



10 Mile Creek Area Limited Amendment

Public Hearing Draft

Limited Amendment to the 1994 Approved and Adopted

Clarksburg Master Plan & Hyattstown Special Study Area

to Allow an Exception to the Retail Staging Provisions



May 2011

Montgomery County Planning Department
M-NCPPC
MontgomeryPlanning.org



Clarksburg Limited Master Plan
Planning Board Worksession
April 11, 2013

Agenda

- Introductions
- Land Use and Transportation Considerations
- Recap 10 Mile Creek watershed conditions
- Biological Condition Gradient
- Principles for Protection of Ten Mile Creek
- Refining 1994 Plan Analysis Results
- Determining Alternative Development Scenarios



Key Questions

How do we balance policies that support the 1994 plan vision?

- Clarksburg at a town scale and with a transit orientation
- Protection of natural features
- Importance of I-270 high tech corridor with employment options

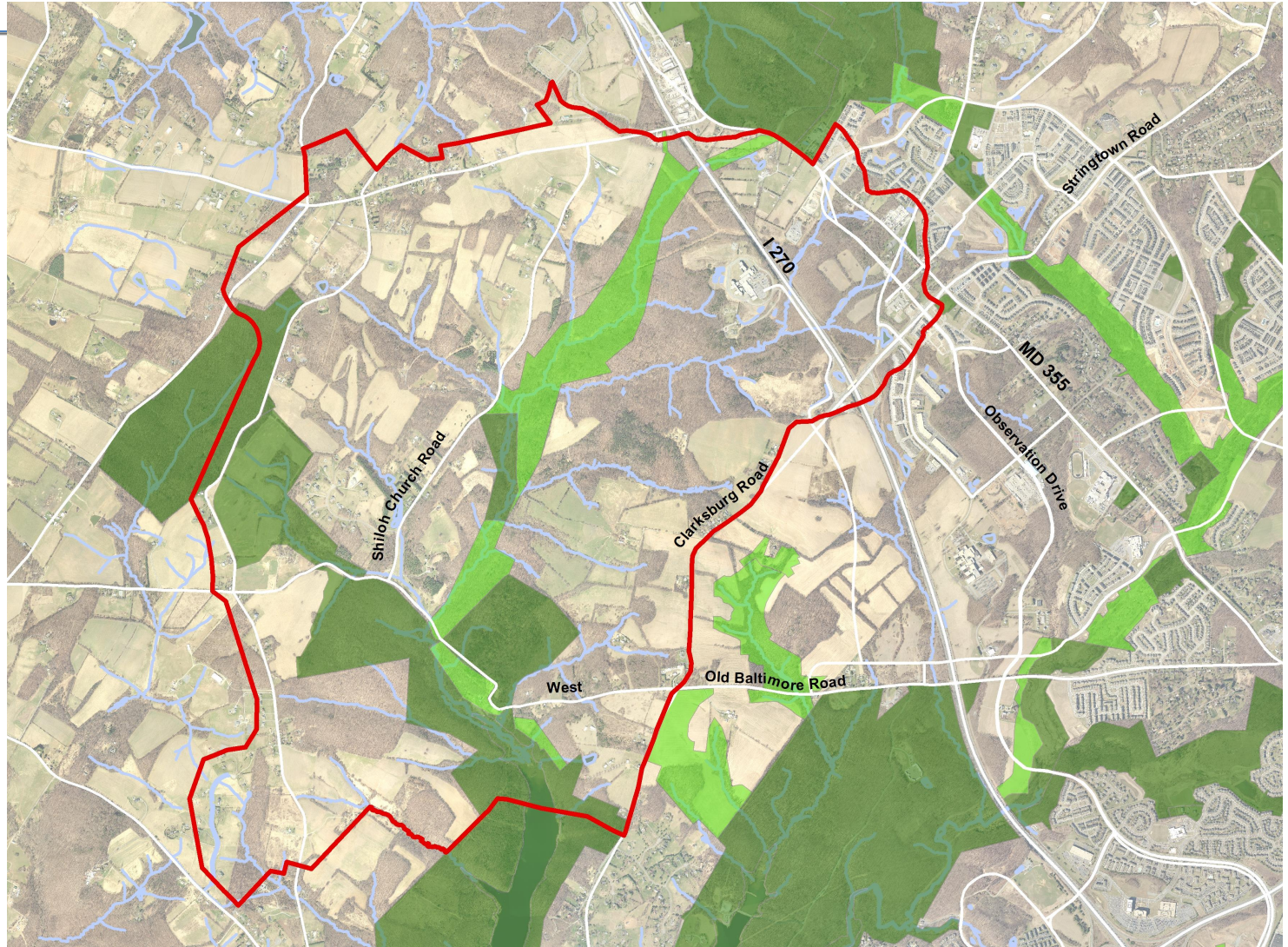
How significantly could the watershed be impacted by development?

How well can those impacts be mitigated?

What constitutes an acceptable level of stream quality decline?

What other development options should be considered?

Orientation



Master Plan Policies and Recommendations

Policy 1: Town Scale of Development

- Historic district is a key element of the Town Center
- Land use recommendations balance environmental protection and sufficient densities to support transit
- High tech corridor employment at reduced scale
- Defined neighborhoods with a mixture of housing types

Master Plan Policies and Recommendations

Policy 6: Town Center

- Mixed use with transit and pedestrian orientation
- Civic components create focus for public life
- “Main street” treatment for Md 355 protects historic district

Policy 2: Natural Environment

- Ten mile creek has countywide significance
- Public stream valley acquisition to support *Greenways (Policy 3)*
- Development guidelines for impacted streams

Master Plan Policies and Recommendations

Policy 4: Transit System

Policy 8: Employment

- In the Town Center, transit availability supports higher residential densities and employment uses at appropriate town scale

Policy 7: Transit/Pedestrian Orientation

Policy 5: Hierarchy of Roads and Streets

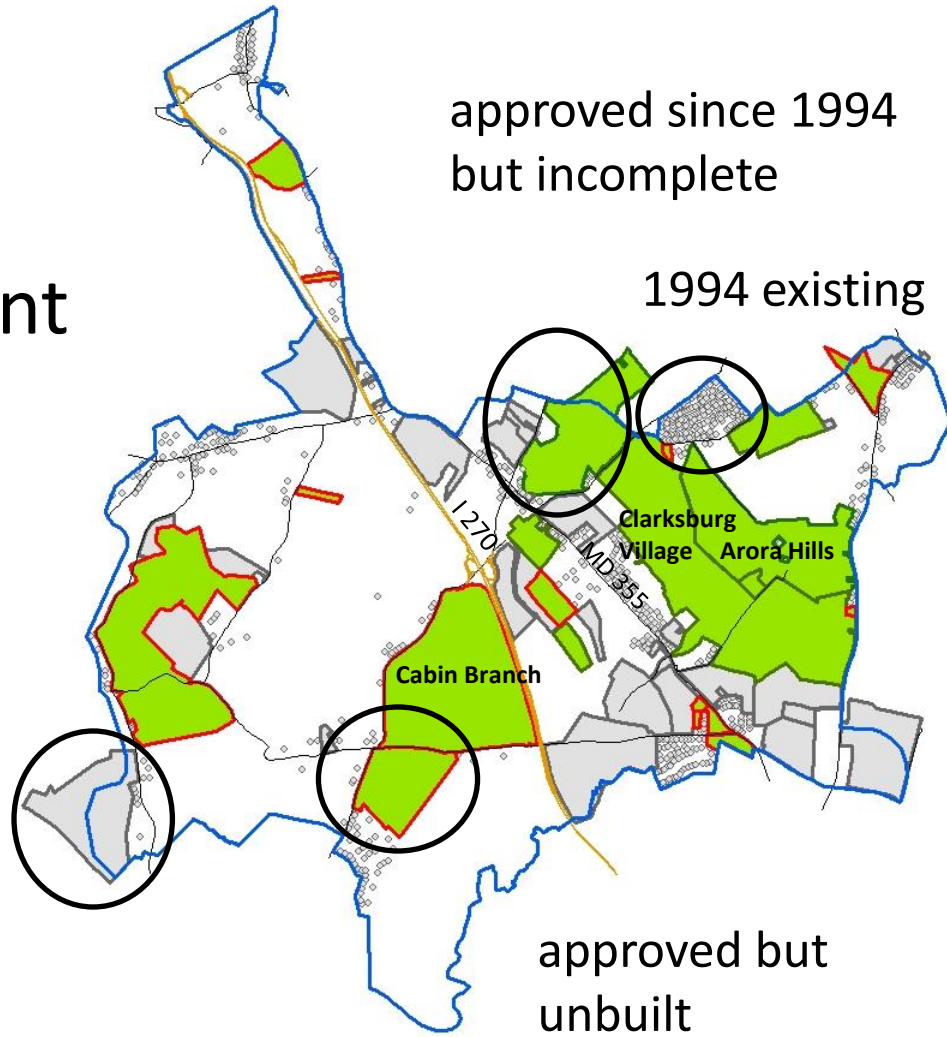
- Seven neighborhoods with pedestrian focus and connections to transit system
- Clear street hierarchy separates through from local traffic and connect streets within neighborhoods

Master Plan Policies and Recommendations

Community Building

- These policies are the foundation of a clearly defined community with a range of land uses, including *Farmland Preservation (Policy 9)*
- Community building managed by a *Staging Plan (Policy 10)* to balance provision of civic infrastructure with pace of development

Current Development



approved
and built
since 1994

approved since 1994
but incomplete

1994 existing

approved but
unbuilt

Current Development

Recommended Housing Mix by Geographic Area

Neighborhood	Detached	Attached	Multi-family
Town Center	10 percent to 20 percent	30 percent to 50 percent	25 percent to 45 percent
Transit Corridor (Transitway)	5 percent to 10 percent	40 percent to 60 percent	30 percent to 50 percent
Transit Corridor (MD 355 Area)	50 percent to 60 percent	30 percent to 40 percent	5 percent to 10 percent
Newcut Road	45 percent to 55 percent	35 percent to 45 percent	10 percent to 20 percent
Cabin Branch	45 percent to 55 percent	35 percent to 45 percent	10 percent to 20 percent
Ten Mile Creek East	70 percent to 100 percent	0 percent to 30 percent	0 percent

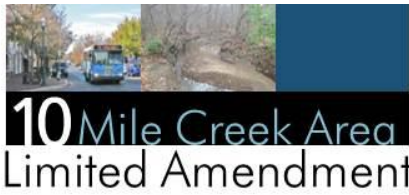
Current Development

Built and Unbuilt Residential

Neighborhood	Totals			Total	SFD %	SFA %	MF %
	SFD	SFA	MF				
Town Center	450	805	359	1,614	0.28	0.50	0.22
Transit Corridor	276	658	194	1,128	0.24	0.58	0.17
Newcut Road	1,905	1,294	1,234	4,433	0.43	0.29	0.28
Cabin Branch	1,036	654	939	2,629	0.39	0.25	0.36
Ten Mile Creek	0	0	0	0	0	0	0
				9,804			

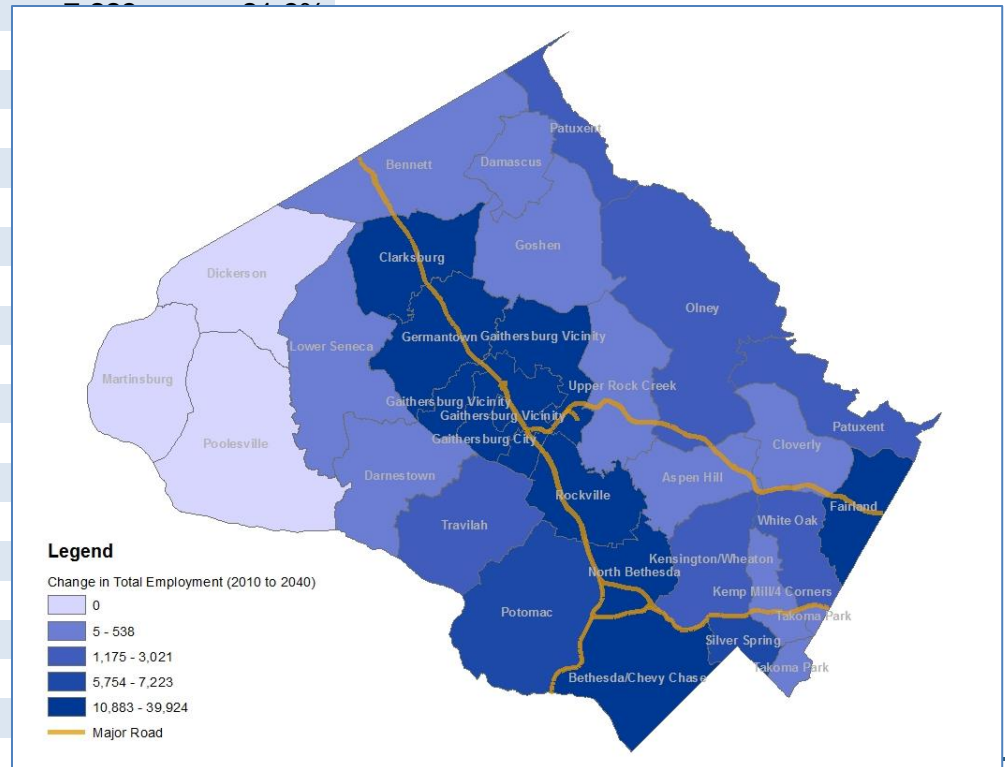
Commercial

- 600,000 sf built since plan approval
- 304,000 sf approved but unbuilt in town center and newcut road



