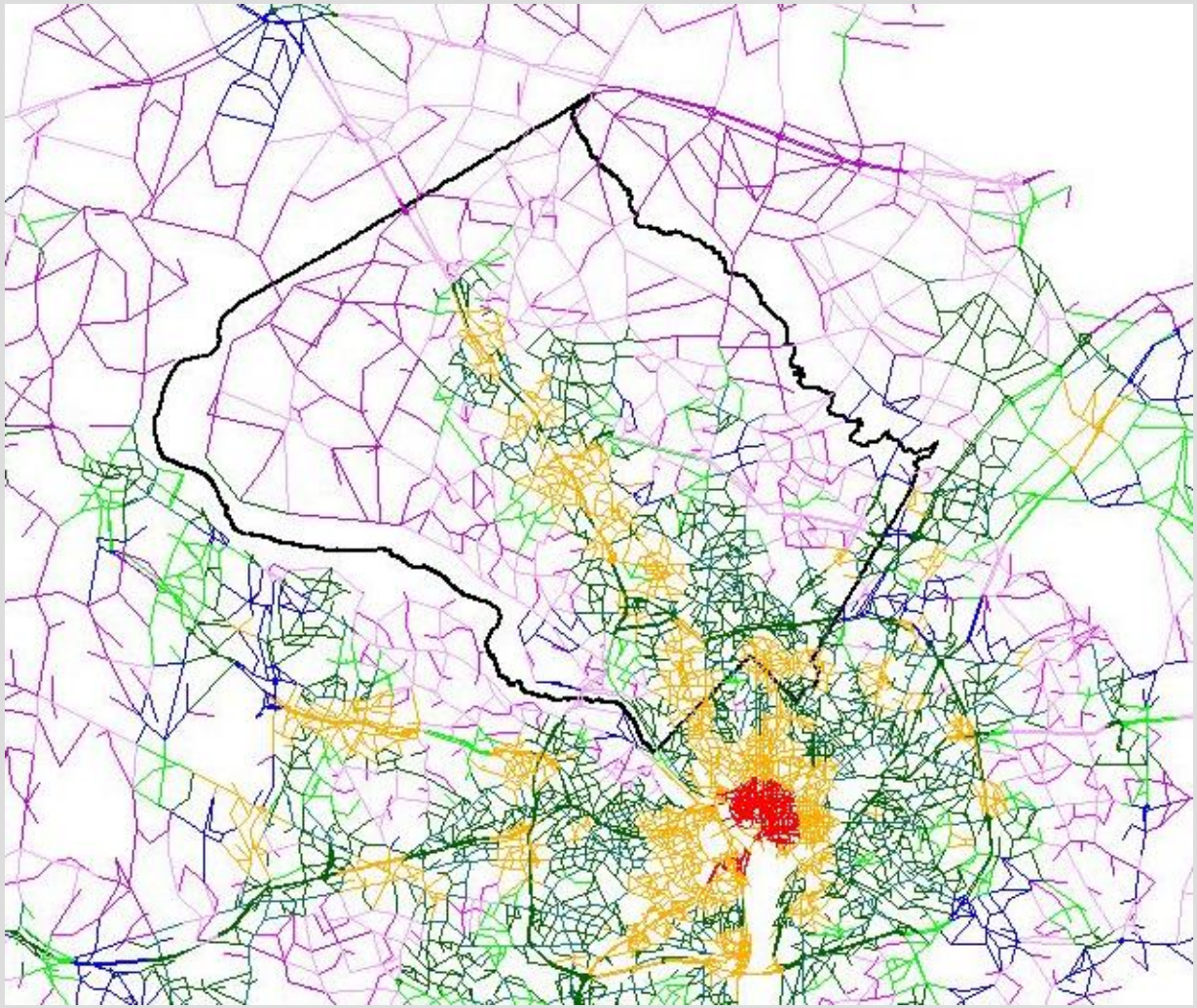


CURRENT CONDITIONS – THE PIKE





ANALYSIS TOOLS – TRAVEL/3 MODEL

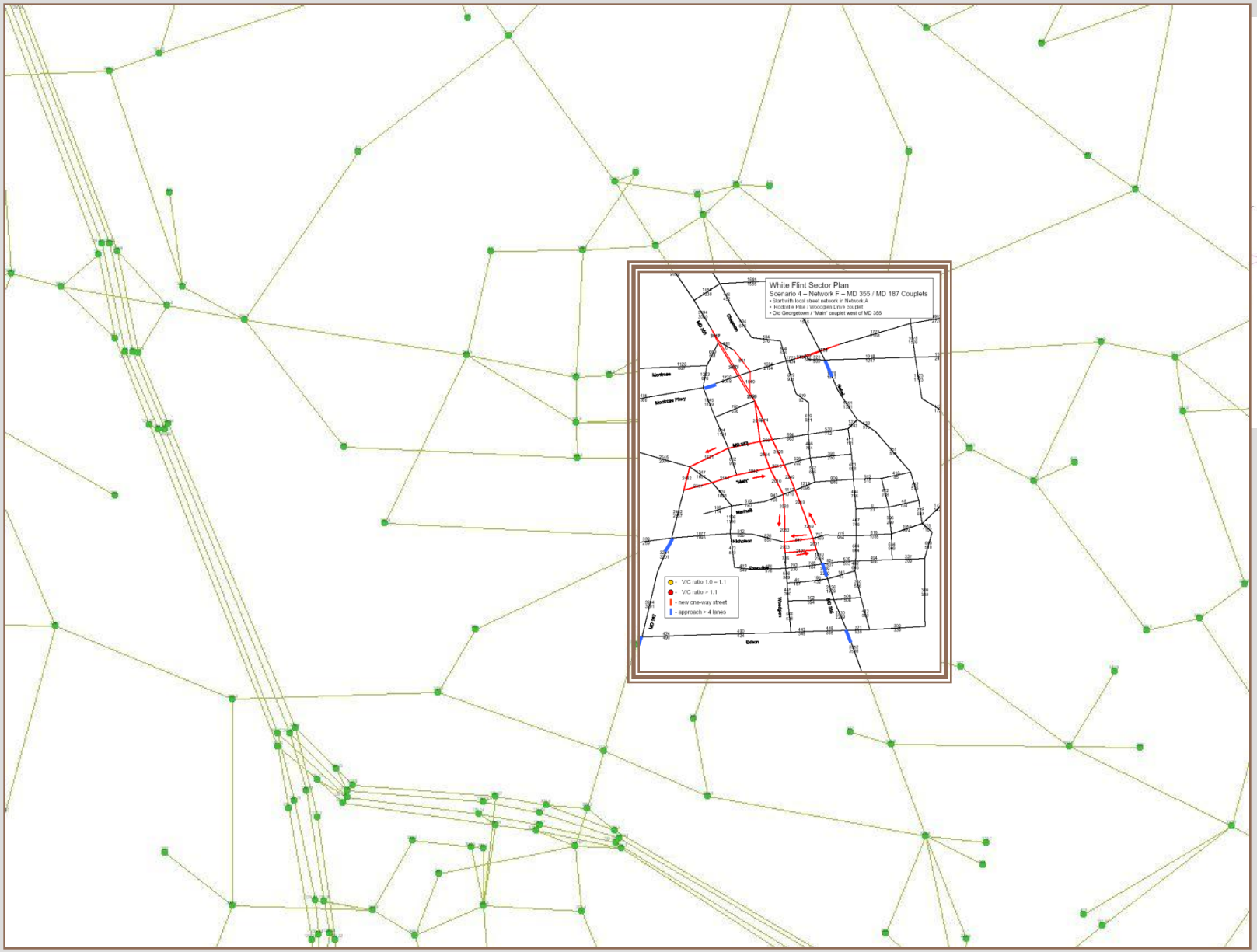


Four-step model

- Trip generation
- Trip distribution
- Mode choice
- Trip assignment

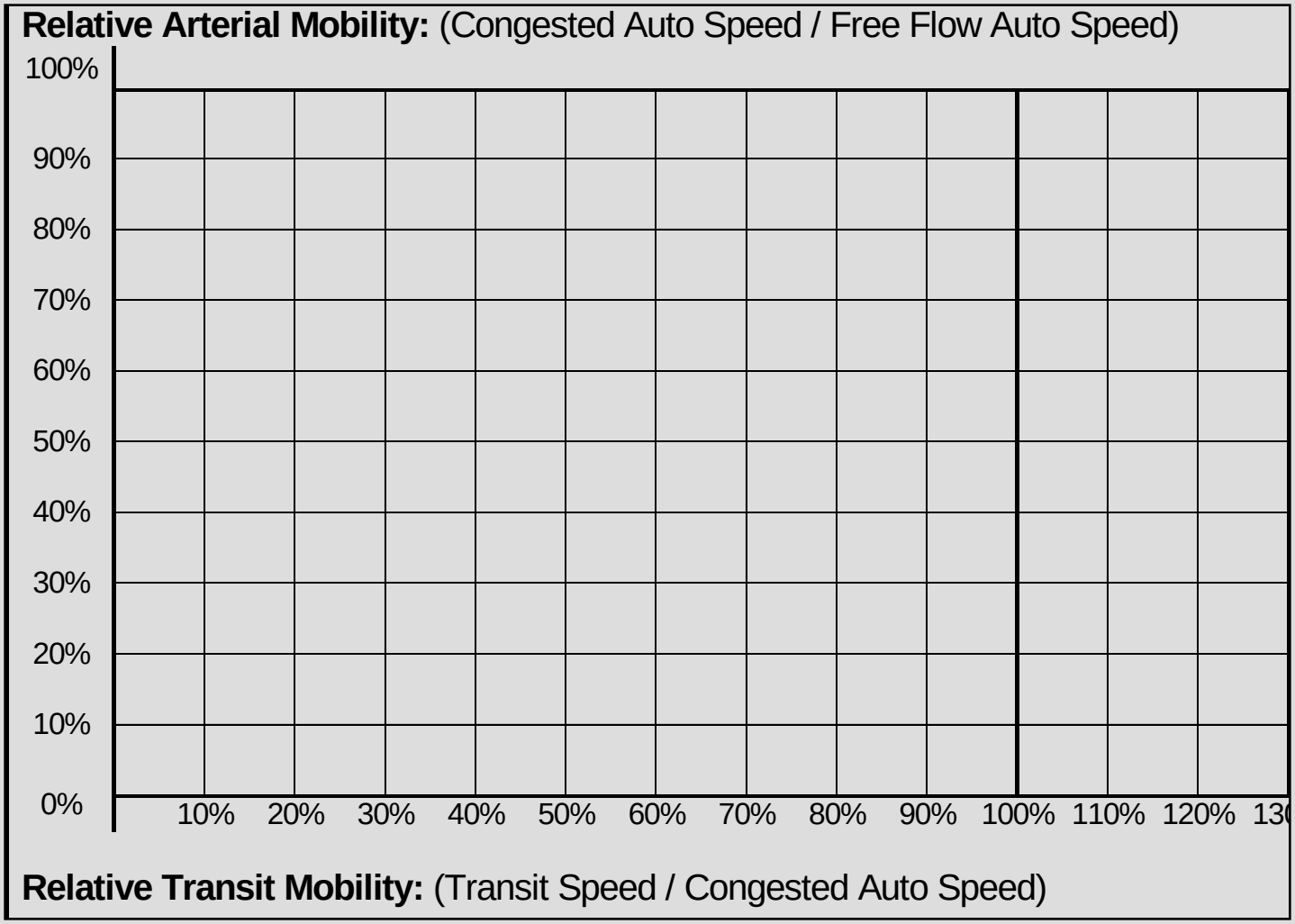
White Flint Sector Plan

LAND USE / TRANSPORTATION BALANCE

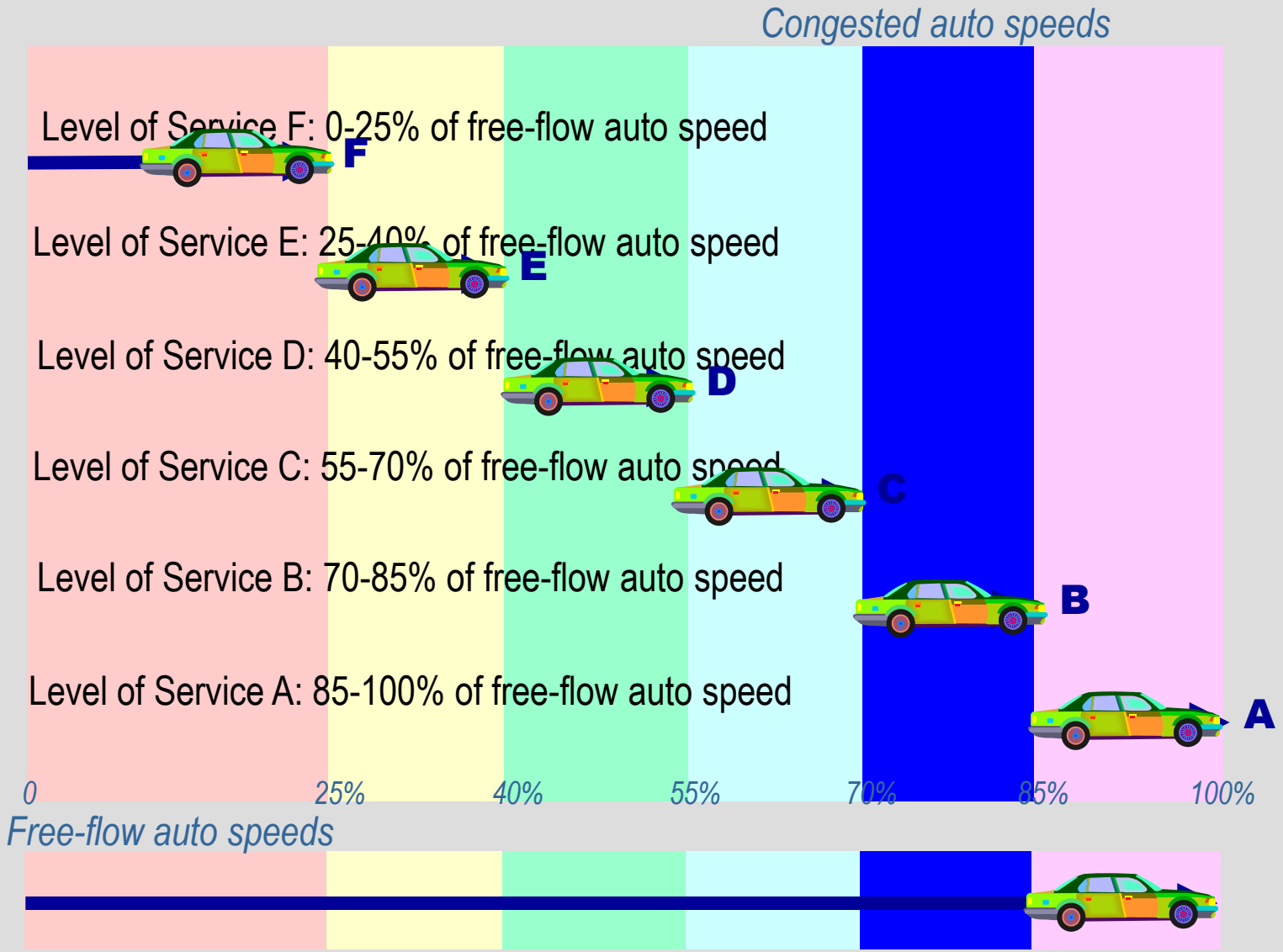


LAND USE / TRANSPORTATION BALANCE

POLICY AREA MOBILITY REVIEW – WHAT DOES IT MEAN?