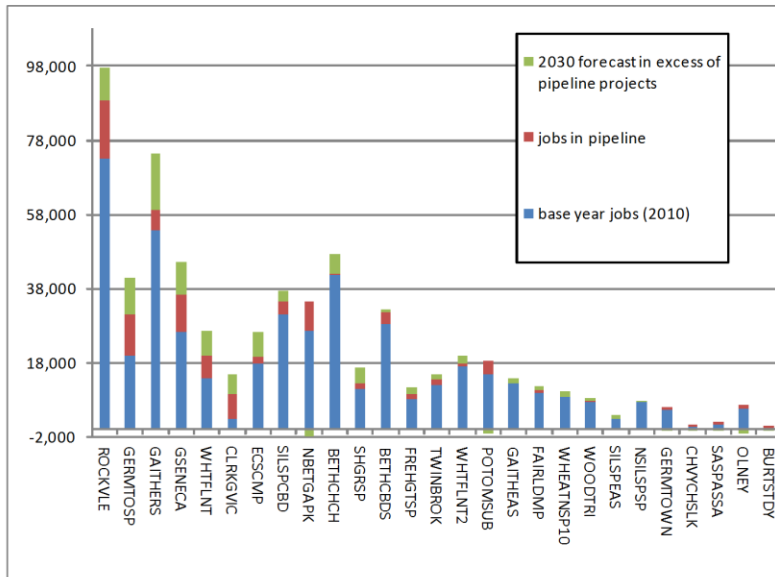
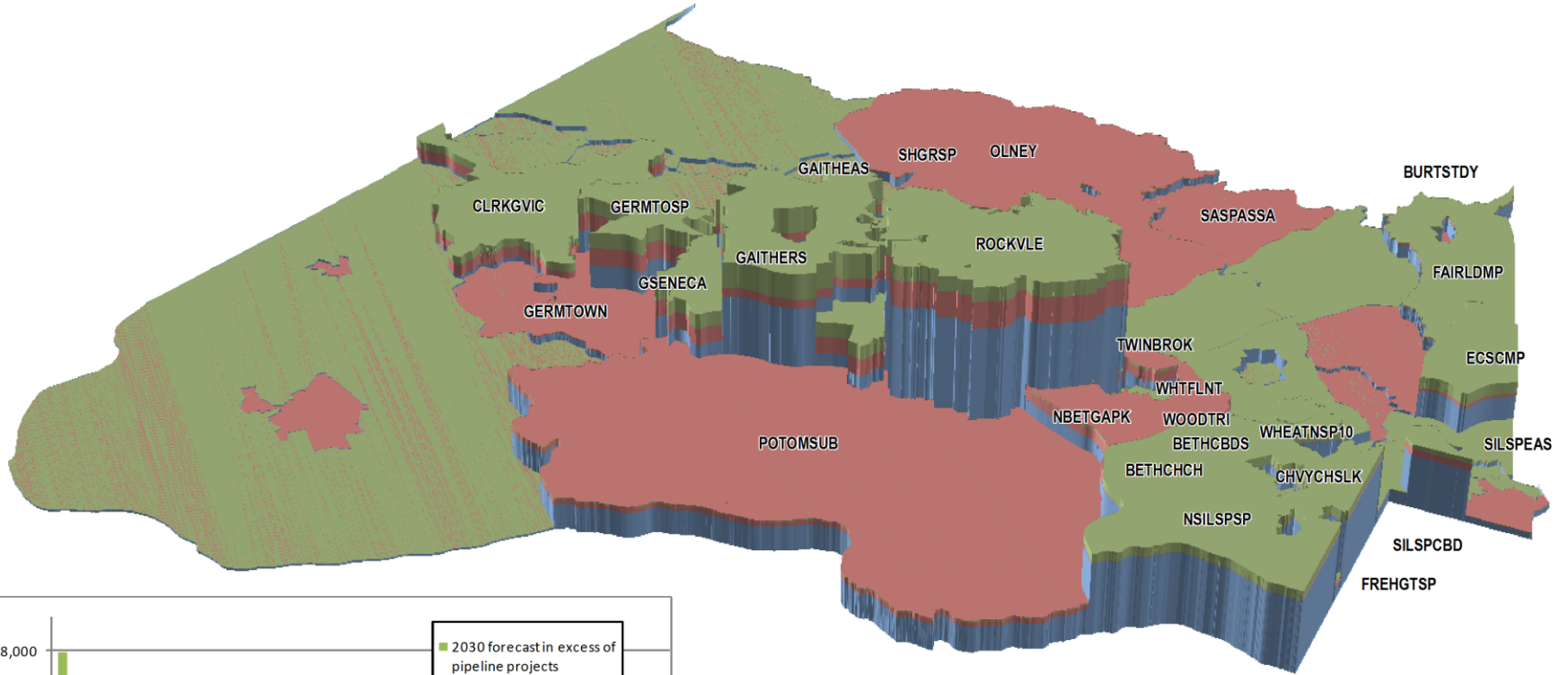
Rnd 8.2 Forecast: Employment Change (2010-2040)

Planning Area	Total 2010	Total 2040	Change	% Change
North Bethesda	60,943	100,867	39,924	65.5%
Rockville	73,595	105,533	31,938	43.4%
Gaithersburg Vicinity	48,885	72,185	23,300	47.7%
Bethesda/Chevy Chase	99,597	122,490	22,893	23.0%
Gaithersburg City	43,351	63,638	20,287	46.8%
Germantown	23,681	43,622	19,941	84.2%
Clarksburg	2,984	13,906	10,922	366.0%
Fairland	16,553	27,436	10,883	65.7%
Silver Spring	33,878	41,101	7,223	21.3%
Potomac	15,334	21,088	5,754	37.5%
Kensington/Wheaton	20,681	23,702	3,021	14.6%
Travilah	4,378	7,028	2,650	60.5%
Olney	8,775	10,806	2,031	23.1%
White Oak	15,591	17,052	1,461	9.4%
Patuxent	2,597	3,772	1,175	45.3%
Cloverly	2,579	3,117	538	20.9%
Upper Rock Creek	11,037	11,434	397	3.6%
Kemp Mill/4 Corners	3,939	4,173	234	5.9%
Aspen Hill	8,463	8,536	73	0.9%
Takoma Park	5,859	5,926	67	1.1%
Bennett	1,228	1,294	66	5.3%
Damascus	1,837	1,898	61	3.3%
Lower Seneca	308	320	12	3.9%
Darnestown	1,502	1,512	10	0.7%
Goshen	1,124	1,129	5	0.4%
Dickerson	616	616	0	0%
Martinsburg	100	100	0	0%
Poolesville	862	862	0	0%



Employment Forecast, Montgomery County

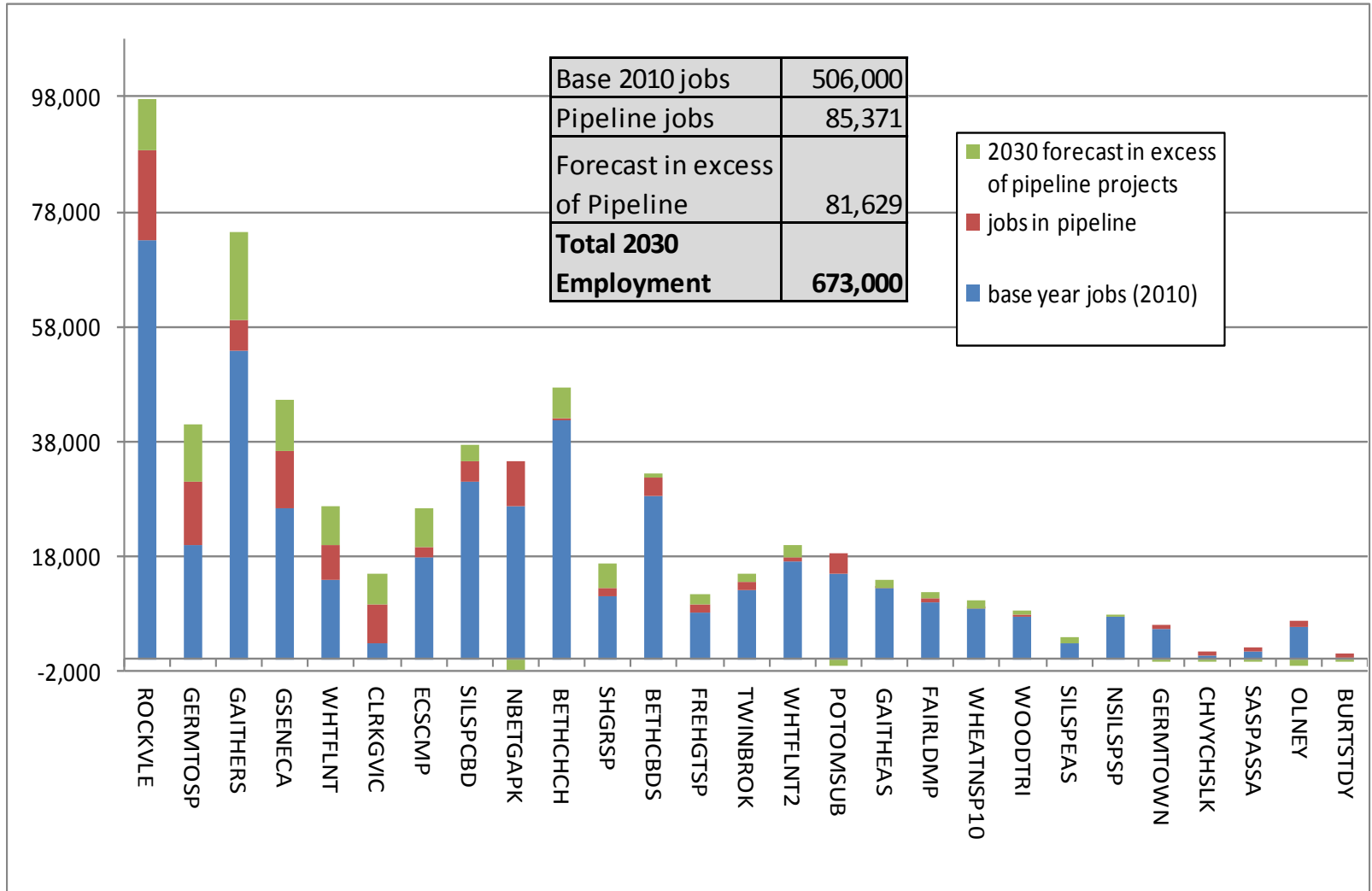
Pipeline and Forecasted Employment Estimates by Master Plan Areas



Code Translation Table:

CODE	NAME	CODE	NAME
BETHCBDS	BETHESDA CBD MASTER PLAN	NBETGAPK	NORTH BETHESDA GARRETT PARK MASTER PLAN
BETHCHCH	BETHESDA CHEVY CHASE	NSILSPSP	NORTH AND WEST SILVER SPRING 2000
BURTSTDY	BURTONVILLE CROSSROADS NEIGHBORHOOD PLAN	OLNEY	OLNEY MASTER PLAN
CHVYCHSLK	CHEVY CHASE LAKE MASTER PLAN	POTOMSUB	POTOMAC SUBREGION 2002
CLRKGVIC	CLARKSBURG MASTER PLAN	ROCKVLE	ROCKVILLE
ECSCMP	EAST COUNTY SCIENCE CENTER MASTER PLAN	SASPASSA	SANDY SPRING ASHTON
FAIRLDM	FAIRLAND MASTER PLAN	SHGRSP	SHADY GROVE SECTOR PLAN
FREHGTSP	FRIENDSHIP HEIGHTS CBD	SILSPCBD	SILVER SPRING CBD
GAITHEAS	GAITHERSBURG EAST	SILSPEAS	SILVER SPRING EAST
GAITHERS	GAITHERSBURG	TWINBROK	TWINBROOK
GERMTOSP	GERMANTOWN SECTOR PLAN	WHEATNSP10	WHEATON SECTOR PLAN 2010
GERMTOWN	GERMANTOWN MASTER PLAN	WHTFLNT	WHITE FLINT SECTOR PLAN
GSENECA	GREAT SENECA SCIENCE CORRIDOR MASTER PLAN	WHTFLNT2	WHITE FLINT SECTOR PLAN PHASE 2
		WOODTRI	WOODMONT TRIANGLE AMENDMENT