PAMR: Arterial Level of Service



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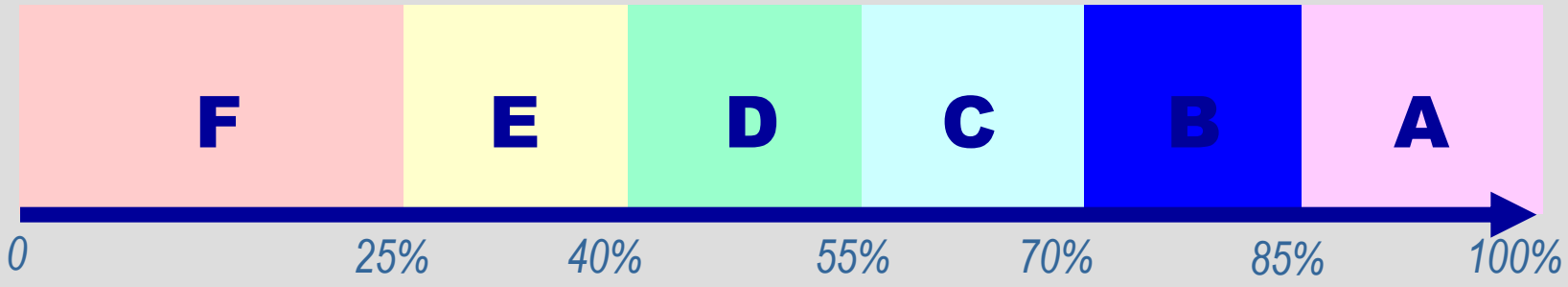

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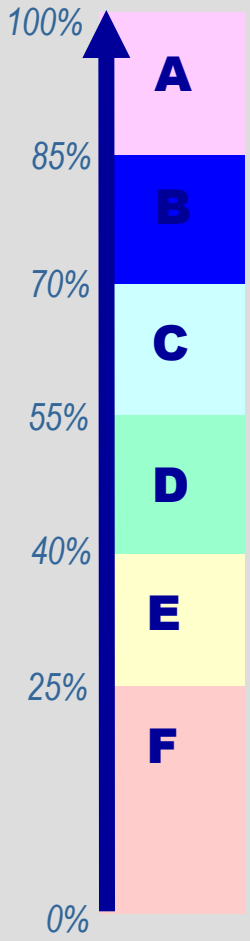
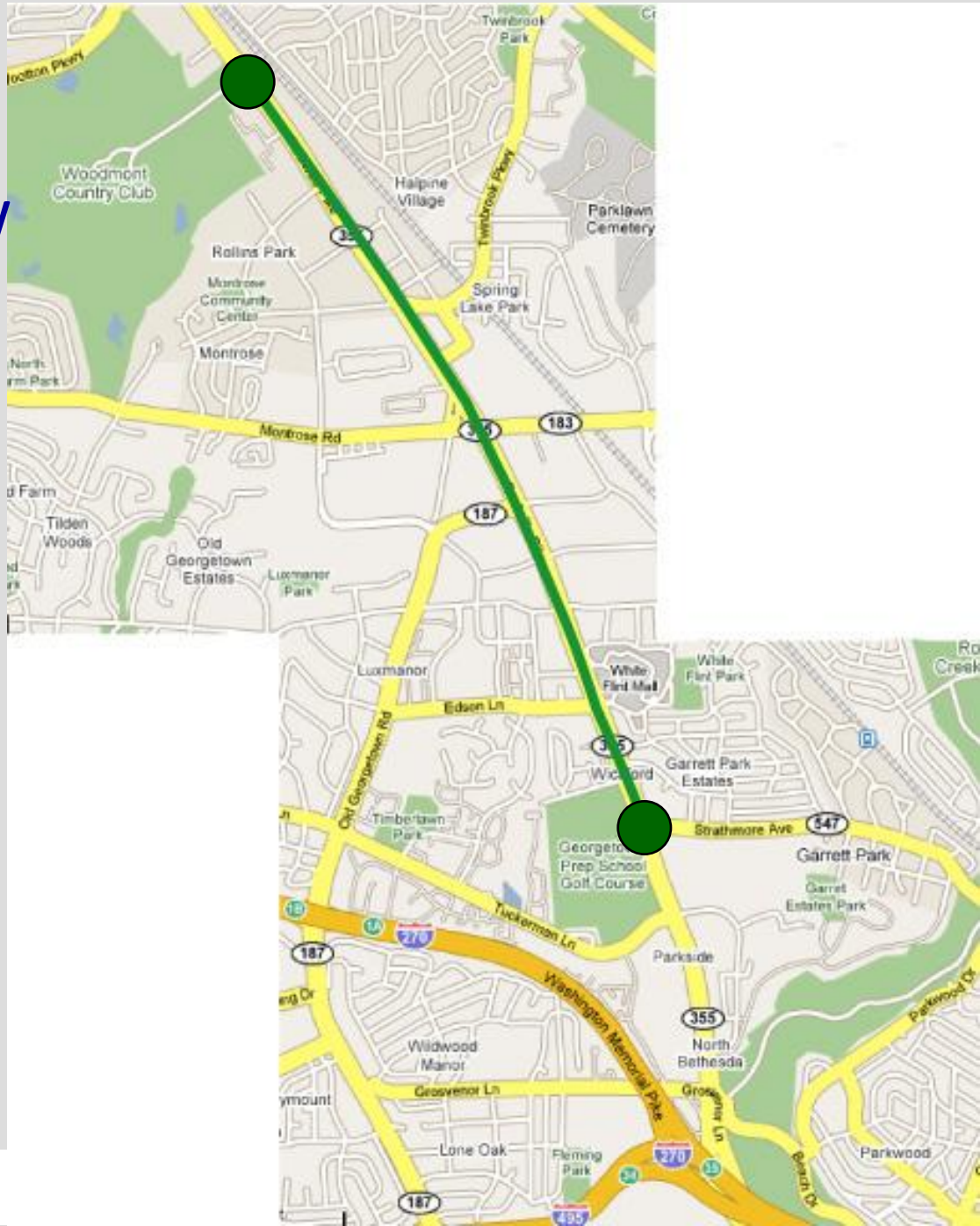


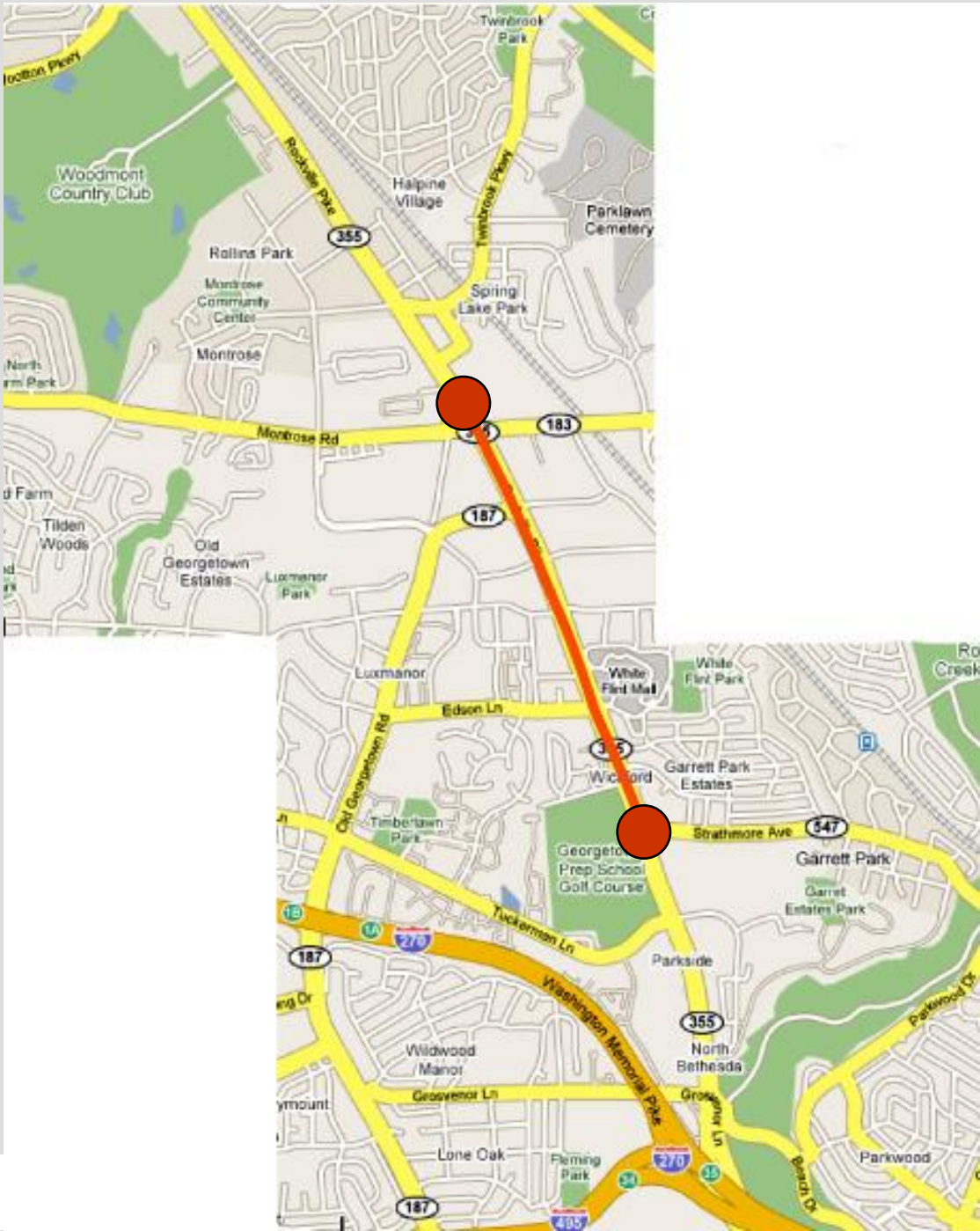
Arterial Level of Service: Free-flow Conditions

- 2.7 miles
- 40 mph
- 4 minutes



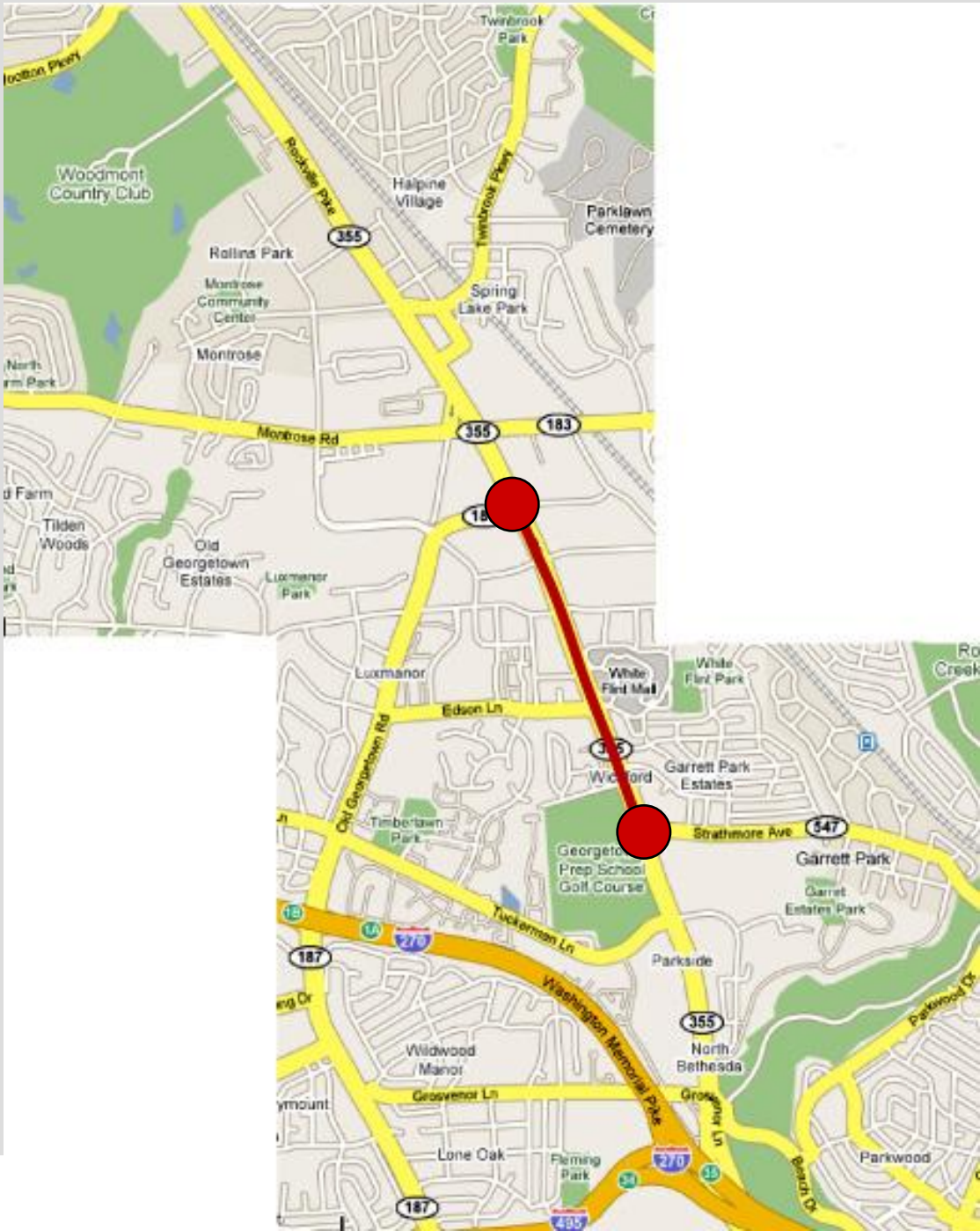
Arterial Level of Service: LOS C

- 55% of free-flow speed
- 22 mph
- 1.5 miles
- 4 minutes



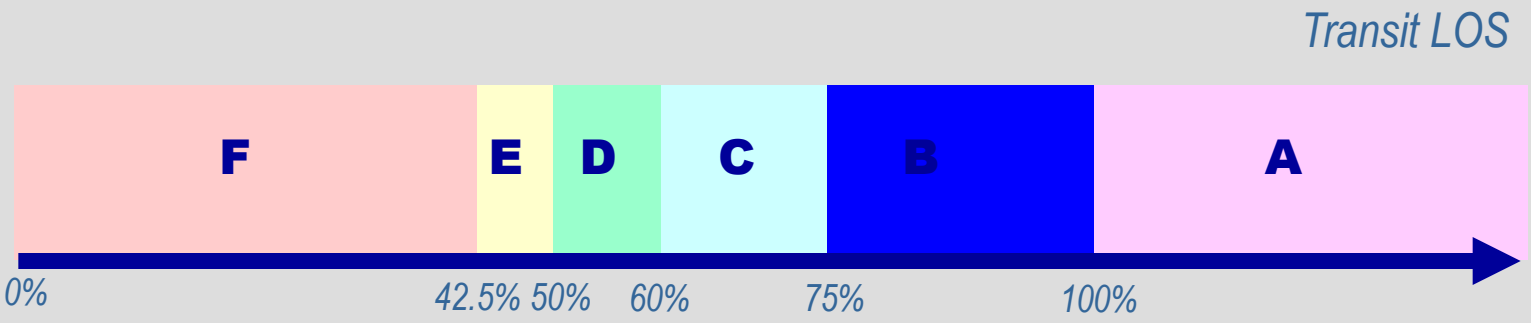
Arterial Level of Service: LOS D

- 40% of free-flow speed
- 16 mph
- 1.1 miles
- 4 minutes

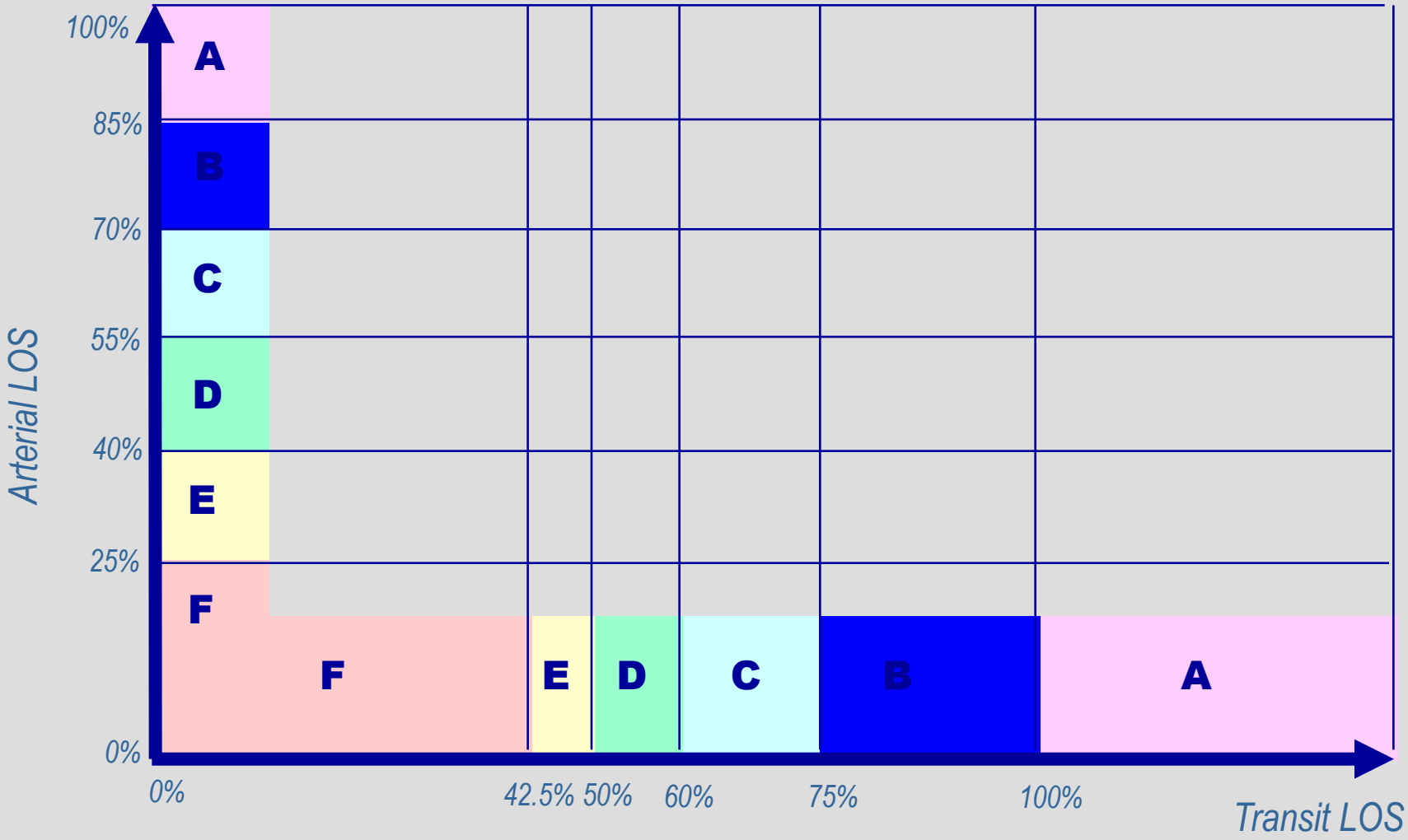


PAMR: Transit Level of Service

PAMR: Transit Level of Service



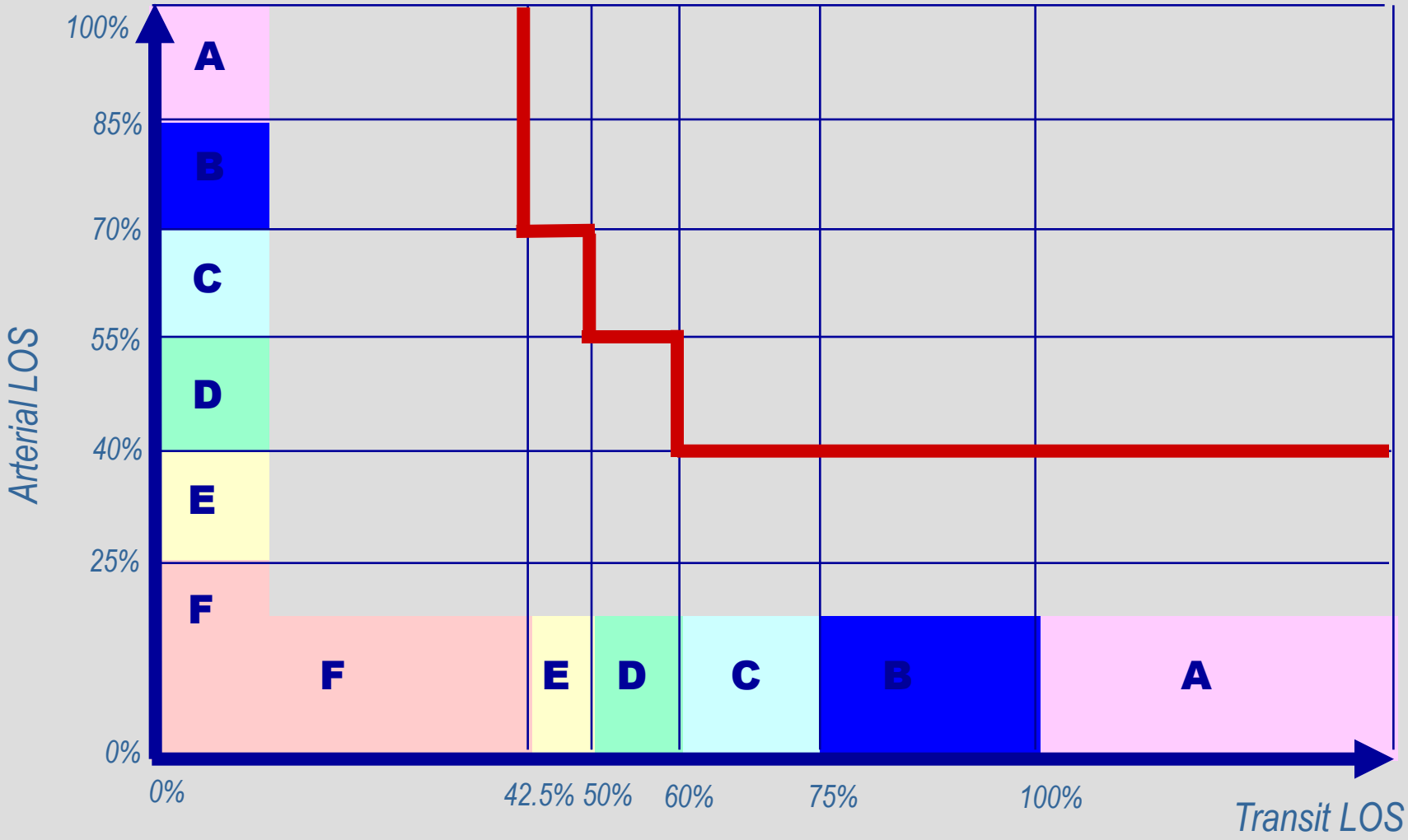
Scoring Policy Areas Using PAMR



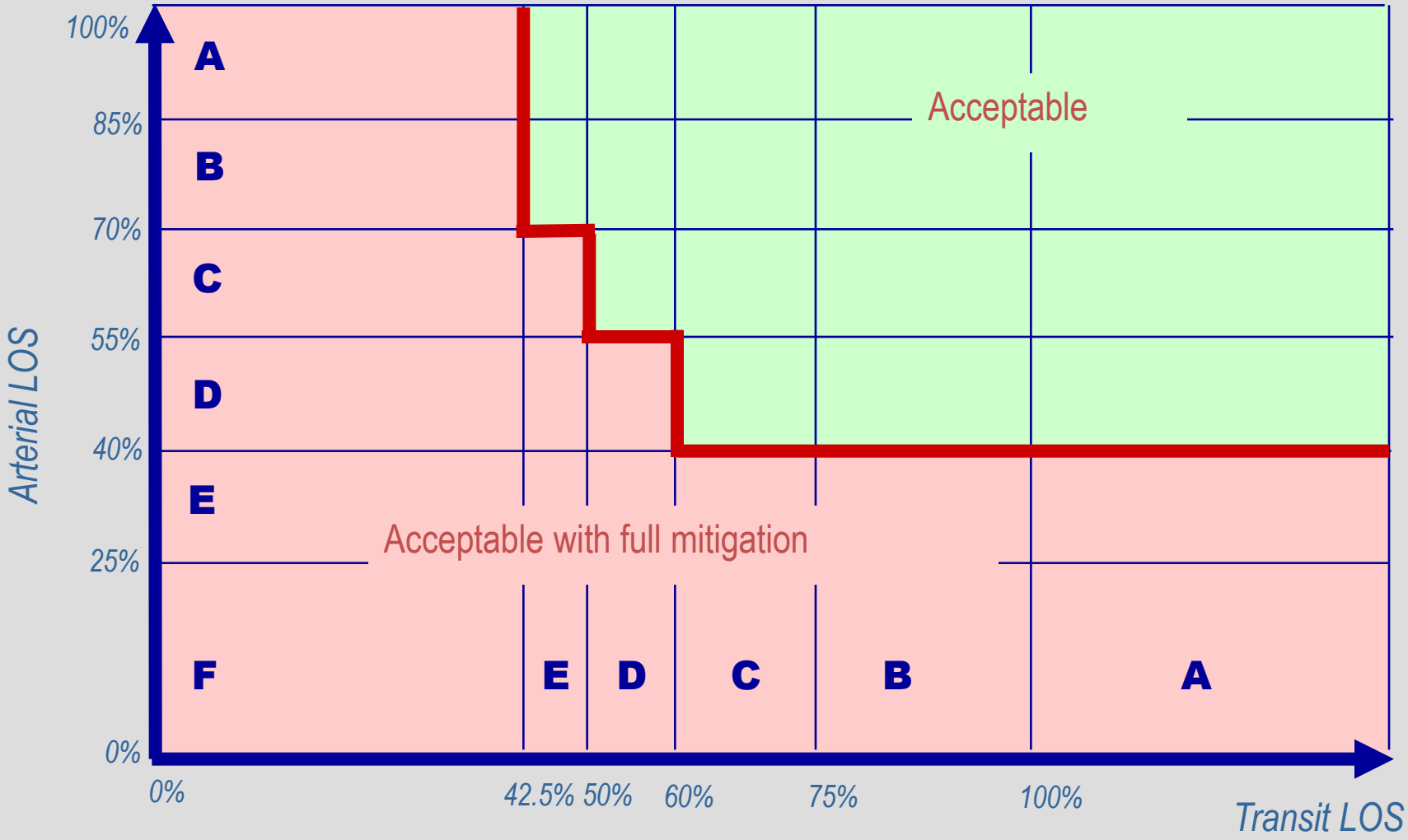
Relationship of Transit and Arterial Levels of Service

TRANSIT	ARTERIAL
A	~~F~~ D
B	~~F~~ D
C	D
D	C
E	B
F	A

Scoring Policy Areas Using PAMR



Scoring Policy Areas Using PAMR



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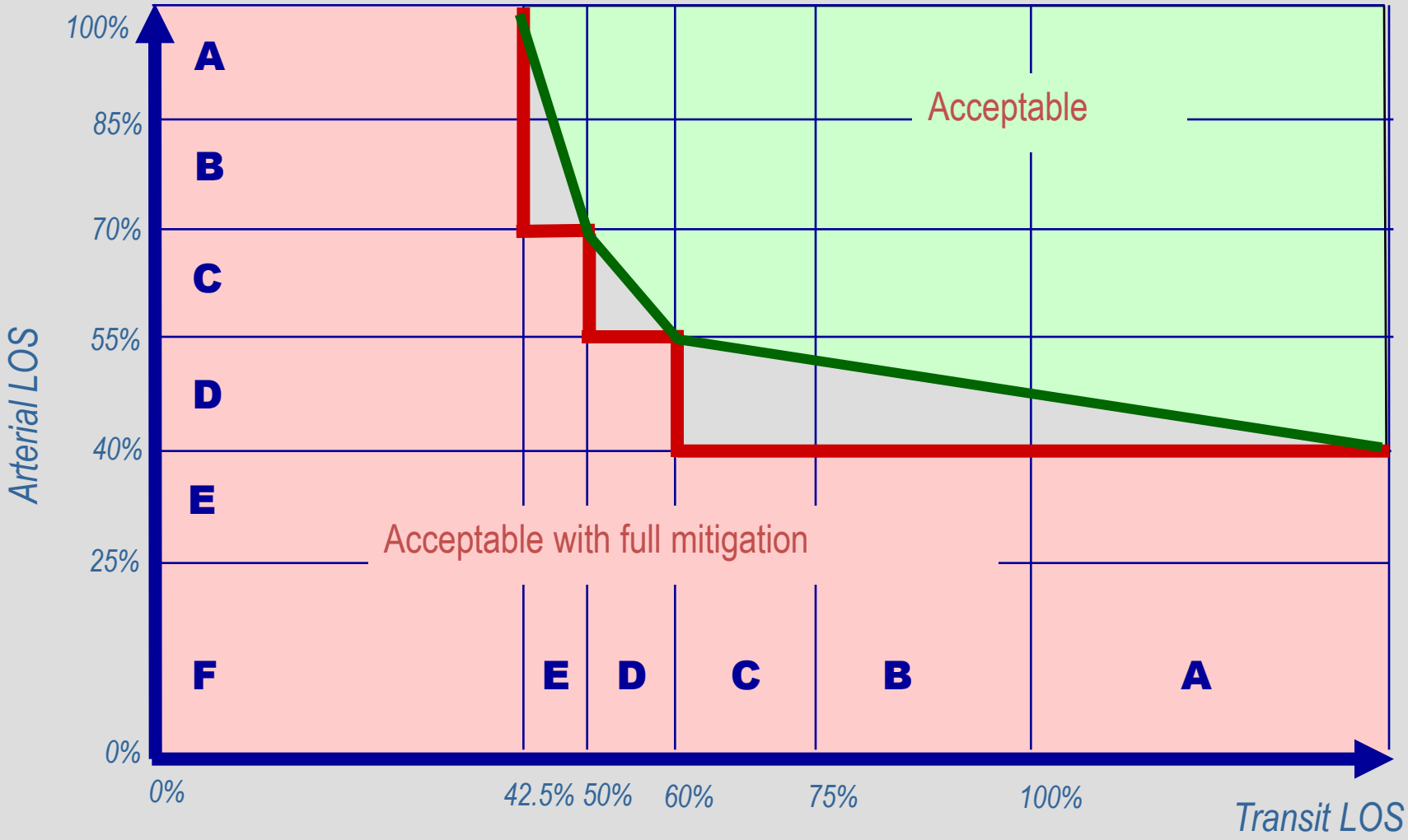