Forecast Jobs by Master Plan Area



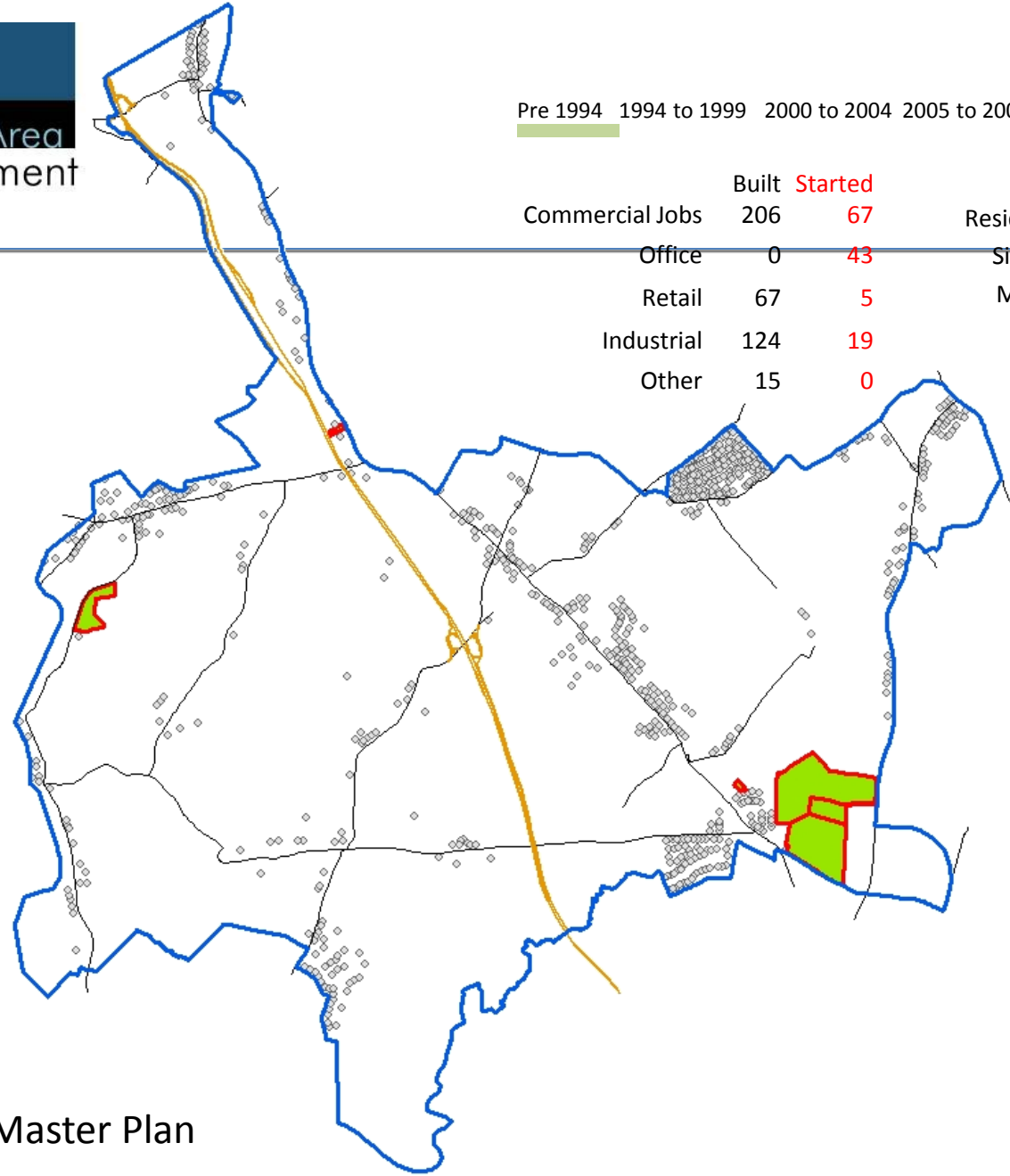
* Only Master Plans with expected growth of over 500 jobs are displayed.



10 Mile Creek Area Limited Amendment

Pre 1994 1994 to 1999 2000 to 2004 2005 to 2009 2010 to 2013 Planned

	Built	Started	Built	Started
Commercial Jobs	206	67	Residential DUs	798
Office	0	43	Single Family	798
Retail	67	5	Multi-Family	0
Industrial	124	19		
Other	15	0		

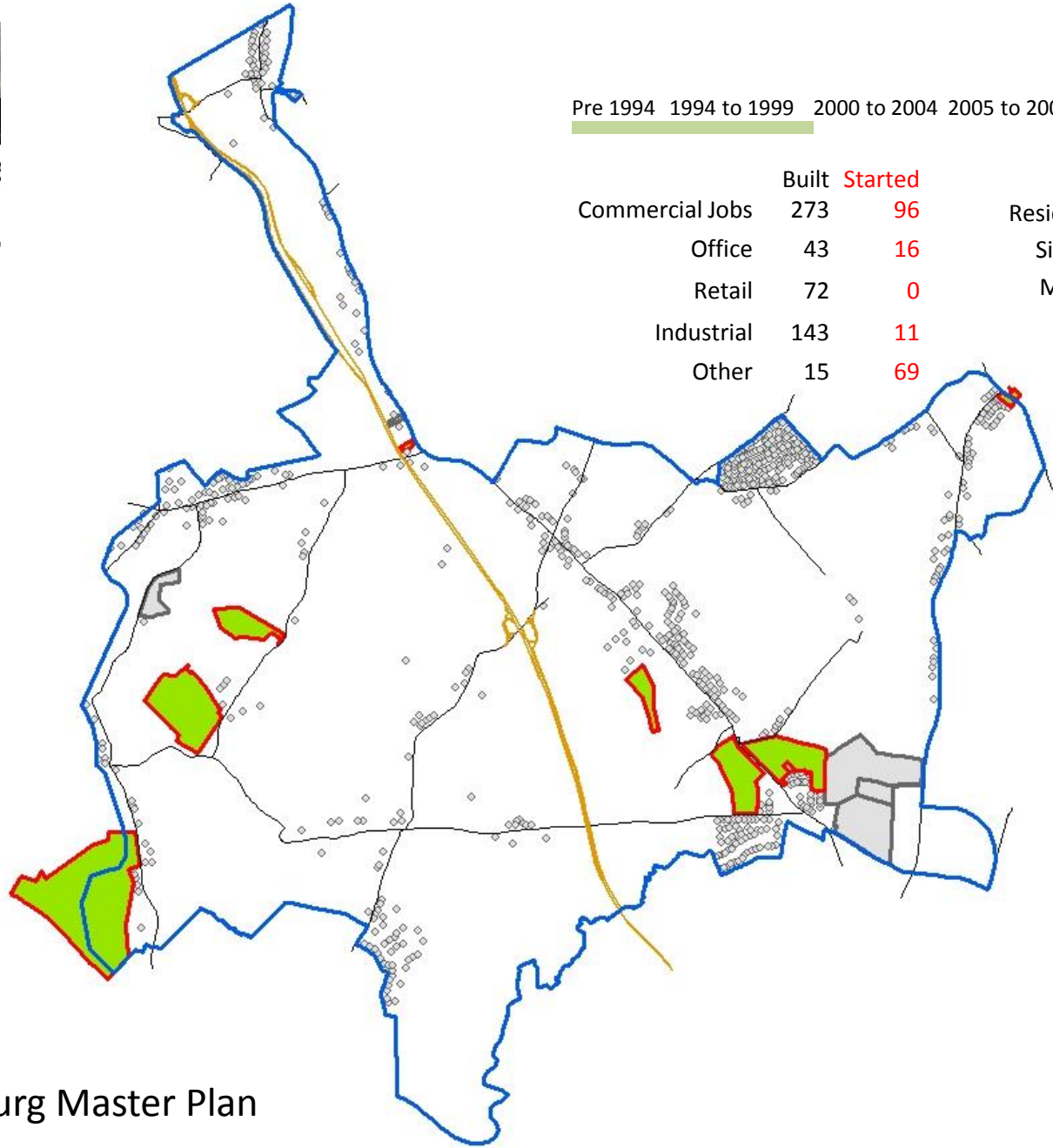


Clarksburg Master Plan



Pre 1994 1994 to 1999 2000 to 2004 2005 to 2009 2010 to 2013 Planned

	Built	Started	Built	Started
Commercial Jobs	273	96	Residential DUs	866
Office	43	16	Single Family	866
Retail	72	0	Multi-Family	0
Industrial	143	11		
Other	15	69		



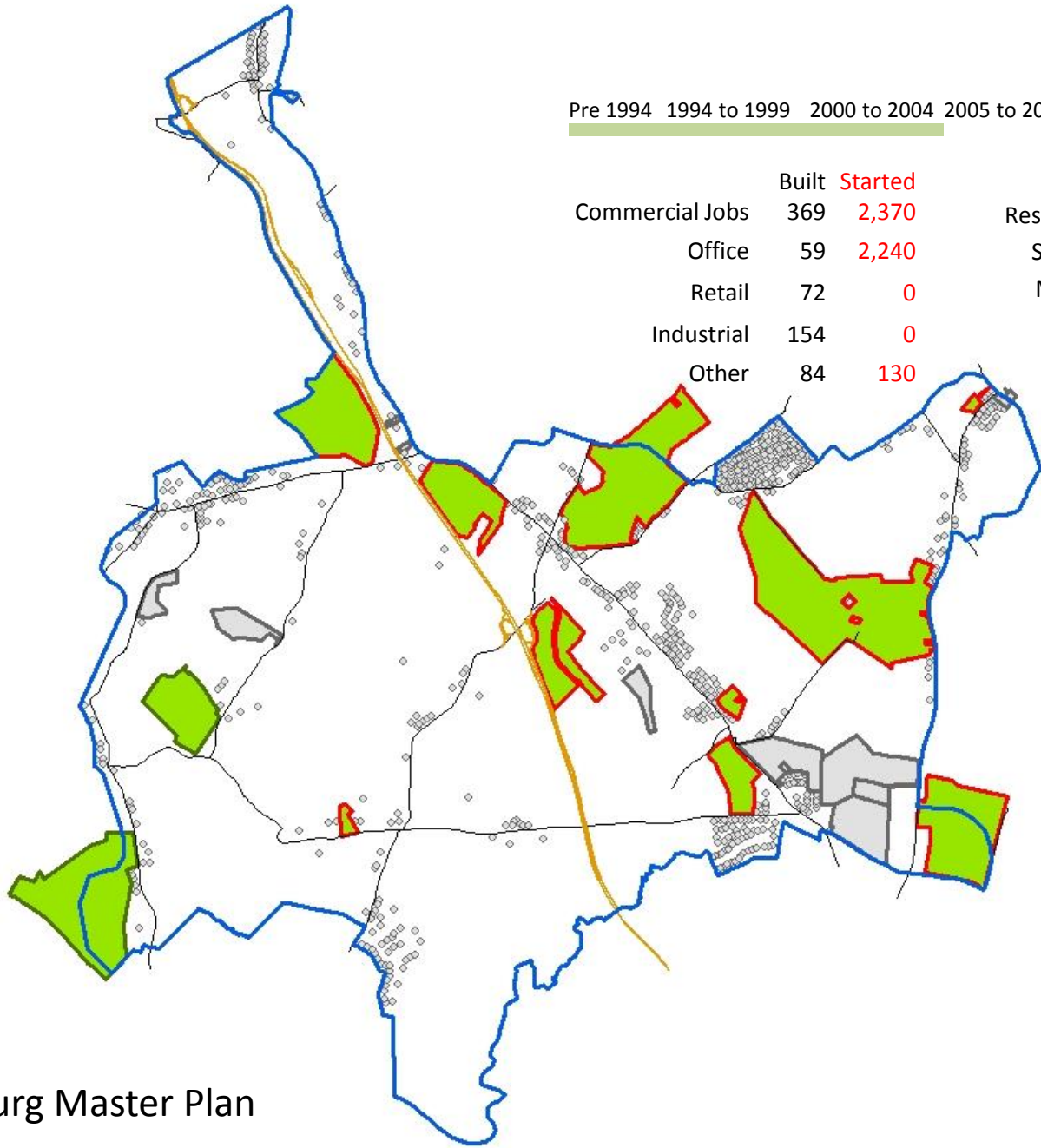
Clarksburg Master Plan



10 Mile Cre
Limited Ame

Pre 1994 1994 to 1999 2000 to 2004 2005 to 2009 2010 to 2013 Planned

	Built	Started	Built	Started
Commercial Jobs	369	2,370	Residential DUs	974
Office	59	2,240	Single Family	974
Retail	72	0	Multi-Family	0
Industrial	154	0		
Other	84	130		