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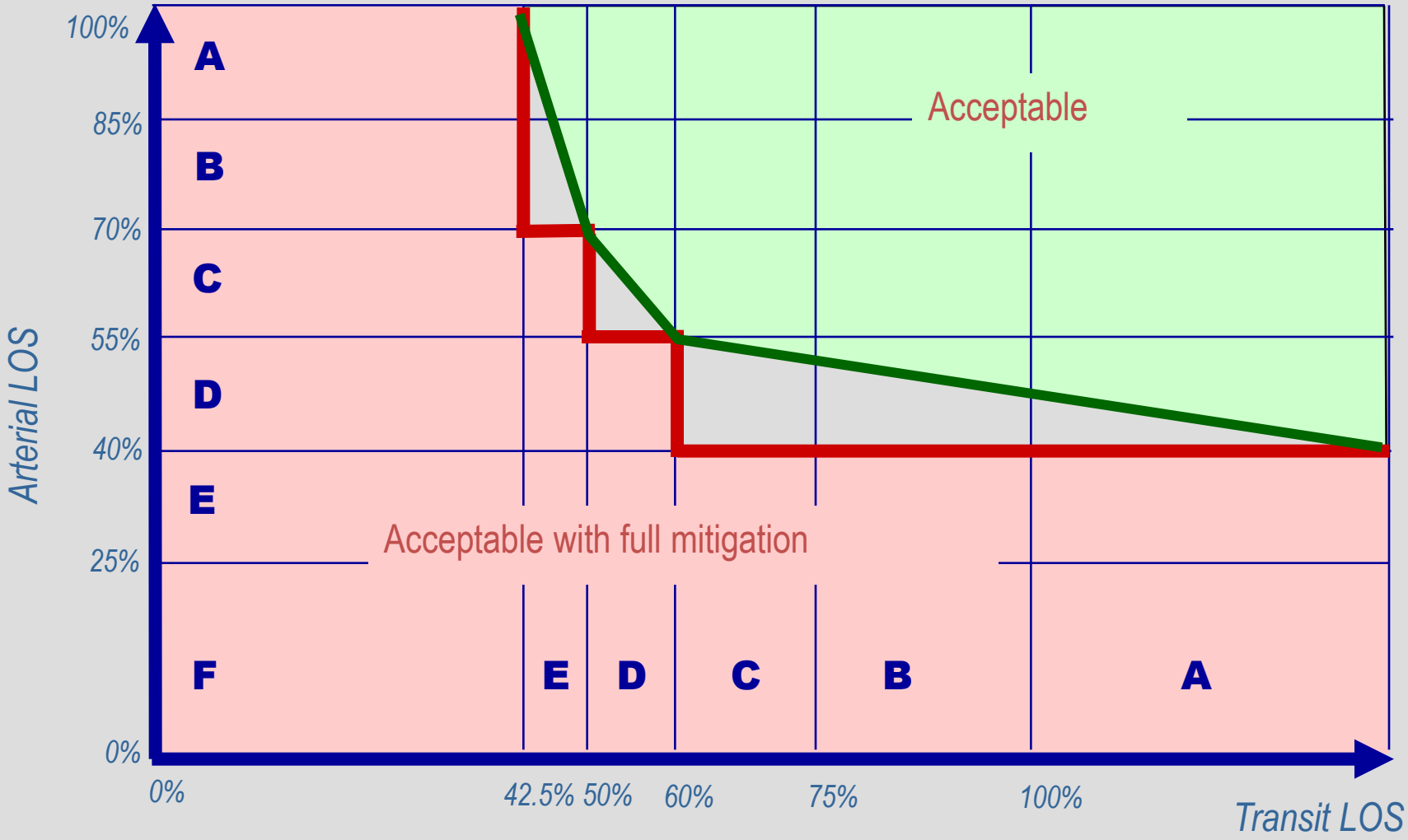
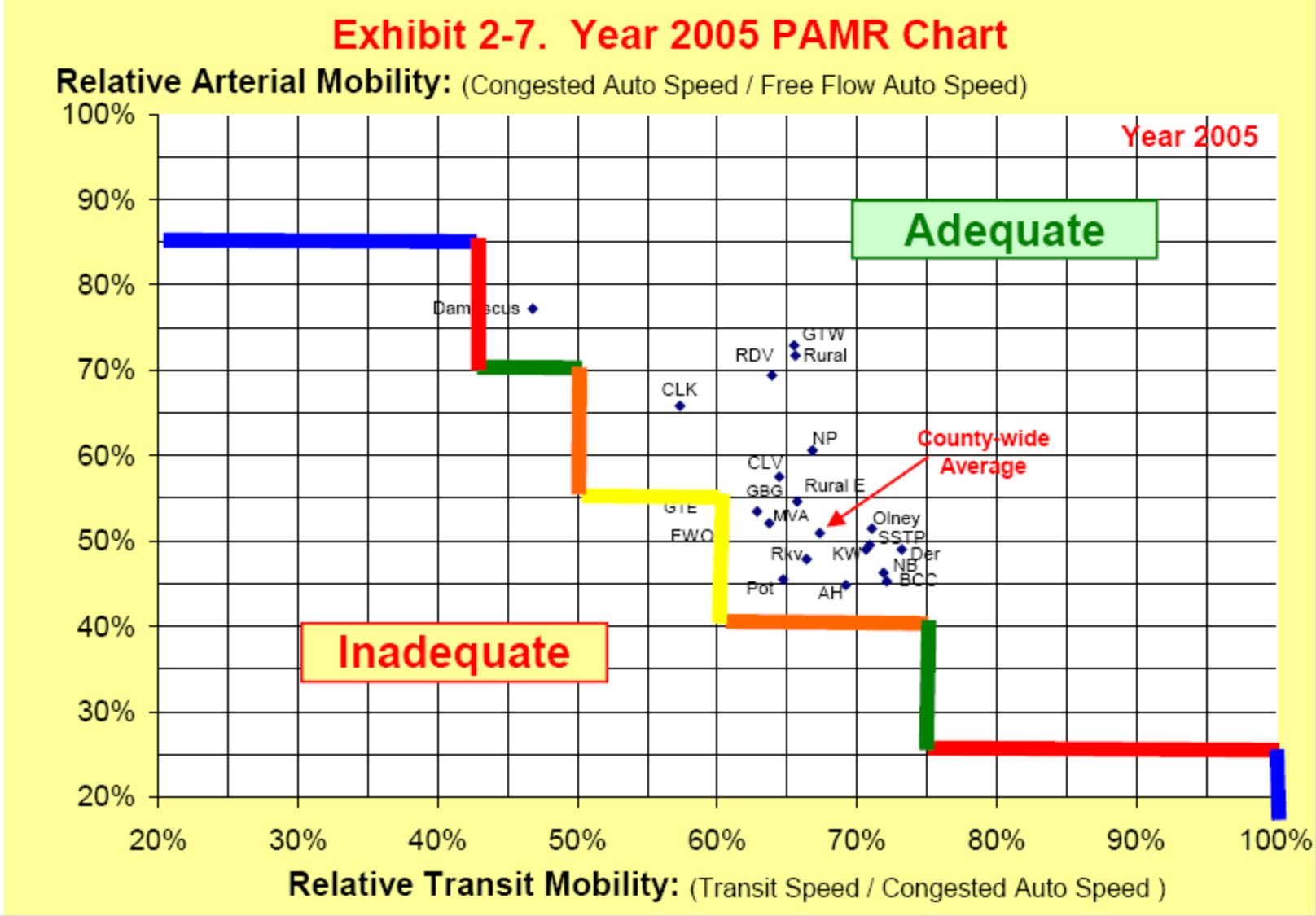
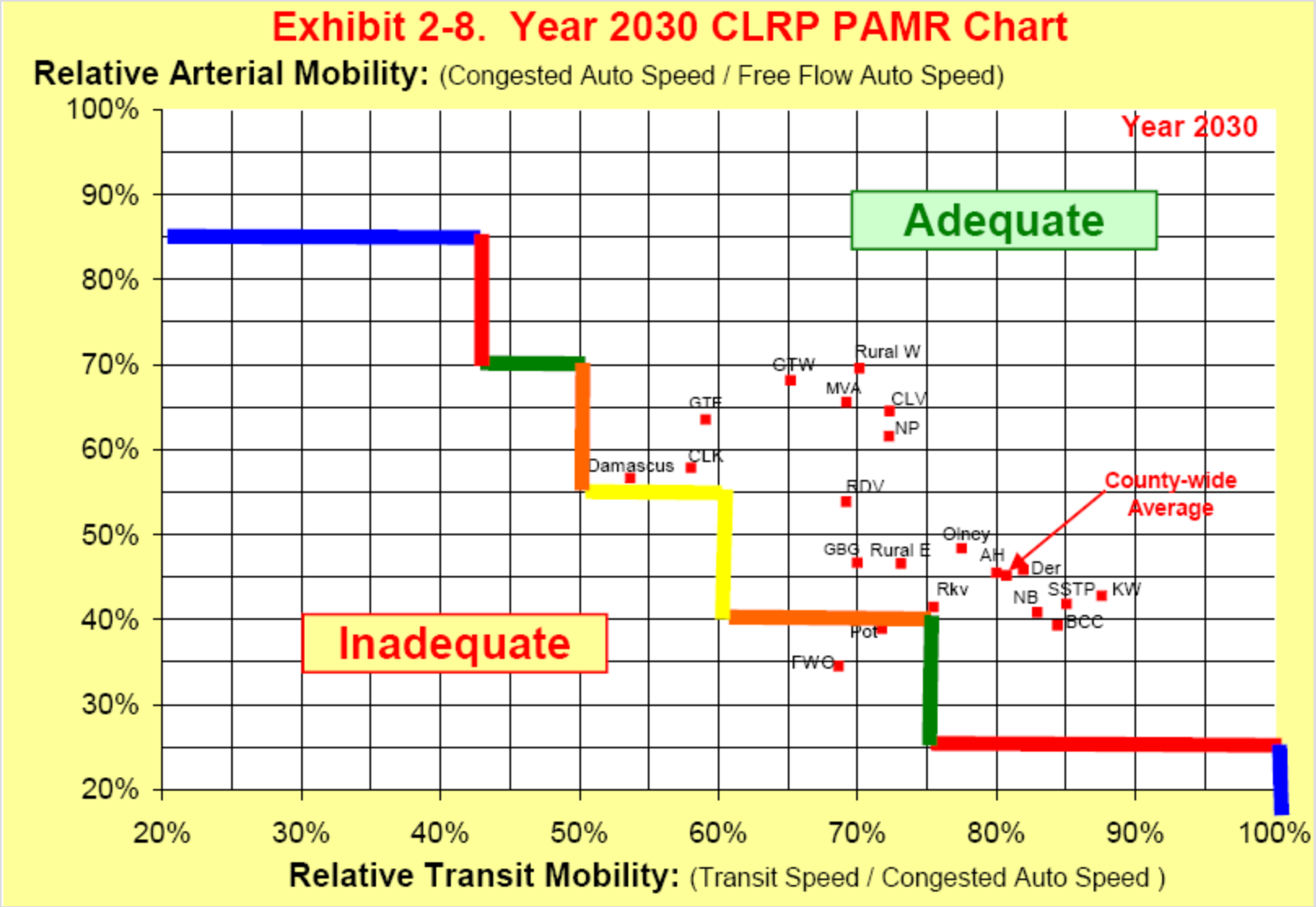


POLICY AREA MOBILITY REVIEW – 2005



POLICY AREA MOBILITY REVIEW – 2030 WITH CURRENT PLAN



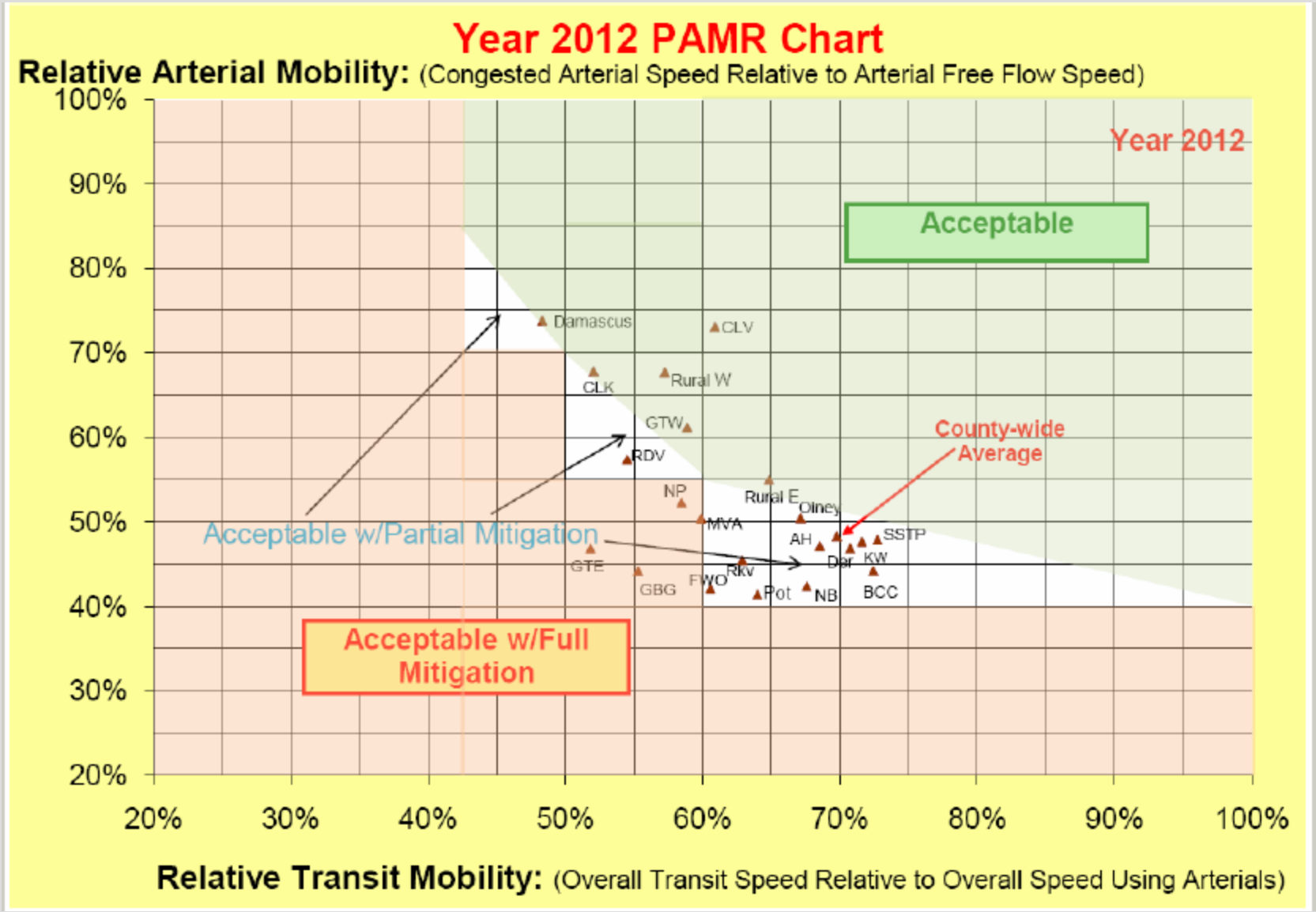
POLICY AREA MOBILITY REVIEW – 2030 GROWTH INCLUDES

Job Growth:

- 1,150 in Twinbrook
- 4,500 at NIH/NNMC
- 6,700 in Bethesda
- 29,000 in Rockville
- 114,000 in Washington DC
- 170,000 in Montgomery County
- 1,200,000 in DC region

- Up to 30,000 in White Flint

POLICY AREA MOBILITY REVIEW – 2012 (for current development review)