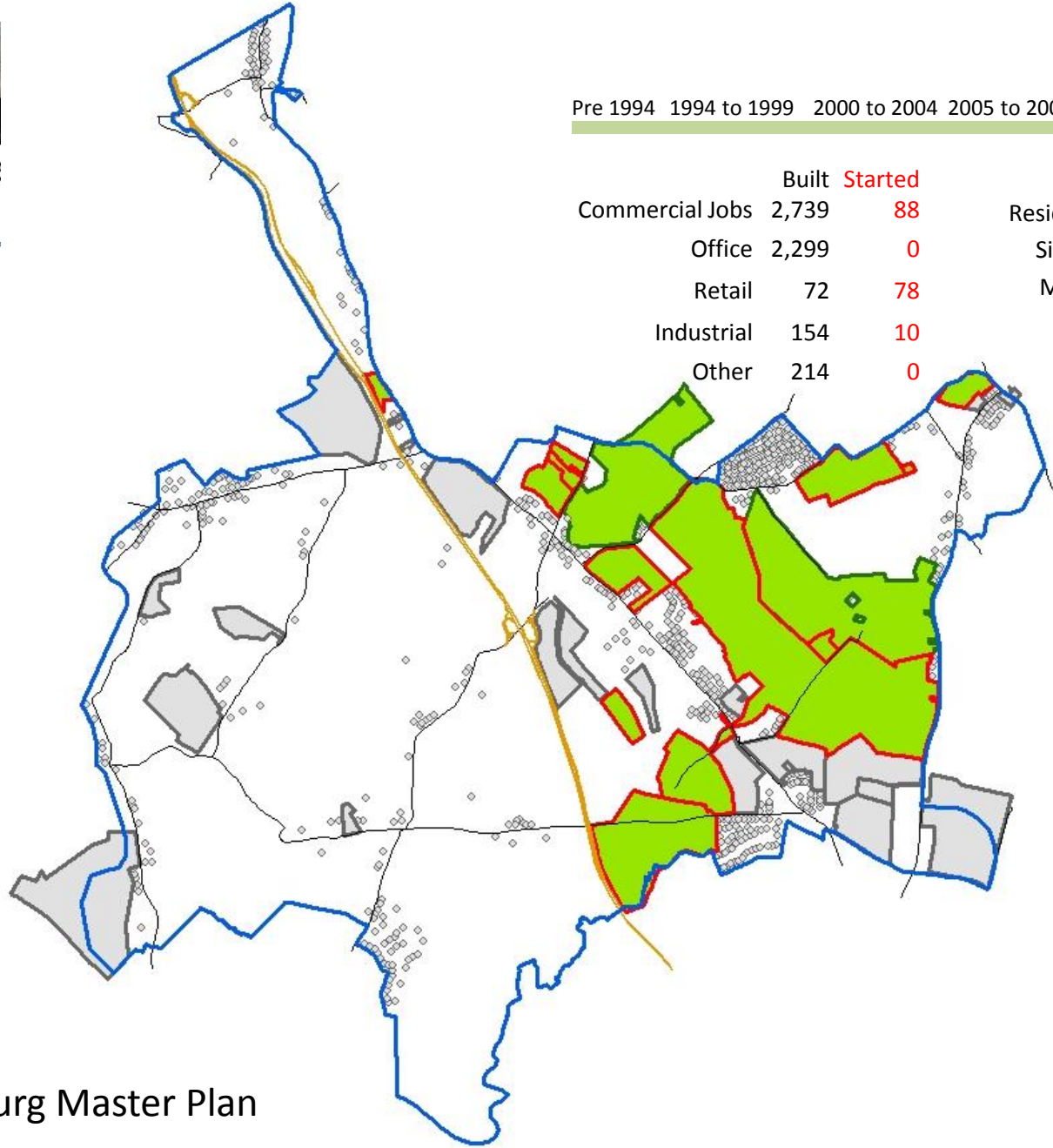


Clarksburg Master Plan



Pre 1994 1994 to 1999 2000 to 2004 2005 to 2009 2010 to 2013 Planned

	Built	Started	Built	Started
Commercial Jobs	2,739	88	Residential DUs	3,167
Office	2,299	0	Single Family	2,660
Retail	72	78	Multi-Family	507
Industrial	154	10		
Other	214	0		

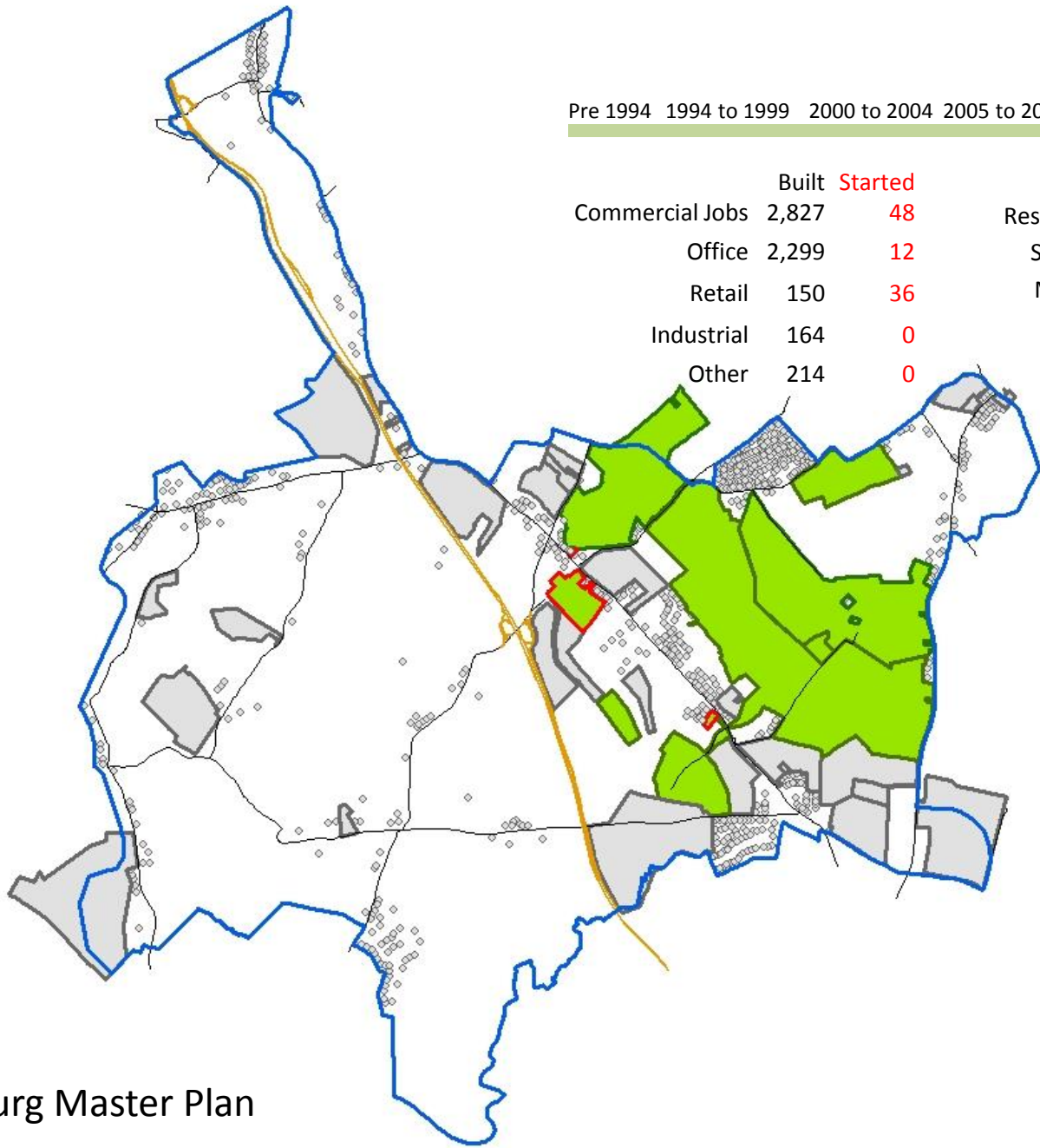


Clarksburg Master Plan



Pre 1994 1994 to 1999 2000 to 2004 2005 to 2009 2010 to 2013 Planned

	Built	Started	Built	Started
Commercial Jobs	2,827	48	Residential DUs	5,839
Office	2,299	12	Single Family	4,946
Retail	150	36	Multi-Family	893
Industrial	164	0		
Other	214	0		

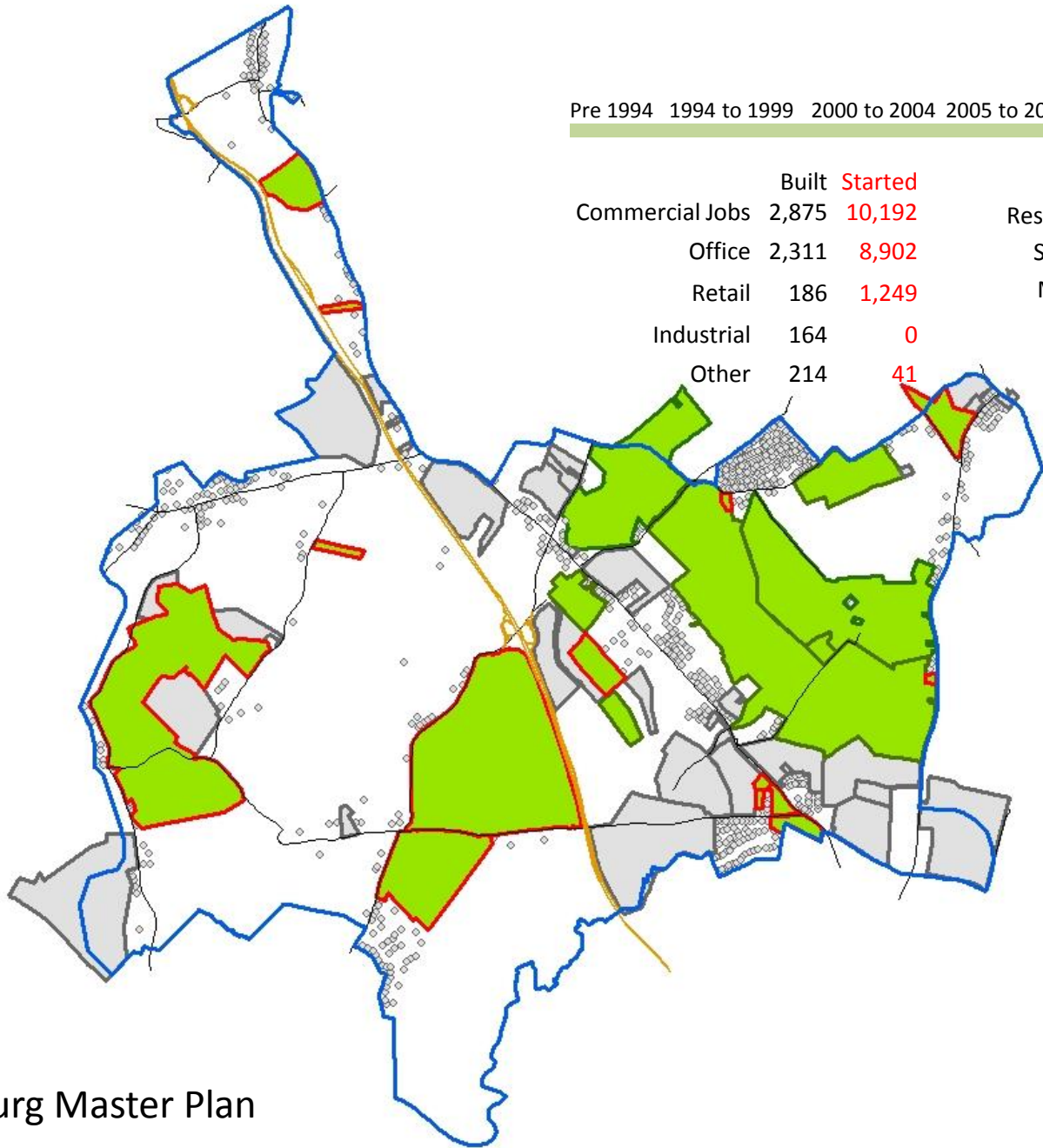


Clarksburg Master Plan



Pre 1994 1994 to 1999 2000 to 2004 2005 to 2009 2010 to 2013 Planned

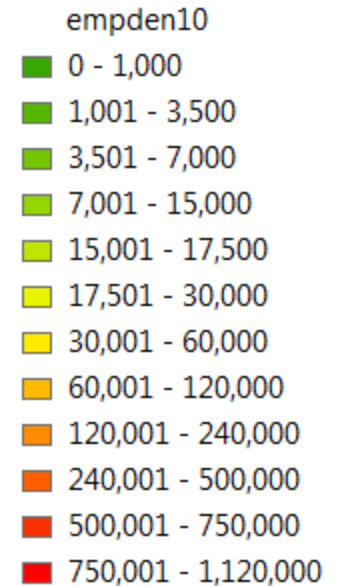
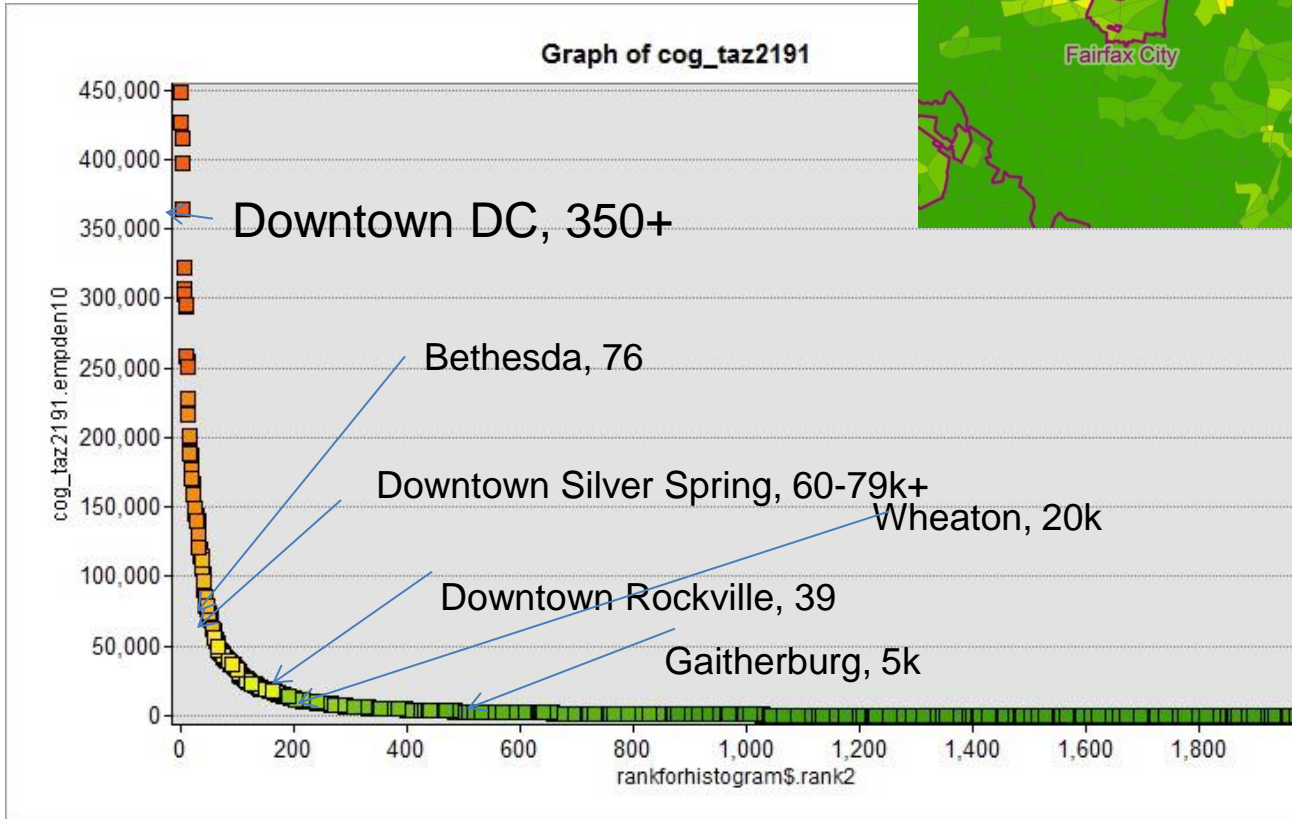
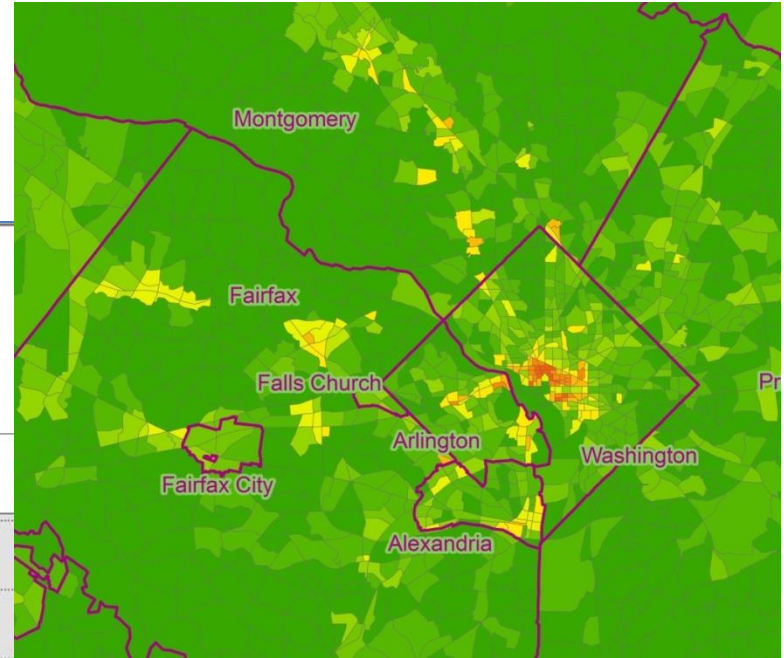
	Built	Started	Built	Started
Commercial Jobs	2,875	10,192	Residential DUs 6,148	5,161
Office	2,311	8,902	Single Family 5,079	4,129
Retail	186	1,249	Multi-Family 1,069	1,032
Industrial	164	0		
Other	214	41		



Clarksburg Master Plan

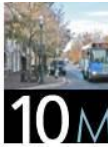


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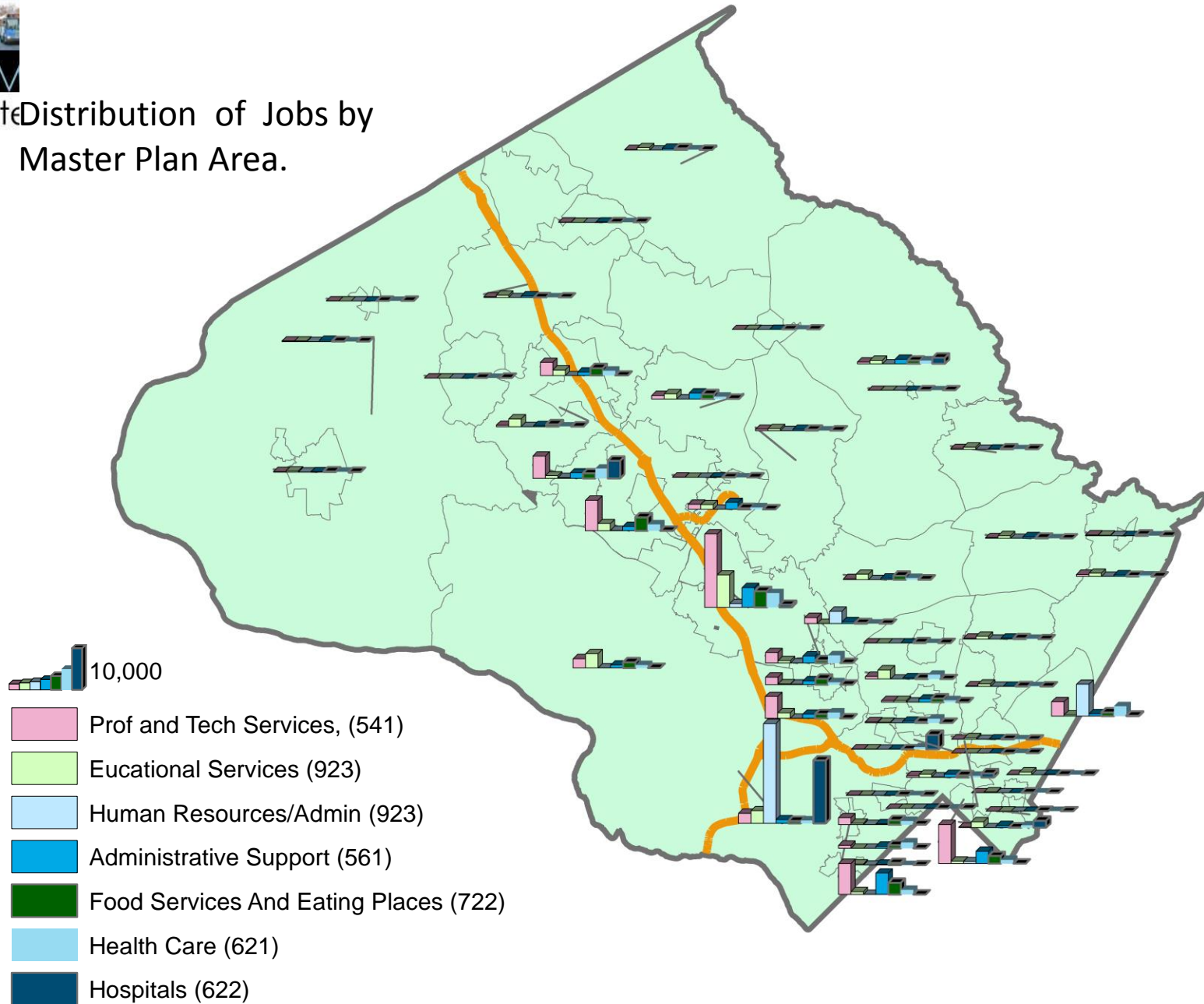
About 50% of all county jobs fall within
1 of 7 industry categories.

Description	# of Sites	# Jobs	% County
Professional, Scientific, and Technical Services	6,630	66,611	14.5%
Educational Services	797	33,568	7.3%
Administration of Human Resource Programs	27	30,657	6.7%
Administrative and Support Services	2,094	28,180	6.2%
Food Services and Drinking Places	1,838	26,458	5.8%
Ambulatory Health Care Services	2,773	23,744	5.2%
Hospitals	42	23,576	5.1%
Totals:	14,201	232,794	50.8%