GROWTH POLICY TRENDS

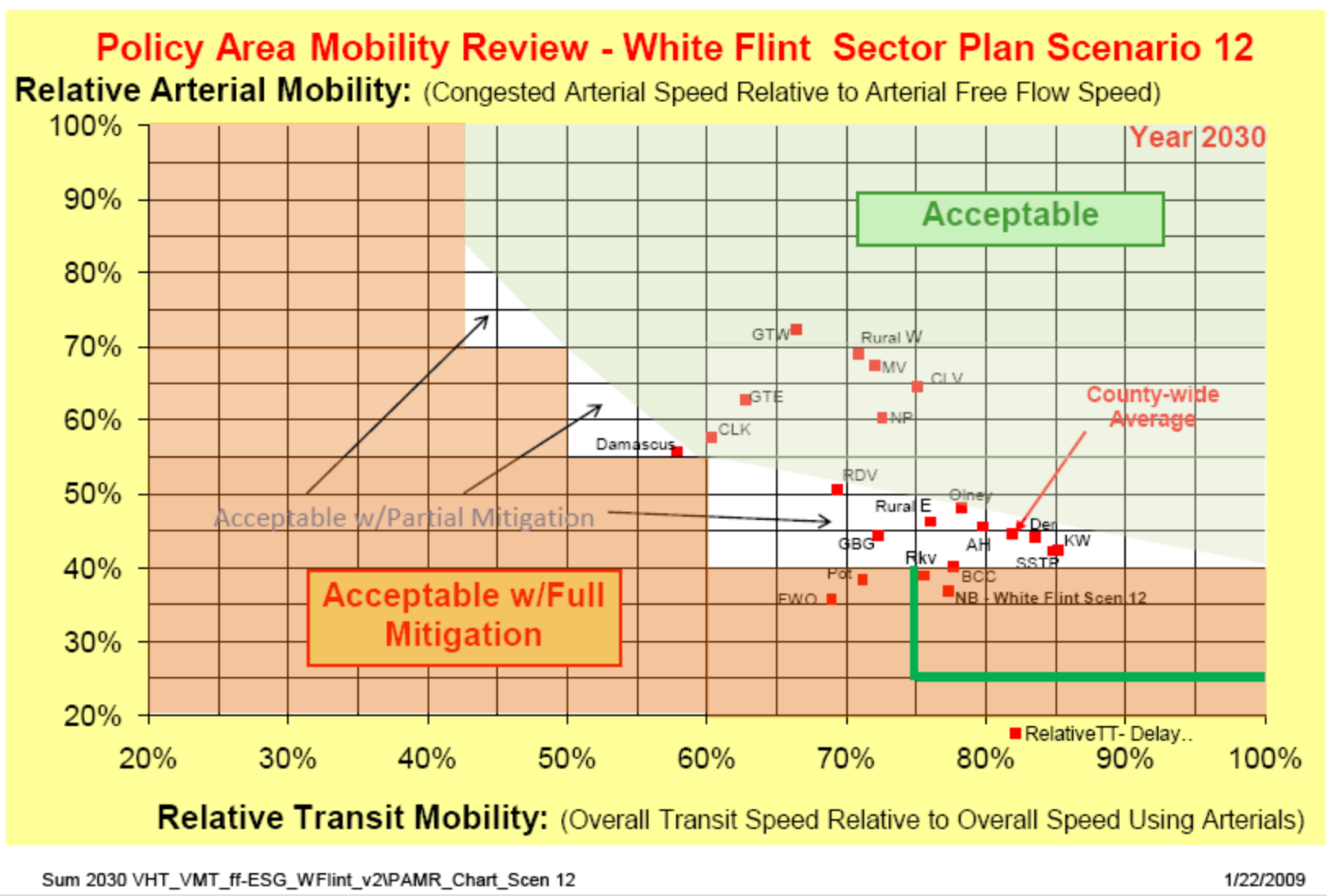
Highway Mobility Report – May 2008

Table 4.1: Comparison of County-wide TRAVEL/3 Model Results

	2005 Network	2012 PAMR Network	% Chg
Households*	347,000	389,237	12.2%
Jobs*	500,000	626,080	25.2%
Total Lane-Miles	2,751	2,974	8.1%
Vehicle-Miles Traveled (in 000s)	5498.5	6146.5	11.8%
Vehicle-Hours Traveled (in 000s)	317.0	367.4	15.9%
Average Speed (mph)	17.4	16.7	-4.0%
Average V/C Ratio	0.76	0.79	3.9%

*Assumed for modeling purposes

POLICY AREA MOBILITY REVIEW – 2030 RECOMMENDED MASTER PLAN



POLICY AREA MOBILITY REVIEW – 2030 RECOMMENDED MASTER PLAN

Derivation of Year 2030 PAMR Results by Policy Area (White Flint Sector Plan Scenario 12 LU Scenario w/Rnd 7.1 Forecast)

				Relative Arterial Mobility					Relative Transit Mobility
Policy Area	VMT	VHT (free-flow)	VHT (congested)	Free-Flow Speeds	Congested Speeds	Relative Arterial Mobility	Average Arterial Travel Time	Average Transit Travel Time	Relative Transit Mobility
Aspen Hill	192,405	5,874	12,882	32.8	14.9	46%	41.2	51.7	80%
Bethesda/Chevy Chase	399,731	15,688	39,110	25.5	10.2	40%	30.9	39.8	78%
Clarksburg	110,128	3,673	6,359	30.0	17.3	58%	38.1	63.2	60%
Cloverly	98,412	2,442	3,782	40.3	26.0	65%	44.1	58.8	75%
Damascus	92,166	2,284	4,093	40.4	22.5	56%	48.1	83.0	58%
Derwood/Shady Grove	142,859	5,086	11,518	28.1	12.4	44%	37.8	45.3	83%
Fairland/White Oak	389,527	10,282	28,736	37.9	13.6	36%	39.9	57.8	69%
Gaithersburg City	235,077	8,387	18,902	28.0	12.4	44%	35.1	48.6	72%
Germantown East	107,695	3,641	5,797	29.6	18.6	63%	36.8	58.5	63%
Germantown West	149,752	4,905	6,776	30.5	22.1	72%	37.3	56.1	66%
Kensington/Wheaton	478,759	15,069	35,598	31.8	13.4	42%	37.2	43.7	85%
Montgomery Village/Airpark	146,004	4,837	7,165	30.2	20.4	68%	41.6	57.7	72%
North Bethesda	255,117	11,282	30,693	22.6	8.3	37%	29.2	37.7	77%
North Potomac	65,971	2,364	3,919	27.9	16.8	60%	40.8	56.3	72%
Olney	170,857	4,844	10,047	35.3	17.0	48%	47.4	60.6	78%
Potomac	204,413	6,132	15,988	33.3	12.8	38%	38.4	53.9	71%
R & D Village	66,569	2,958	5,847	22.5	11.4	51%	32.0	46.1	69%
Rockville City	277,881	12,025	30,870	23.1	9.0	39%	31.9	42.3	75%
Silver Spring/Takoma Park	277,475	10,616	25,145	26.1	11.0	42%	33.3	39.3	85%
Rural East	612,620	15,620	33,717	39.2	18.2	46%	47.1	62.0	76%
Rural West	244,374	6,640	9,618	36.8	25.4	69%	47.8	67.4	71%
Montgomery County Total	**4,717,792**	**154,649**	**346,562**	**30.5**	**13.6**	**45%**	**37.9**	**46.3**	**82%**

Relative Arterial Mobility measures total PM Peak Period vehicular travel on arterial roadways within each policy area
Relative Transit Mobility measures AM Peak Period travel times for journey-to-work trips originating within each policy area
VMT = Vehicle Miles of Travel

POLICY AREA MOBILITY REVIEW – 2030 RECOMMENDED MASTER PLAN

Derivation of Year 2005 PAMR Results by Policy Area

			Relative Arterial Mobility				Relative Transit Mobility		
Policy Area	VMT	VHT (free-flow)	VHT (congested)	Free-Flow Speeds	Congested Speeds	Relative Arterial Mobility	Average Arterial Travel Time	Average Transit Travel Time	Relative Transit Mobility
Aspen Hill	166,975	4,992	11,141	33.4	15.0	45%	36.4	54.5	67%
Bethesda/Chevy Chase	370,936	14,148	31,264	26.2	11.9	45%	25.8	36.9	70%
Clarksburg	48,985	1,341	2,038	36.5	24.0	66%	38.6	69.9	55%
Cloverly	80,280	1,954	3,398	41.1	23.6	58%	39.8	59.6	67%
Damascus	57,419	1,350	1,749	42.5	32.8	77%	43.5	95.7	45%
Derwood/Shady Grove	128,774	4,337	8,851	29.7	14.5	49%	34.4	50.8	68%
Fairland/White Oak	332,420	9,478	18,794	35.1	17.7	50%	35.4	60.9	58%
Gaithersburg City	187,111	6,483	12,132	28.9	15.4	53%	31.5	56.4	56%
Germantown East	83,578	2,421	4,388	34.5	19.0	55%	35.4	65.6	54%
Germantown West	111,574	3,299	4,525	33.8	24.7	73%	35.7	61.5	58%
Kensington/Wheaton	410,368	12,896	26,052	31.8	15.8	50%	31.7	45.3	70%
Montgomery Village/Airpark	92,853	3,086	5,928	30.1	15.7	52%	38.3	64.9	59%
North Bethesda	194,168	7,893	17,069	24.6	11.4	46%	27.0	39.1	69%
North Potomac	53,299	1,811	2,989	29.4	17.8	61%	36.7	60.6	61%
Olney	136,864	3,972	7,727	34.5	17.7	51%	43.9	72.2	61%
Potomac	180,868	5,290	11,631	34.2	15.6	45%	33.7	54.5	62%
R & D Village	47,322	1,980	2,853	23.9	16.6	69%	30.7	52.2	59%
Rockville City	255,979	10,016	20,932	25.6	12.2	48%	29.1	47.3	62%
Silver Spring/Takoma Park	230,410	8,782	17,926	26.2	12.9	49%	27.7	40.2	69%
Rural East	449,002	11,427	20,928	39.3	21.5	55%	42.9	70.2	61%
Rural West	171,011	4,596	6,411	37.2	26.7	72%	42.7	75.6	56%
Montgomery County Total	**3,790,196**	**121,552**	**238,726**	**31.2**	**15.9**	**51%**	**34.2**	**50.7**	**67%**

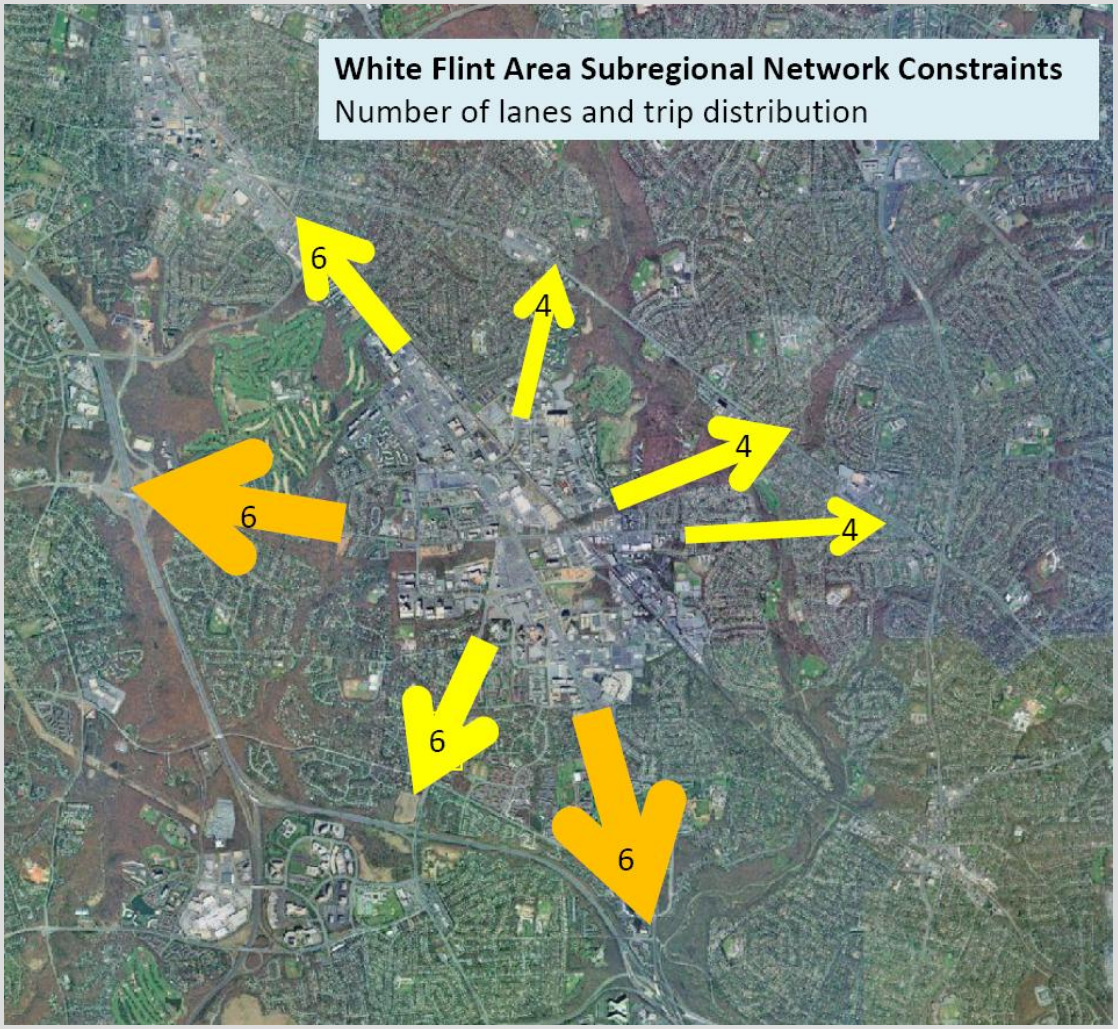
Relative Arterial Mobility measures total PM Peak Period vehicular travel on arterial roadways within each policy area
Relative Transit Mobility measures AM Peak Period travel times for journey-to-work trips originating within each policy area
VMT = Vehicle Miles of Travel
VHT = Vehicle Hours of Travel

SUBREGIONAL CONSTRAINTS

White Flint's location advantageous for reverse-flow commuters

Travel constraints are just beyond Sector Plan boundary
- Rock Creek
- Established land uses

Constraints are along
- Montrose Parkway (west)
- Rockville Pike (south)



CORDON LINE VOLUMES

White Flint Sector Plan
Sector Plan Cordon Line Volumes

Current Conditions

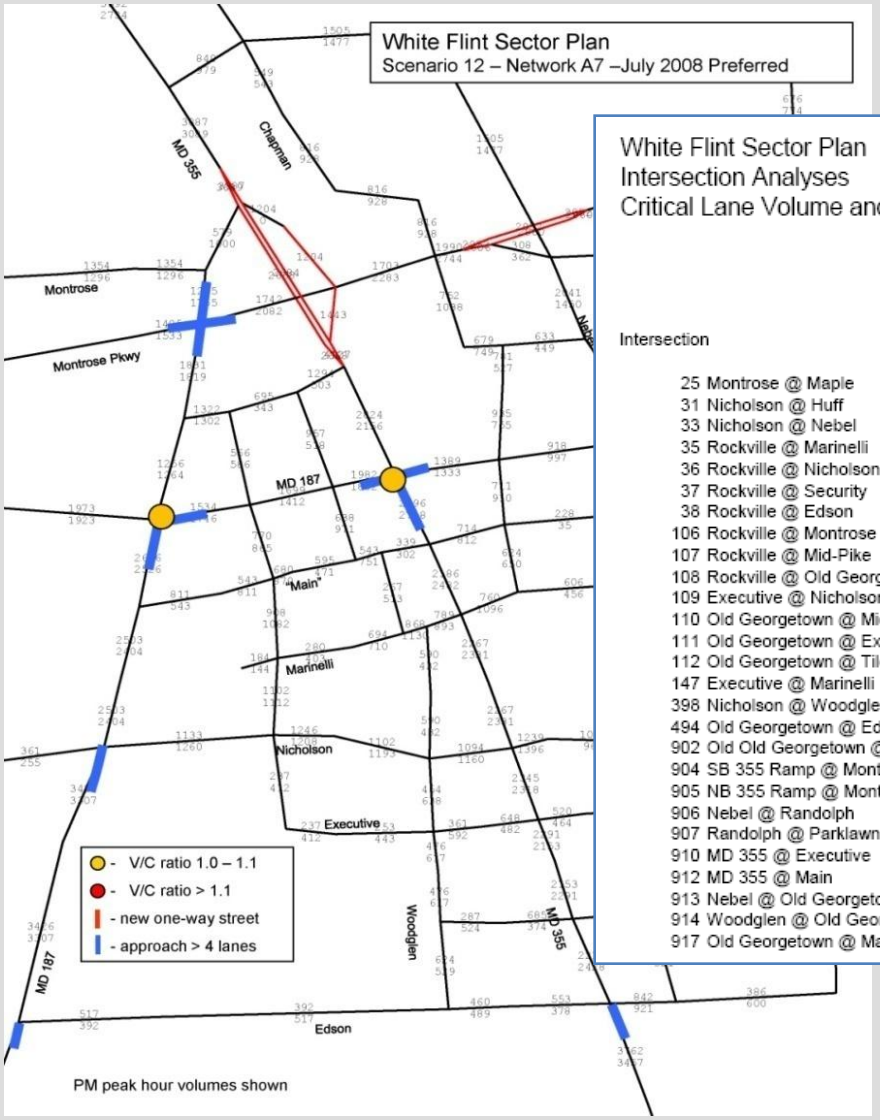
Location	ADT	AM Peak Hour Inbound	AM Peak Hour Outbound	AM Peak Hour Total	PM Peak Hour Inbound	PM Peak Hour Outbound	PM Peak Hour Total
MD 355 south of Hubbard	59000	2850	1430	4280	2400	2910	5310
Chapman north of Randolph/MPE	9200	140	110	250	430	400	830
Nebel north of Randolph/MPE	0	0	0	0	0	0	0
Montrose Parkway East at CSX	0	0	0	0	0	0	0
Randolph at CSX	30800	1590	710	2300	1210	1560	2770
Nicholson at CSX	30900	1180	540	1720	1000	1790	2790
MD 355 south of Edson	55000	1800	2290	4090	2420	2530	4950
Edson west of Woodglen	8000	270	190	460	470	250	720
MD 187 south of Nicholson	44300	1540	2170	3710	2330	1650	3980
Tilden west of MD 187	7400	460	270	730	230	440	670
Executive west of MD 187	25400	900	1140	2040	1380	910	2290
Montrose Parkway West west of OOGR	0	0	0	0	0	0	0
Montrose west of OOGR	27500	1070	1130	2200	1140	1340	2480
TOTAL	297500	11800	9980	21780	13010	13780	26790

Public Hearing Draft Plan (Scenario 12) Conditions

Location	ADT	AM Peak Hour Inbound	AM Peak Hour Outbound	AM Peak Hour Total	PM Peak Hour Inbound	PM Peak Hour Outbound	PM Peak Hour Total
MD 355 south of Hubbard	77500	3560	2200	5760	3090	3890	6980
Chapman north of Randolph/MPE	19400	660	570	1230	820	930	1750
Nebel north of Randolph/MPE	33100	1270	910	2180	1480	1510	2990
Montrose Parkway East at CSX	52600	2560	1990	4550	1990	2740	4730
Randolph at CSX	21600	1190	680	1870	720	1230	1950
Nicholson at CSX	40400	2130	740	2870	1320	2320	3640
MD 355 south of Edson	80200	3150	3230	6380	3460	3760	7220
Edson west of Woodglen	13400	430	270	700	680	520	1200
MD 187 south of Nicholson	67600	2660	3340	6000	3230	2860	6090
Tilden west of MD 187	6800	440	250	690	230	390	620
Executive west of MD 187	43300	1920	1760	3680	1970	1920	3890
Montrose Parkway West west of OOGR	32600	1440	1370	2810	1410	1530	2940
Montrose west of OOGR	29400	990	1310	2300	1350	1300	2650
TOTAL	517900	22400	18620	41020	21750	24900	46650

LAND USE / TRANSPORTATION BALANCE

LOCAL AREA TRANSPORTATION REVIEW



White Flint Sector Plan
Intersection Analyses
Critical Lane Volume and Volume / Capacity Ratios

Intersection	Existing Conditions Scenario 0 AM	PM	Max V/C	Public Hearing Draft Plan Scenario 12A7 AM	PM	Max V/C
25 Montrose @ Maple	861	1008	0.56	1559	1629	0.91
31 Nicholson @ Huff	579	758	0.42	1086	1343	0.75
33 Nicholson @ Nebel	832	1188	0.66	1529	1732	0.96
35 Rockville @ Marinelli	1067	998	0.59	1335	1541	0.86
36 Rockville @ Nicholson	1155	1385	0.77	1712	1794	1.00
37 Rockville @ Security	922	994	0.55	1314	1469	0.82
38 Rockville @ Edson	1013	1224	0.68	1493	1609	0.89
106 Rockville @ Montrose	1501	1452	0.83	Replaced by interchange		
107 Rockville @ Mid-Pike	992	1335	0.74	1223	1736	0.96
108 Rockville @ Old Georgetown	1179	1188	0.66	1694	**1830**	**1.02**
109 Executive @ Nicholson	755	751	0.42	935	1201	0.67
110 Old Georgetown @ Mid Pike	633	625	0.35	1261	1284	0.71
111 Old Georgetown @ Executive	1510	1241	0.84	1734	**1800**	**1.00**
112 Old Georgetown @ Tilden	1191	1222	0.68	1626	1442	0.90
147 Executive @ Marinelli	376	569	0.32	599	1073	0.60
398 Nicholson @ Woodglen	586	735	0.41	1227	1379	0.77
494 Old Georgetown @ Edson	976	1181	0.66	1374	1456	0.81
902 Old Old Georgetown @ Montrose Pkwy	713	926	0.51	1573	1505	0.87
904 SB 355 Ramp @ Montrose Road				1383	1421	0.79
905 NB 355 Ramp @ Montrose Pkwy				1269	1365	0.76
906 Nebel @ Randolph	757	1060	0.59	1582	1671	0.93
907 Randolph @ Parklawn				1097	776	0.61
910 MD 355 @ Executive				1167	1444	0.80
912 MD 355 @ Main				1517	1757	0.98
913 Nebel @ Old Georgetown				1470	1410	0.82
914 Woodglen @ Old Georgetown				1124	1580	0.88
917 Old Georgetown @ Main				1200	1724	0.96

METRORAIL CAPACITY

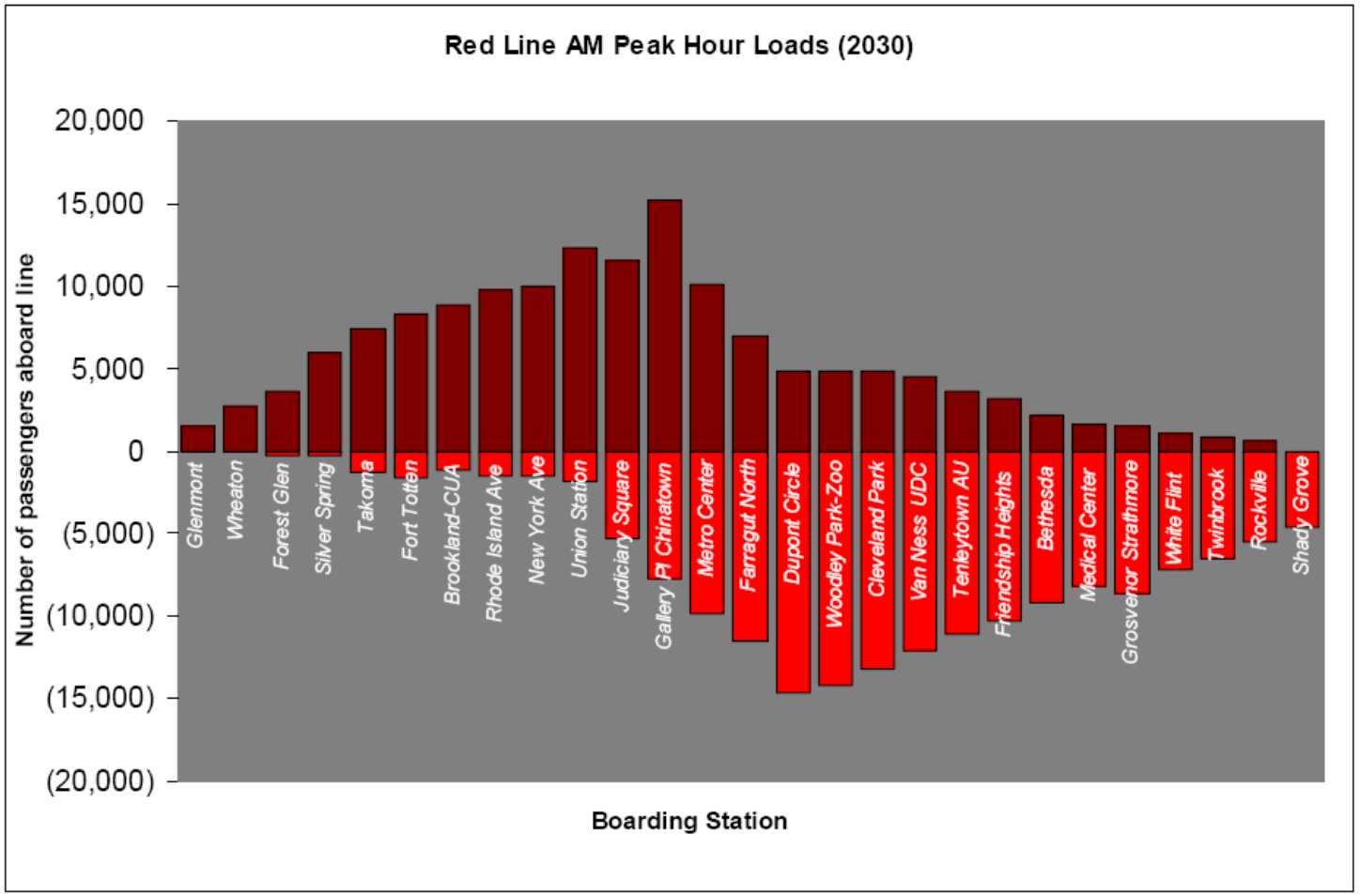
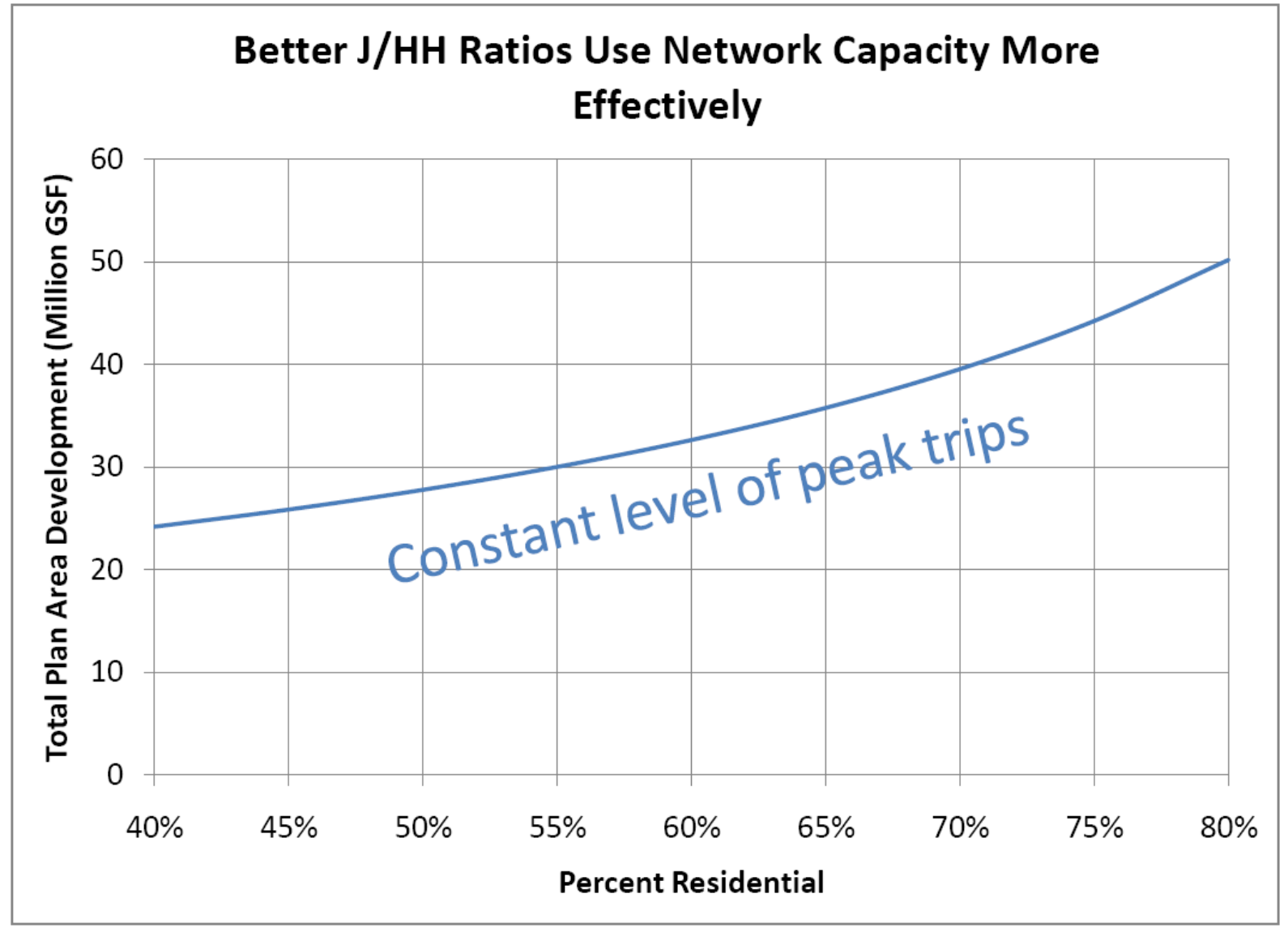


Figure 29. 2030 Red Line Load Profile (source: PB)