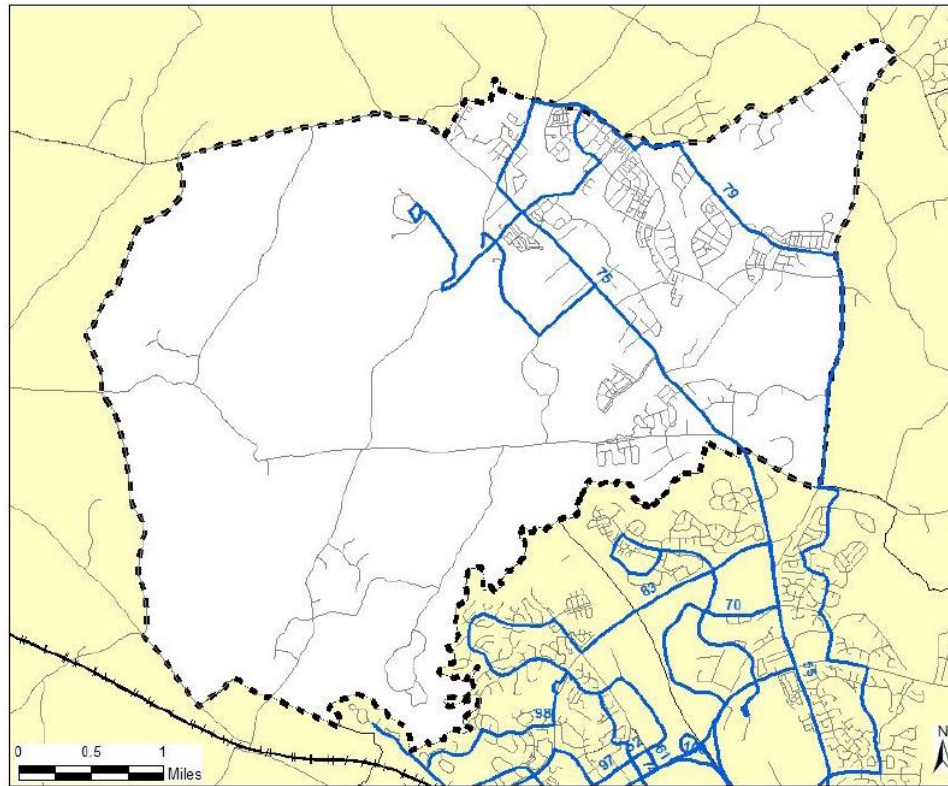


10M

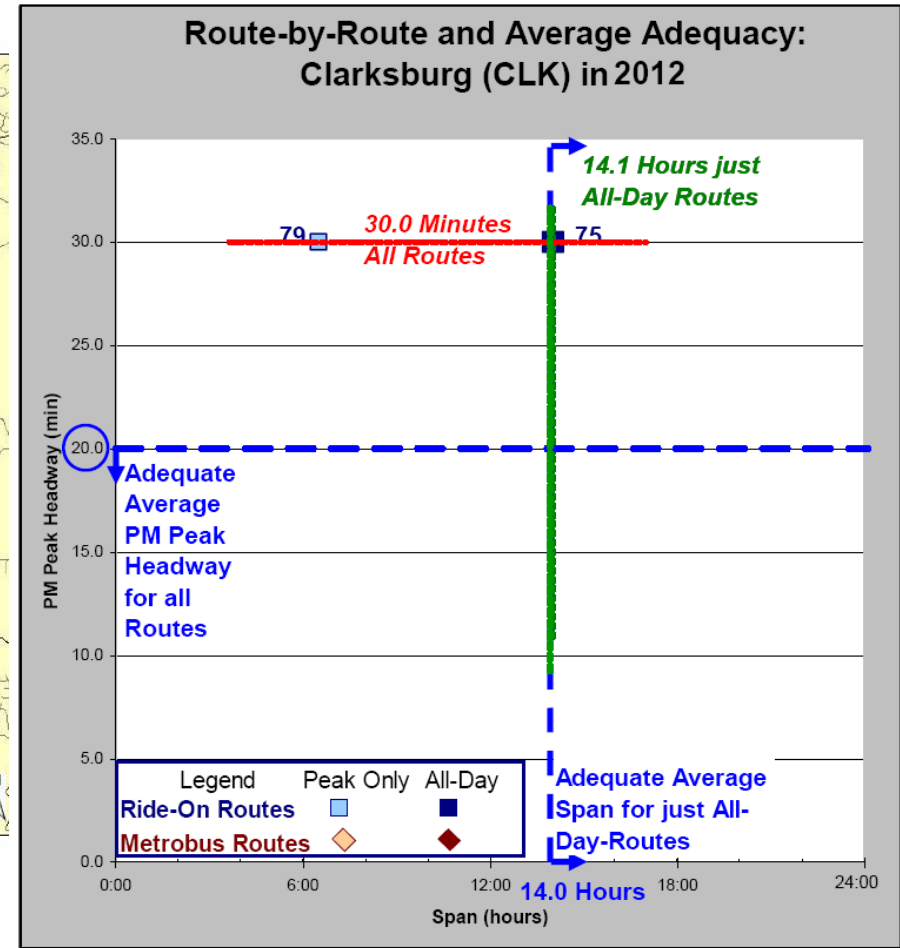
Limit Distribution of Jobs by Master Plan Area.



Existing Transit Conditions



— Ride On Route and # — Metrobus Route and #



Orientation



Existing Intersection Conditions

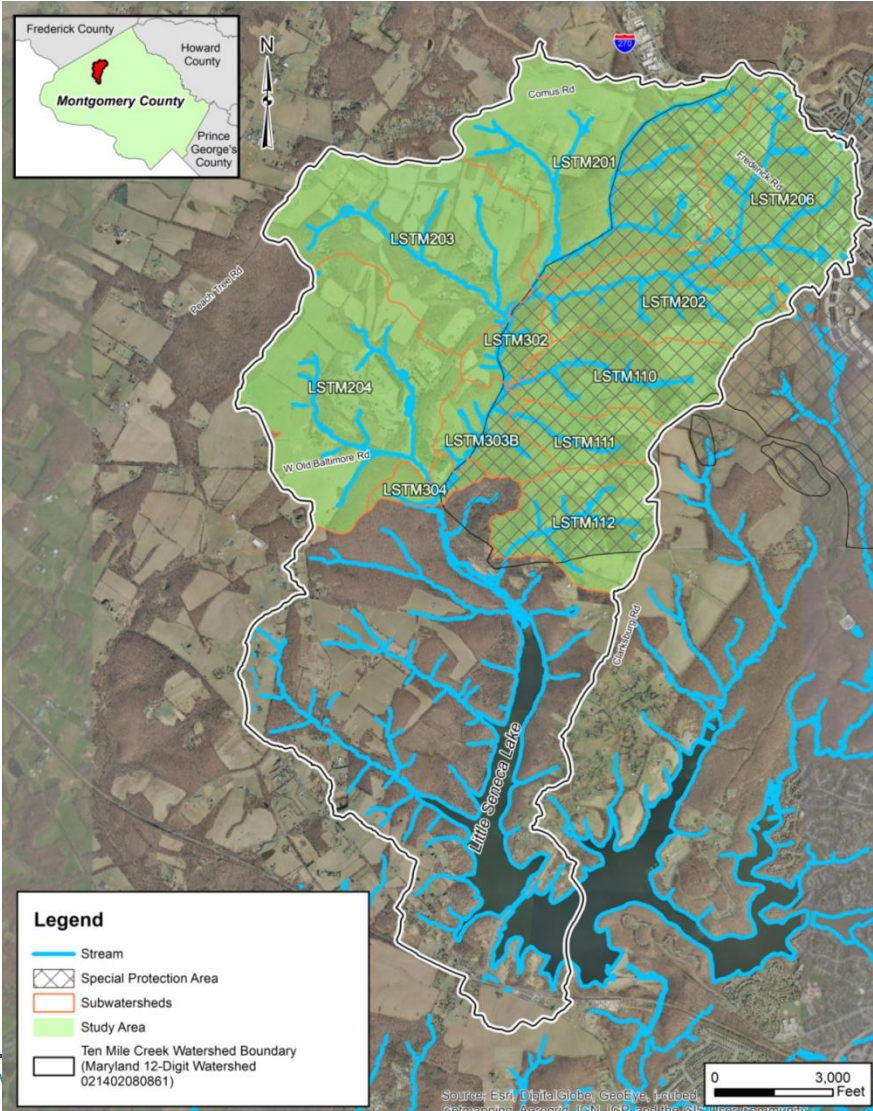
Existing Intersection Levels of Service				
Intersection	Peak Hour			
	AM		PM	
	MD 121 & I-270 Western Intersection	A	365	A
I-270 & MD 121 Eastern Intersection	A	609	A	480
MD 355 & MD 121	C	1225	C	1150
MD 355 & Shawnee Lane	A	750	A	875
MD 355 & Stringtown Road	A	914	B	1068
Gateway Center Dr. & Stringtown Road	A	667	A	846

Existing CLV Standard = 1425



10 Mile Creek Limited Amendment

Understanding Existing Conditions



Land Use and Land Cover

Community Features

Existing Infrastructure

Stormwater Management

Natural Features

Hydrology

Geomorphology

Water Quality

Habitat

Biology



10 Mile Creek Area Limited Amendment

Water Quality



Ten Mile Creek Existing Conditions

- Reference stream in Montgomery County.
- Overall biological condition is healthy & diverse.
- Sensitive 'indicator' organisms that occur in few other areas
- Part of a small group of high quality watersheds still remaining
- Streams are small and spring fed with cool, clean groundwater.
- Mainstem has high concentrations of interior forest and wetlands.
- No evidence of widespread, long-term channel instability
- Flood flows still naturally access the floodplain.
- Stream bed material is ideal to support a benthic macroinvertebrates
- Slopes are steep and soils are generally rocky, with shallow to moderate depth to bedrock.

Watershed Resource Conditions

Montgomery County, Maryland

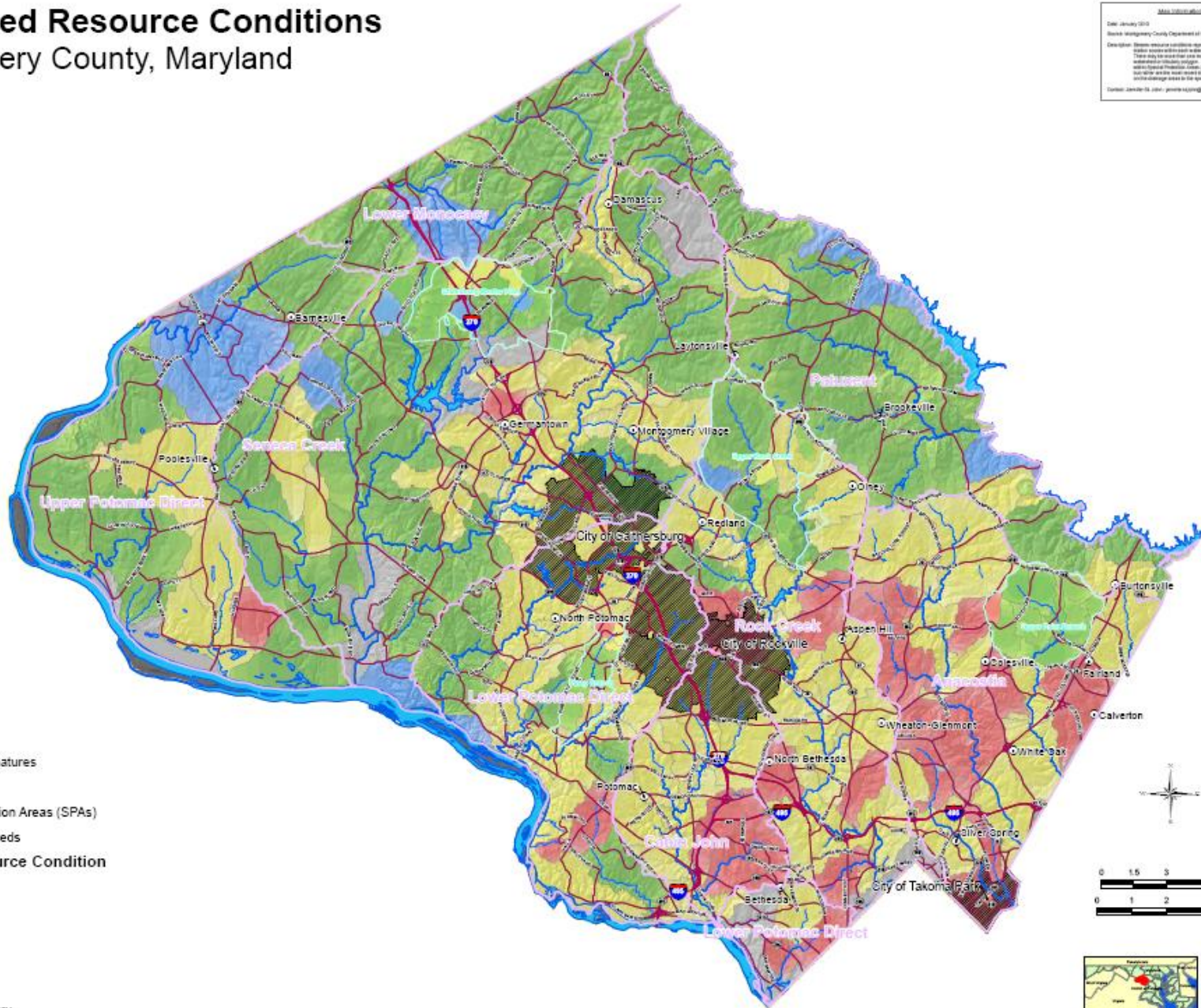
Map Information

Date: January 2010

Source: Montgomery County Department of Environmental Protection

Description: Watershed resource conditions represent the average of conditions. Watershed resource conditions are based on a variety of factors, including water quality, land use, and other factors. Watershed resource conditions are based on a variety of factors, including water quality, land use, and other factors. Watershed resource conditions are based on a variety of factors, including water quality, land use, and other factors.

Contact: Jennifer St. John - jstjohn@montgomerycountymd.gov



LEGEND

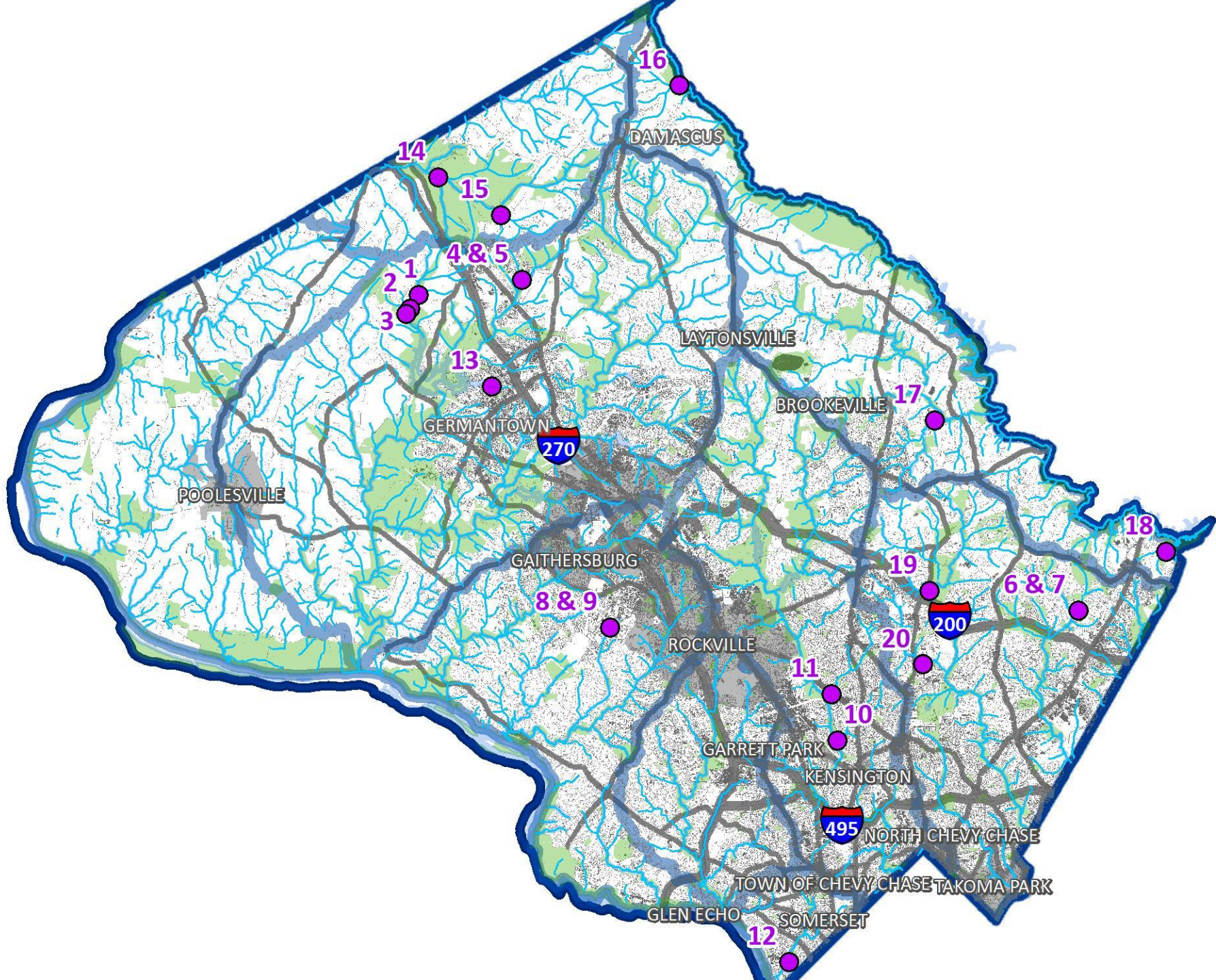
- Places
 - City
 - Roads
 - Interstates
 - Major Routes
 - Major Water Features
 - Municipalities
 - Special Protection Areas (SPAs)
 - 8 Digit Watersheds
- Watershed Resource Condition**
- Excellent
 - Good
 - Fair
 - Poor
 - Not Monitored
 - County Boundary



Legend

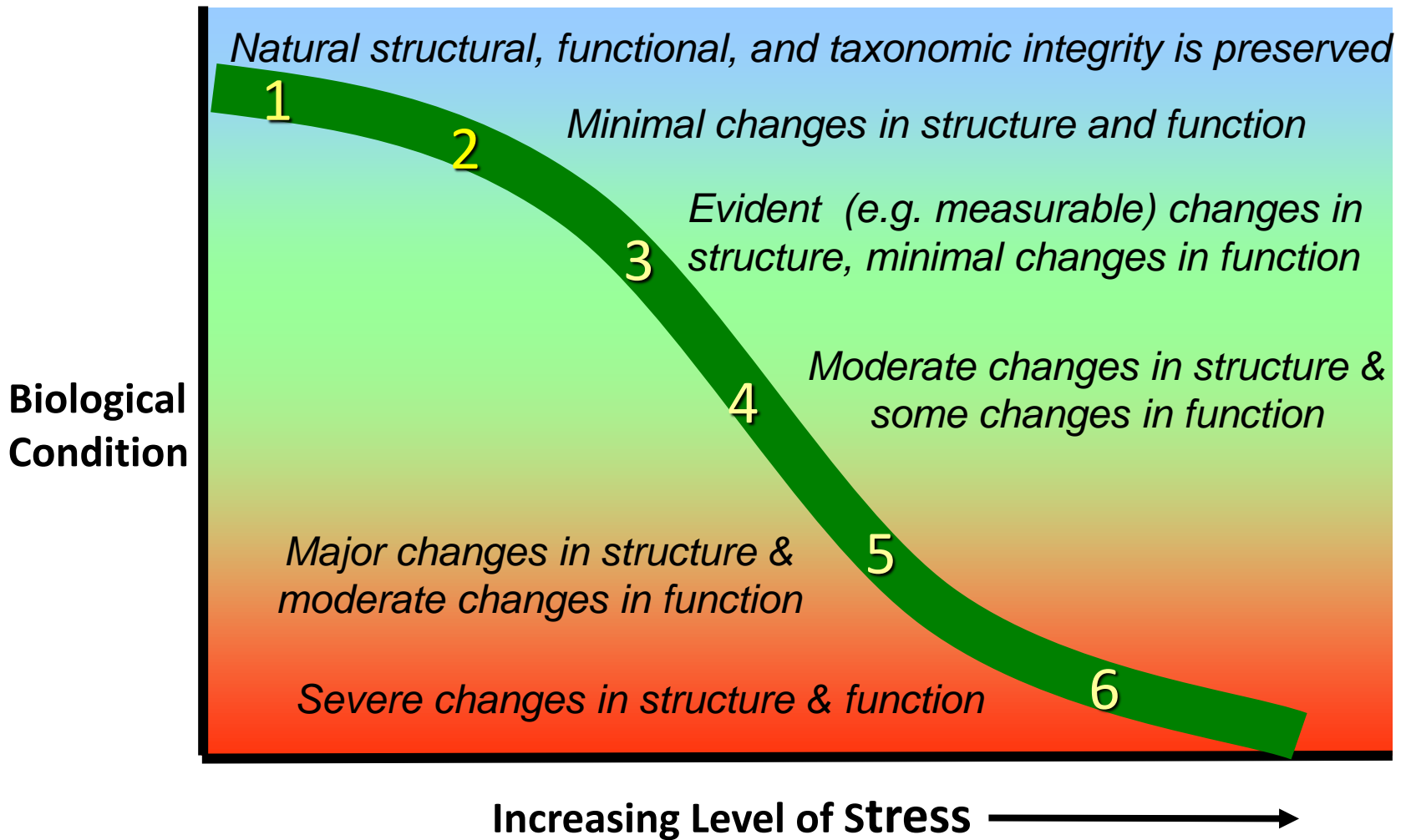
Needed a Method that:

- measures degree of fragility/sensitivity
- measures risk of further degradation as well as improvement
- indicates when sites are increasingly at risk but IBI says is still 'good'





BIOLOGICAL CONDITION GRADIENT



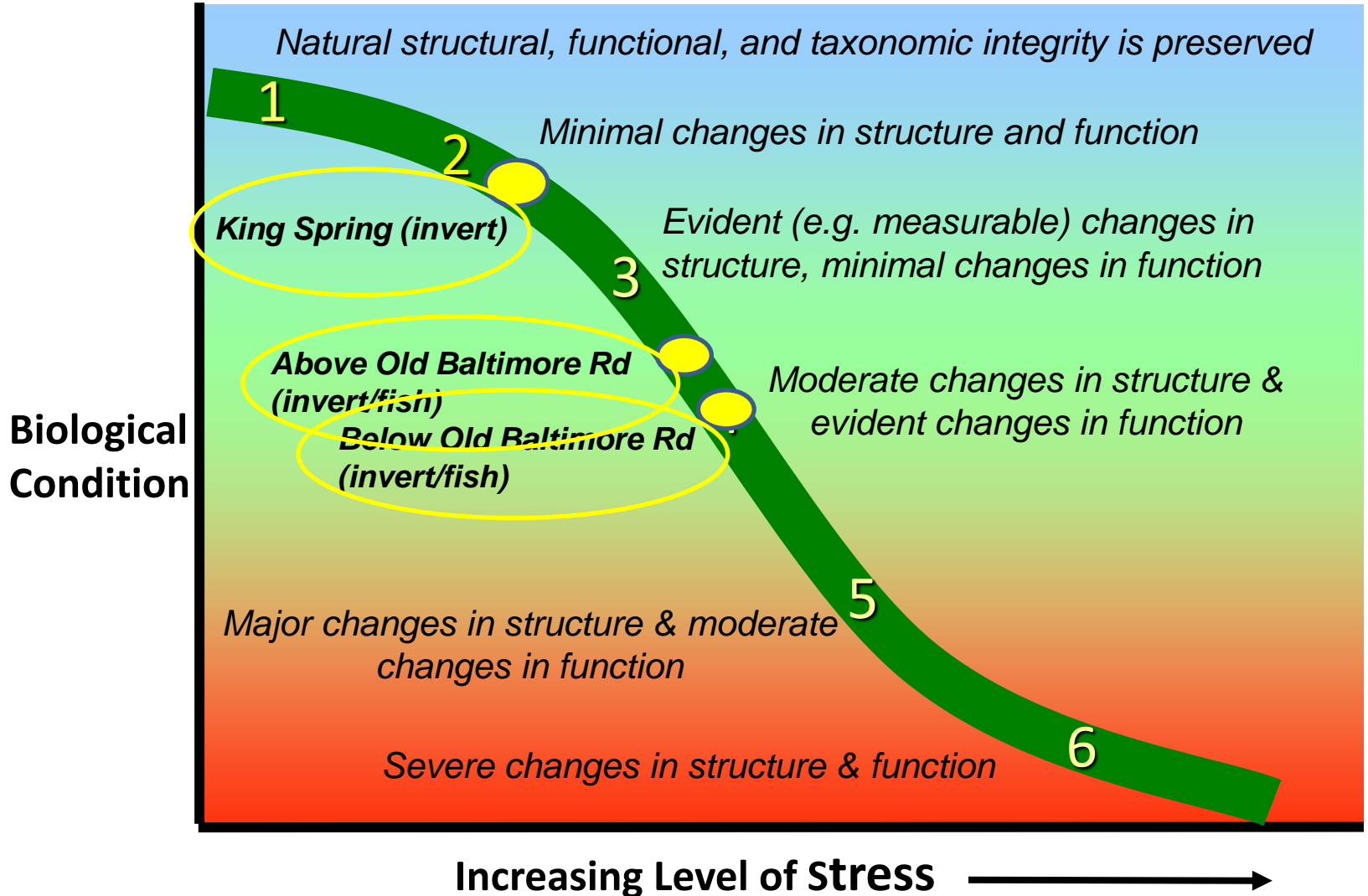


Location of Samples Assessed

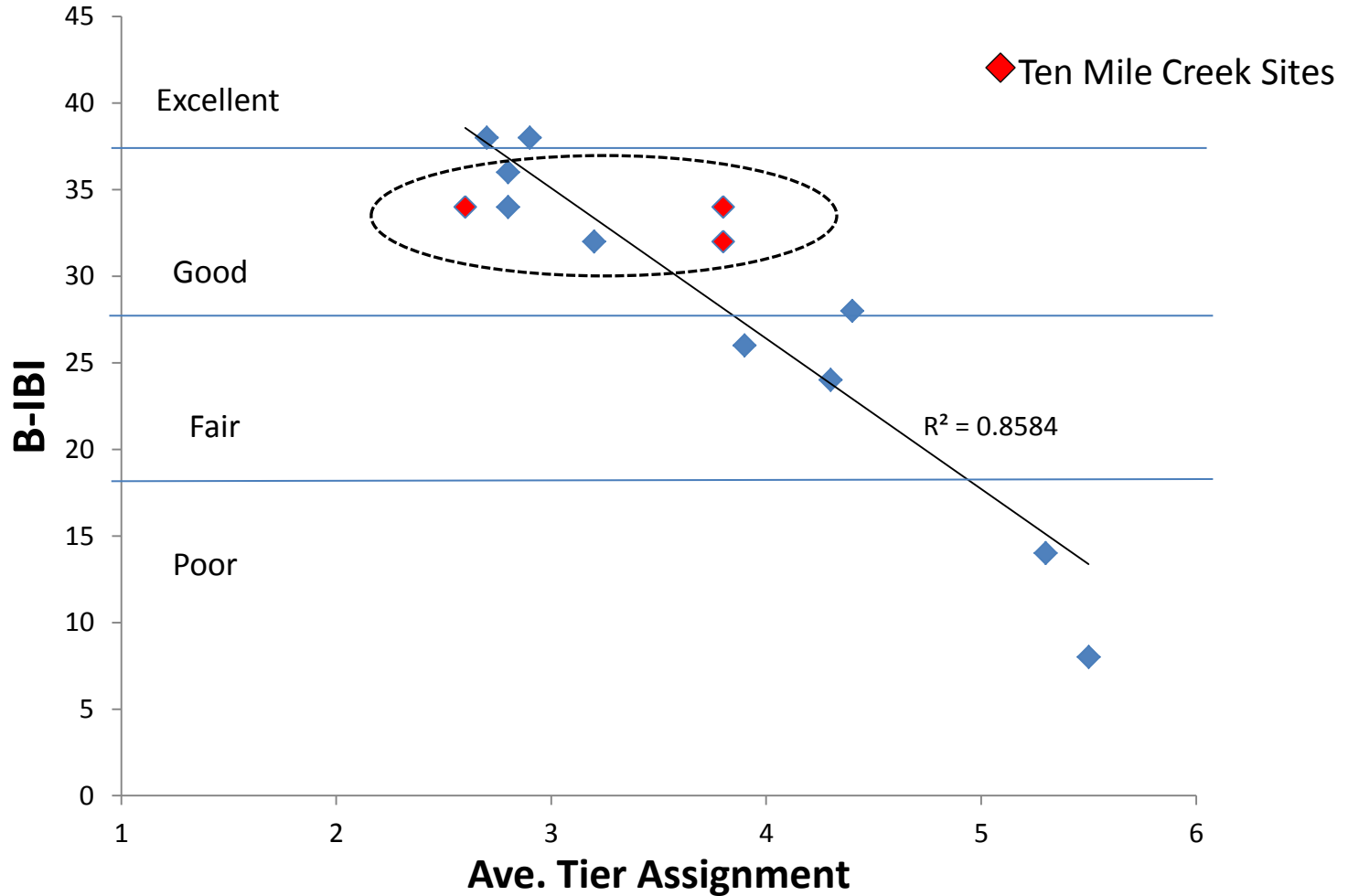




BIOLOGICAL CONDITION GRADIENT



Macroinvertebrates



- The BCG can be used to:
 - identify high quality waters that may be threatened and require additional protection and
 - Identify waters that show early signs of degradation but where protection or restoration efforts could be most efficient and successful.