ZONING CAPACITY / FLEXIBILITY



White Flint Sector Plan

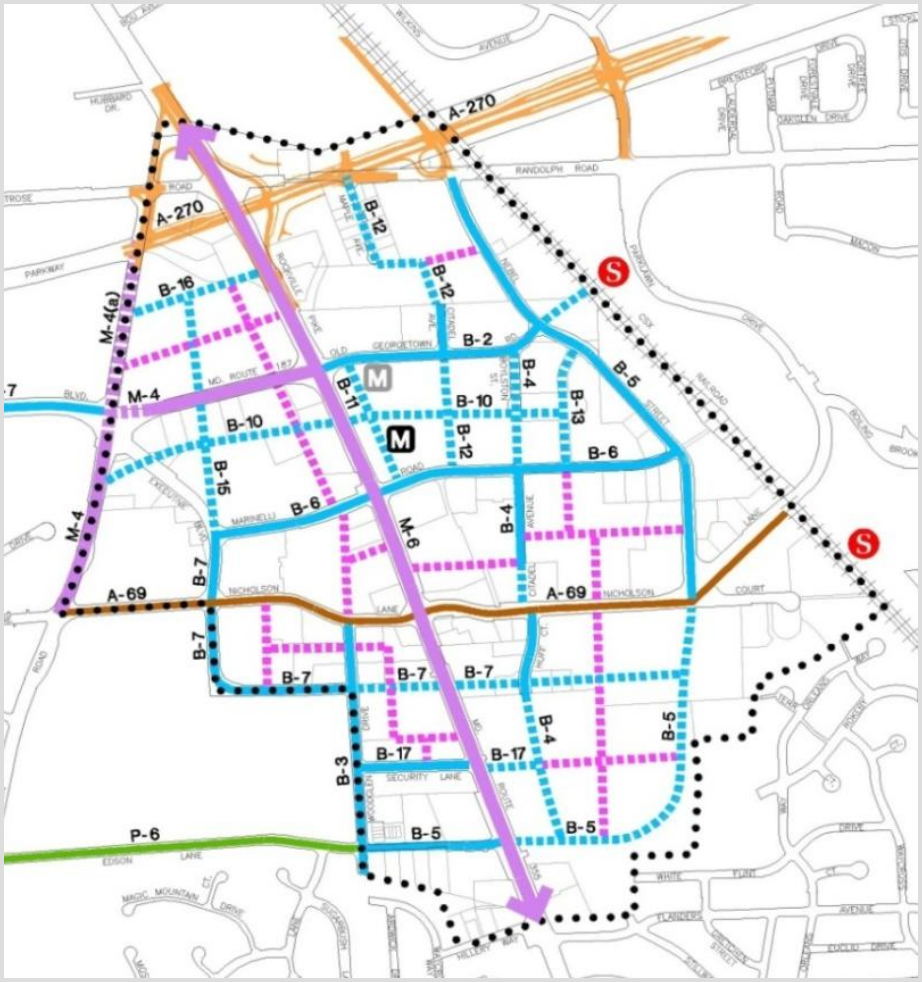
RECOMMENDED NETWORK

- Street grid
- The Pike
- Bikes / peds
- Metrorail / MARC
- Bus transit

RECOMMENDED NETWORK

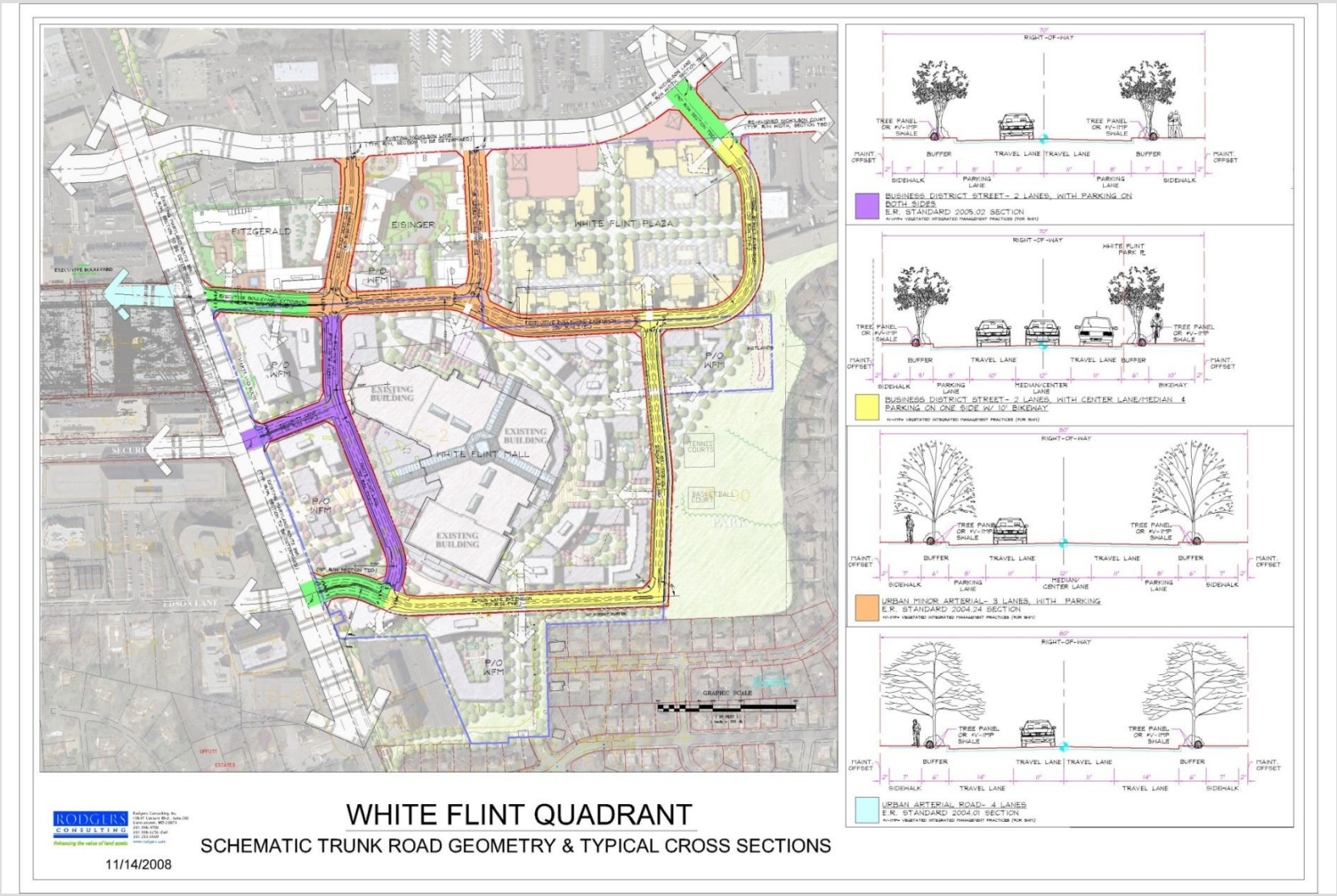
STREET GRID

- Arterials
- Business streets
- “Secondary” streets
- Target speeds
- Road code



RECOMMENDED NETWORK

STREET GRID



The Pike

Comparison of Alternative Treatments for Rockville Pike
(prototype considering section from Old Georgetown to Nicholson) – June 25, 2007 DRAFT ver.3

Alternative	Description	Peak Capacity	Safety and Efficiency	Pedestrian Experience	Character	Community disruption	Cost[1]	Most applicable for
Do nothing	6 lanes	Fair	Good	Poor	Poor	None	$0	
Streetscape	Utilities, trees, bricks	Fair	Good	Fair	Fair	Minor	$20M/mi	
Boulevard	50' median for landscaping, perhaps future transit	Good	Good	Good	Good	Minor	$50M/mi	
Add a lane	8 lanes	Good	Fair	Poor	Poor	Moderate	$50M/mi	
One-way pair[2]	3 NB on Pike plus 3 SB on Woodglen	Good	Good	Good	Good	Substantial	$100M/mi	CBD land uses and densities with grid street availability
Multiway Boulevard	6 lanes +2 lanes and parking in local roadway	Good	Fair	Good	Good	Moderate	$100M/mi	Low density land uses requiring frontage/parking
Grade separate (Pike below)	Single intersection interchange	Good	Good	Excellent	Excellent	Moderate	$100M	High volume arterial "rungs" located between urban centers
Depress Pike below deckover	Old Georgetown - Marinelli	Good	Good	Excellent	Excellent	Moderate	$250M	

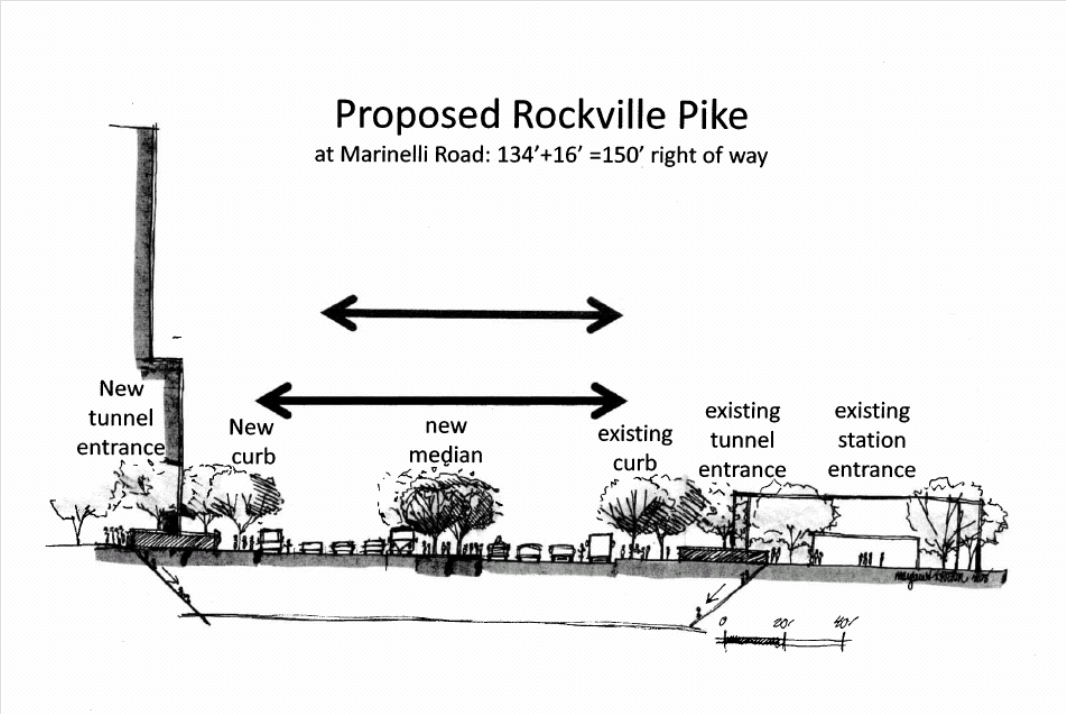
[1] Reflects judgment based on sampling of roughly comparable projects
[2] Cost estimated for three-block section but community disruption reflects southward terminus at Edson Lane.

The Pike

RECOMMENDED NETWORK

The Pike

- Curb lane management
  - Transit
  - Bikes
  - Parking?
  - Turns
- East side constraints
- Stage 1 study
- Stage 3 implementation



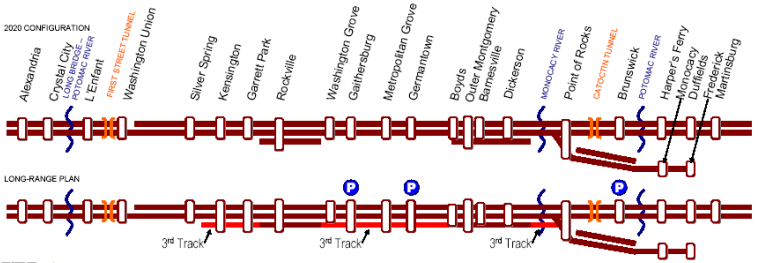
RECOMMENDED NETWORK

Metrorail / MARC

MARC GROWTH & INVESTMENT PLAN

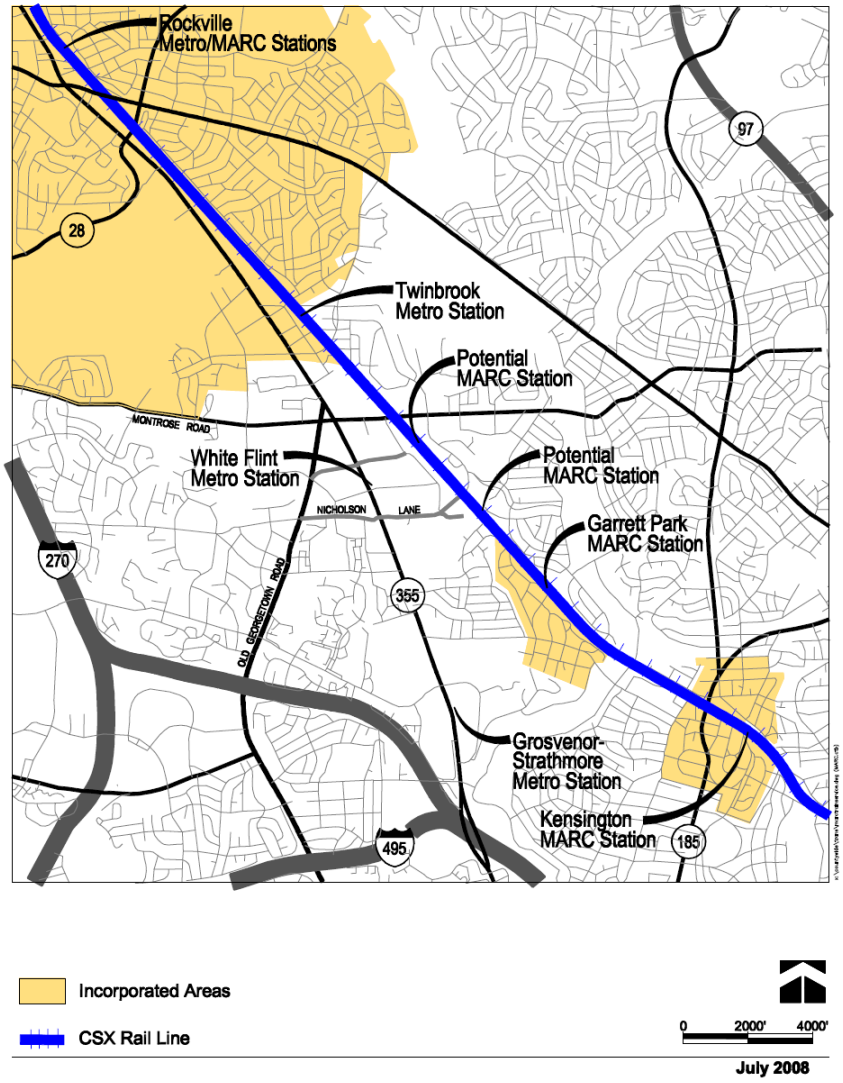
2035 Plan – Brunswick Line

- Incremental Seating Capacity
  - +7,000 daily seats
- Rail Service Improvements
  - Increased peak and off-peak service
  - Reverse-commute service
  - Weekend service
- Continued reliability improvement – 95% on-time performance
- Incremental Capital Investments – ~$190m+
  - Additional triple tracking
  - Additional station parking expansion at Brunswick, Germantown, Gaithersburg
  - Additional rail cars and locomotives
- Incremental Operating Cost –$5m/yr.+



MTA Maryland

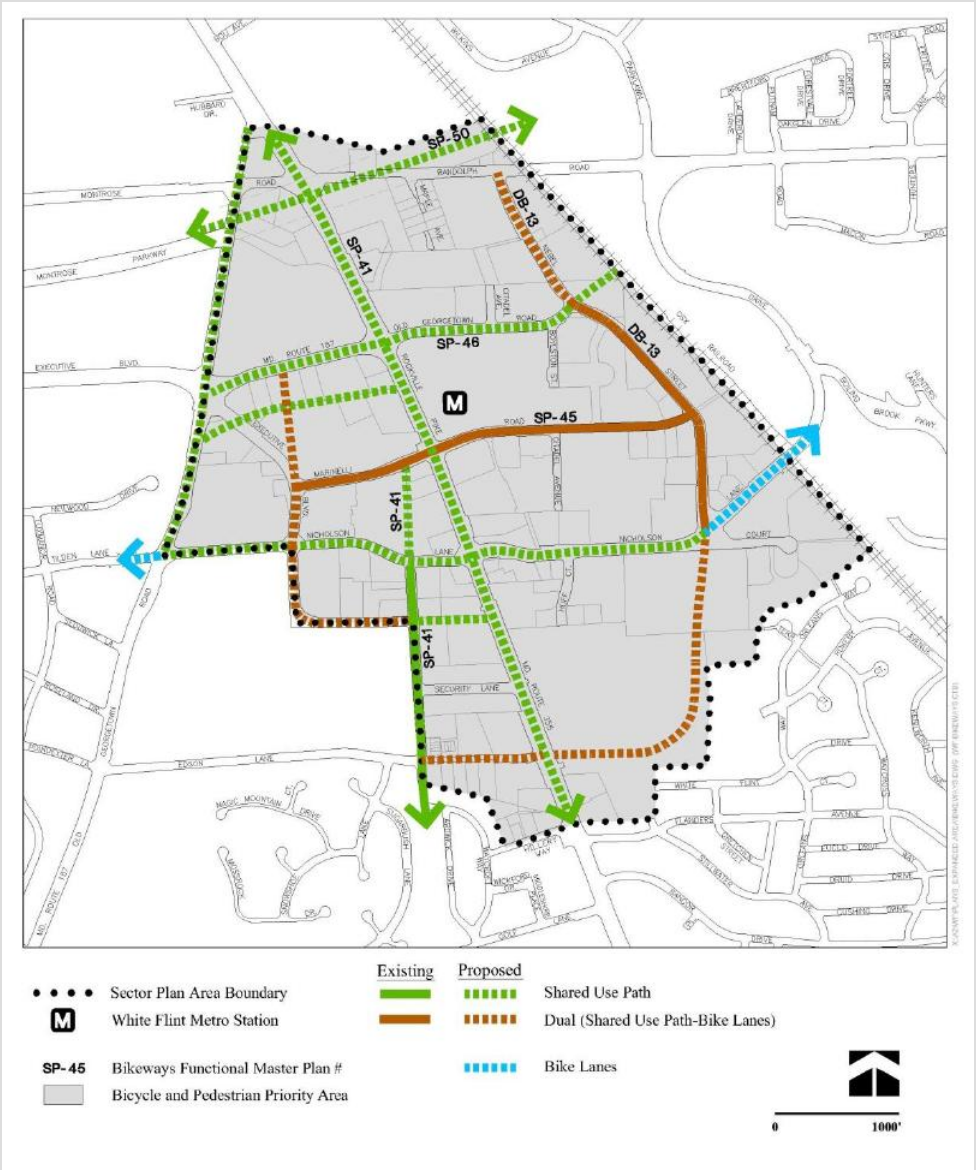
MARC and METRO in WHITE FLINT AREA



RECOMMENDED NETWORK

Bikes / peds

- Regional / park connections
- Access and mobility
- On-street functions
- Pike / Nebel Street

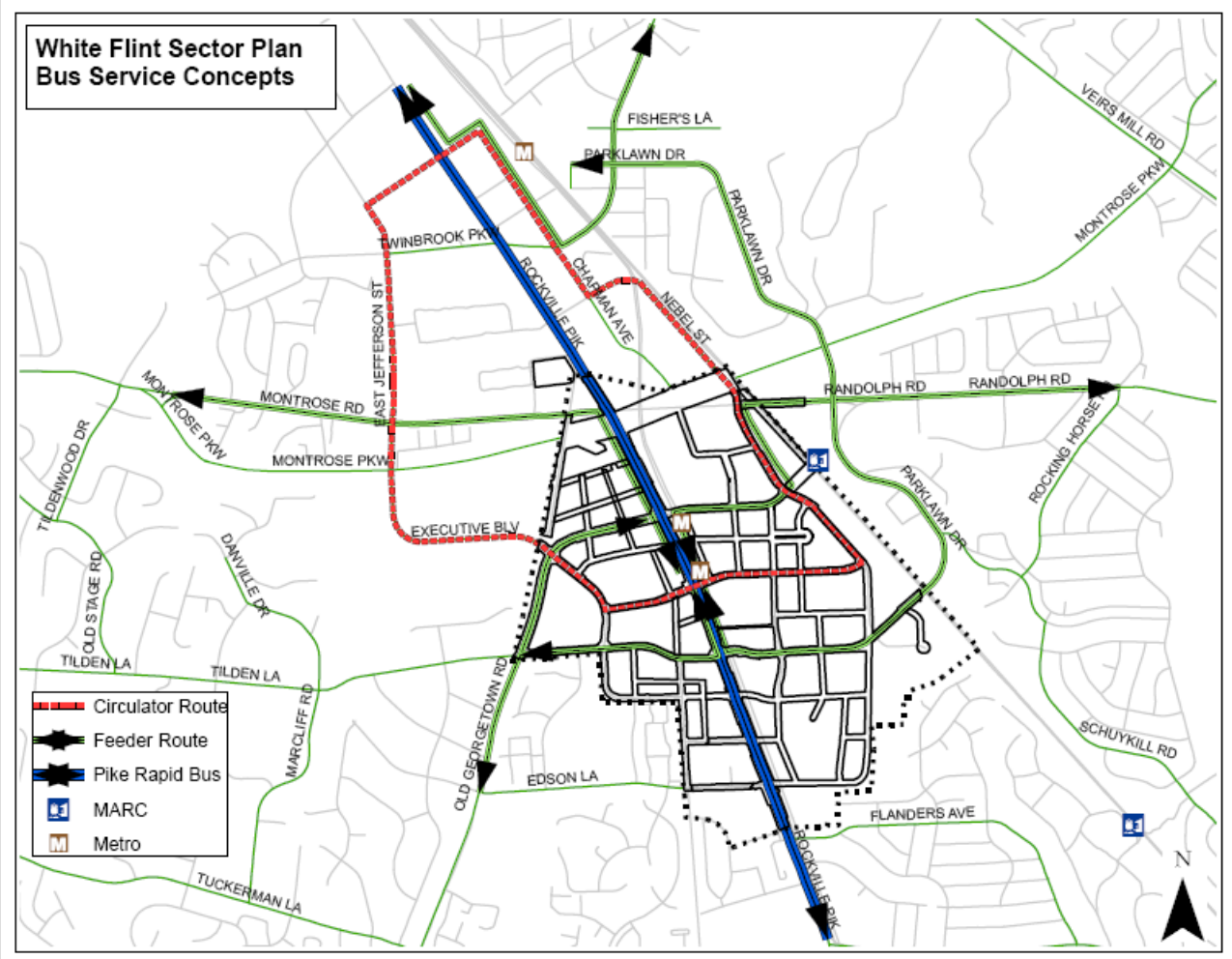


RECOMMENDED NETWORK

Local transit service concepts

Types
- Feeder
- Circulator
- Shuttle

Evolution
- Functions
- Routes

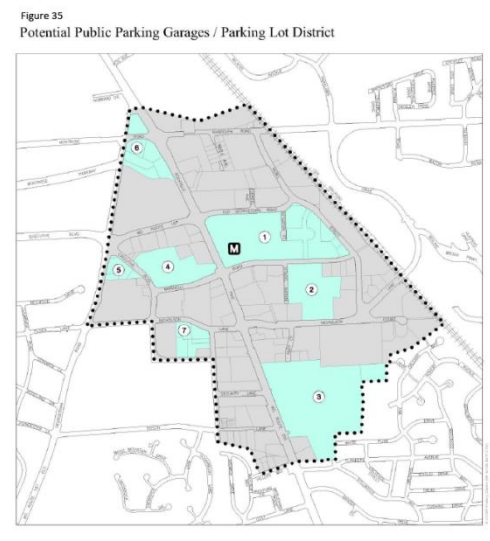


Parking Supply Management

Figure 10: Weekday Long-Term Parking Space Demand

Commercial Land Use Type	Total Square Footage	Assumed Square Feet per Job	Number of Jobs	Demand for Weekday Long-Term Parking Spaces
Office	7.68M	225	34,100	20,800
Retail	3.80M	400	9,500	5,800
Industrial	0.93M	450	2,100	1,300
Other	1.45M	500	2,900	1,800
TOTAL	13.86M		48,600	29,700

- Aimed at commercial uses
- Manage demand
- Not PLD, but parking authority
- Linkage to commercial zoning requirements
- Operations / management concerns



RECOMMENDED POLICIES

Travel Demand Management

- Strategies
  - Infrastructure
  - Services
  - Policies
- Private / public sector
- Target markets
- Relationship to GHG

Table 7-11. Sample TDM Techniques With Potential to Reduce Site Traffic Generation

Technique[a]	Types of Trips Affected					
	Office	Retail	Industrial	Residential	Lodging	Event
Physical Actions						
Parking availability reduced below normal demand level or substantial increase in parking costs	T, P	-	T, P	T, P	T, P	T, P
Quality pedestrian environment on-site (mixed-use developments only)	T, P, M	T, P, M	T, M	T, P, M	T, P, M	T, P, M
Building amenities (bicycle lockers, showers, ATM, parking garage dimensions to accommodate vanpools, wiring for ease of telework)	T, P, M	-	T, P, M	T, P, M	-	-
Non-Physical Actions						
Transit service to areas of trip origins	T, P	T, PM	T, P	T, P	T, P	T, P
Carpool, vanpool programs (ridematching, preferential parking, subsidies, promotion)	T, P	T, PM	T, P	T, P	-	T, P
Modified work schedules (4/40, staggered, flex)	P	-	P	P	-	-
Telecommute options	T, P	-	-	T, P	-	-
Internal shuttle transportation to/within development site	T, M	T, M	-	T, M	T, P	-
Transit subsidy	T, P	-	T, P	T, P	-	-
On-site transportation coordinator or information center	T, P	T, P	T, P	T, P	T, P	T, P

T = daily trips, P = peak hour trips, PM = p.m. peak hour trips, M = midday trips.
[a]Other techniques may be applicable either separately or in combination with others. To be effective, each measure must be designed to generate and sustain use of alternatives to the single-occupant automobile.

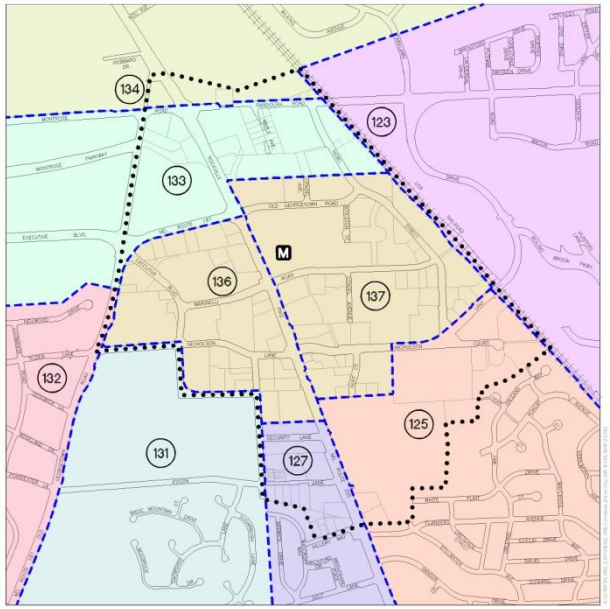
RECOMMENDED POLICIES

White Flint Metro Station Policy Area boundary

Figure 12: Land Use Comparison to Bethesda and Silver Spring

Sector Plan	Acres	Existing		Future	
		Jobs	HH	Jobs	HH
Bethesda	407	35,800	6,700	50,900	9,400
Silver Spring	367	30,400	5,600	45,700	8,100
White Flint	430	18,100	2,100	48,600	12,300

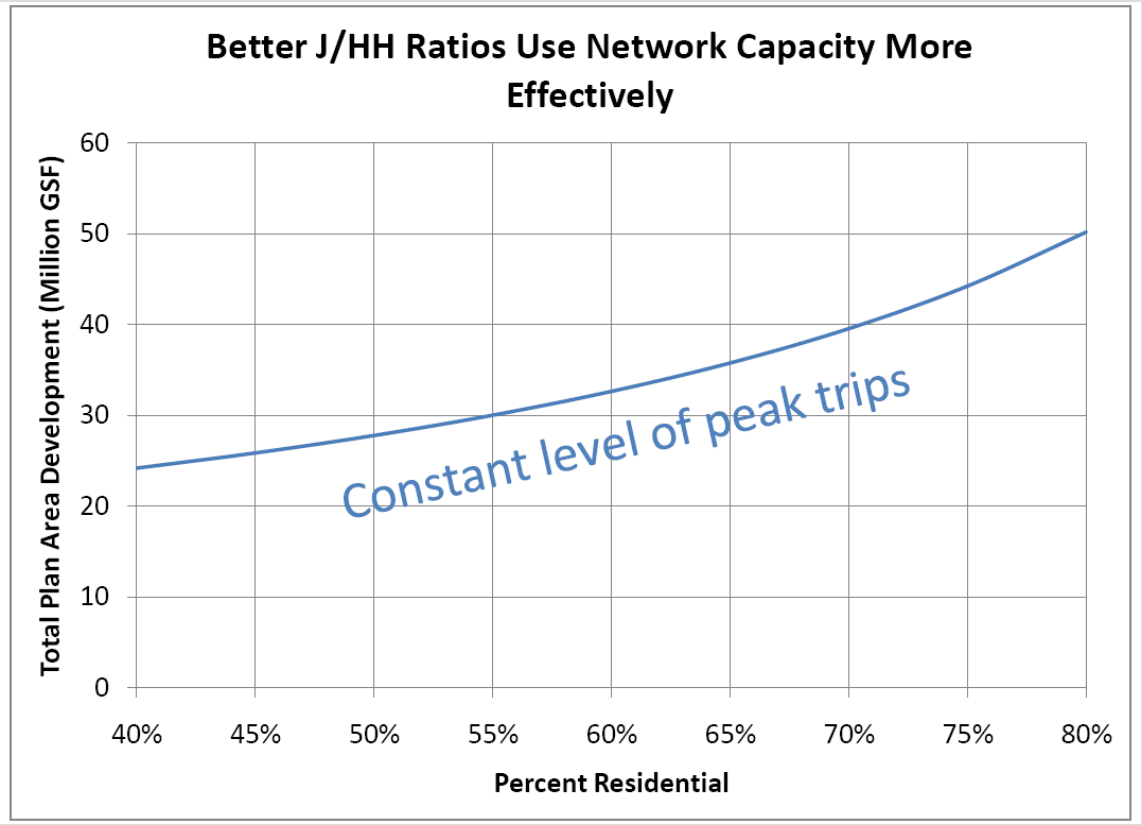
Community Analysis Zones



IMPLEMENTATION AND STAGING

Staging triggers

- Zoning flexibility
- Staging to J/HH and mode share
- Monitoring program
- Neighborhood circulation

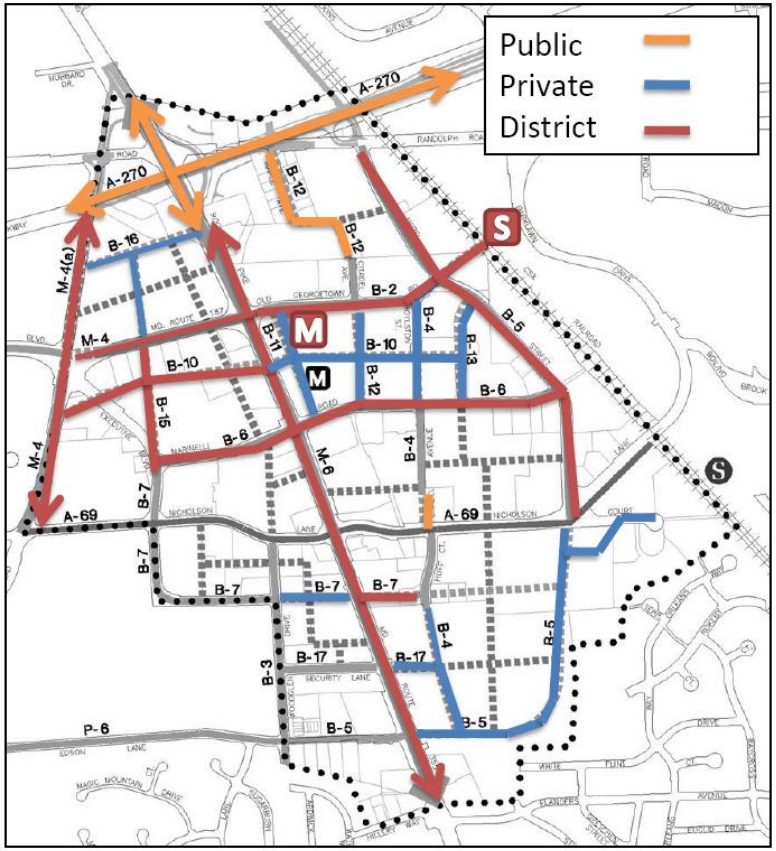


Transportation Infrastructure Financing

White Flint Sector Plan
Public Facilities Staging Plan

Staff Draft - September 22, 2008
Estimated Capital Cost by Stage

	State	Local	Private	District	TOTAL
Public Transit Elements					
Stage One	$ -	$ -	$ -	$ 26.50	$ 26.50
Stage Two	$ -	$ -	$ -	$ 3.00	$ 3.00
Stage Three	$ -	$ -	$ -	$ 13.00	$ 13.00
TOTAL	$ -	$ -	$ -	$ 42.50	$ 42.50
Streets and Bikeways					
Stage One	$ 47.20	$ 20.10	$ 7.50	$ 27.50	$ 102.30
Stage Two	$ 20.00	$ -	$ 43.75	$ 32.75	$ 96.50
Stage Three	$ -	$ -	$ 9.25	$ 68.50	$ 77.75
TOTAL	$ 67.20	$ 20.10	$ 60.50	$ 128.75	$ 276.55
Total Transportation Network Elements					
Stage One	$ 47.20	$ 20.10	$ 7.50	$ 54.00	$ 128.80
Stage Two	$ 20.00	$ -	$ 43.75	$ 35.75	$ 99.50
Stage Three	$ -	$ -	$ 9.25	$ 81.50	$ 90.75
TOTAL	$ 67.20	$ 20.10	$ 60.50	$ 171.25	$ 319.05



White Flint Sector Plan

SUMMARY