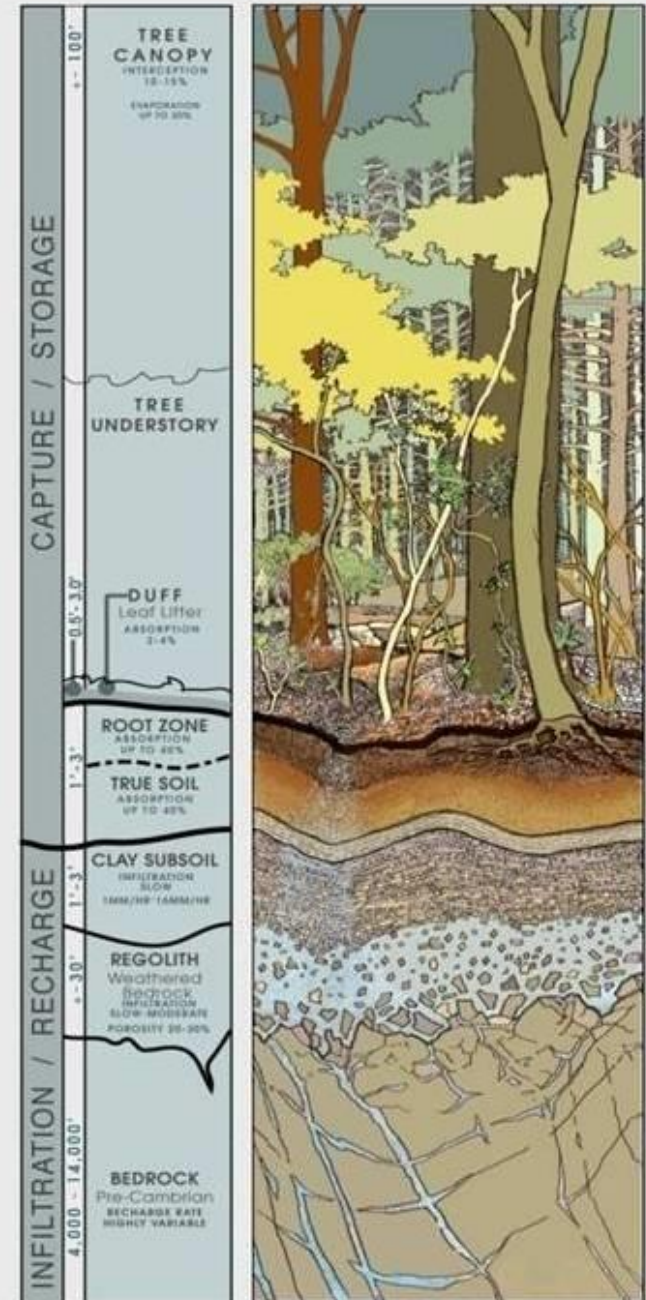
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Environmental Impacts from Development

Forests Provide:

- Carbon sequestration
- Return of water to the air by evapotranspiration
- Release of oxygen to the air
- Habitats
- Terrestrial and aquatic plant and animal communities
- Natural soil structure and biology
- **Infiltration of rainwater**
- Natural surface and ground water flows
- Moderation of air and water temperature
- Minimal pollution inputs
- Water quality treatment

Limiting Development footprint and
Impervious Cover helps to reduce impacts to
all of the above, not just infiltration



ESD and Woods in Good Condition

Although ESD is an improvement over conventional stormwater management and can mimic infiltration characteristics of forests, when it comes to providing *all* of the ecological functions and benefits of forests, it is important to keep in mind that:

Environmental Site Design



≠

Woods in Good Condition

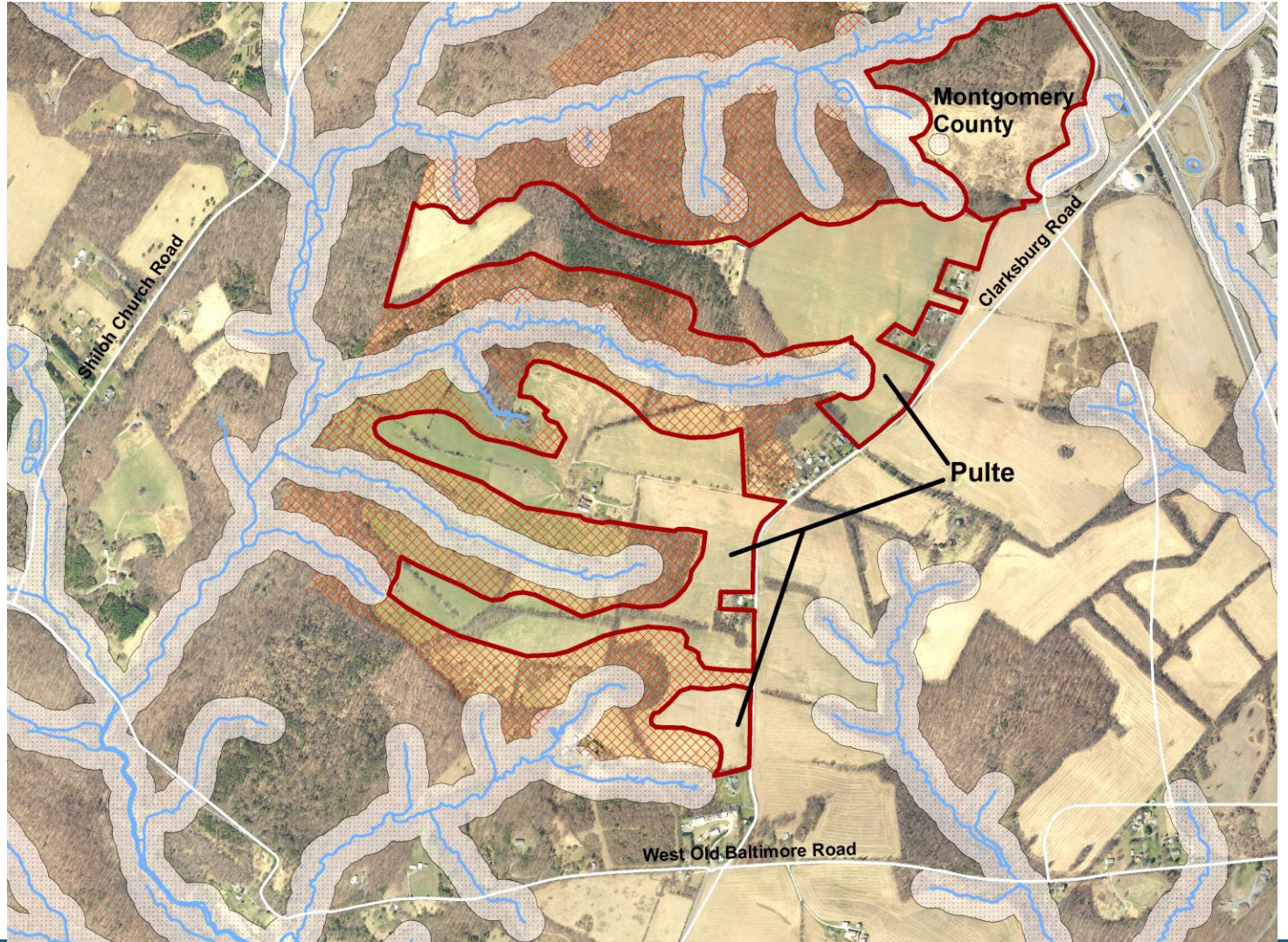




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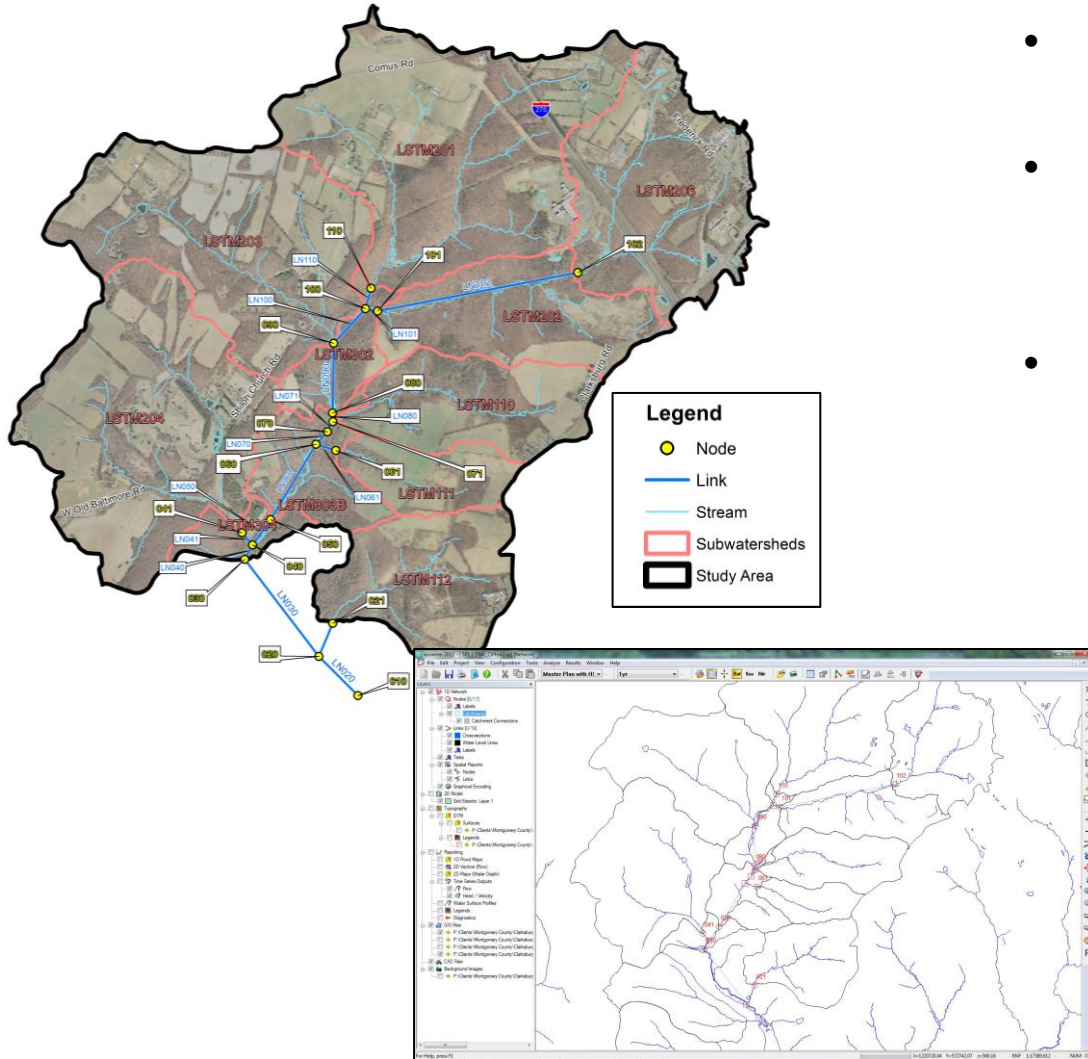
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Changes in Watersheds Resulting from Development



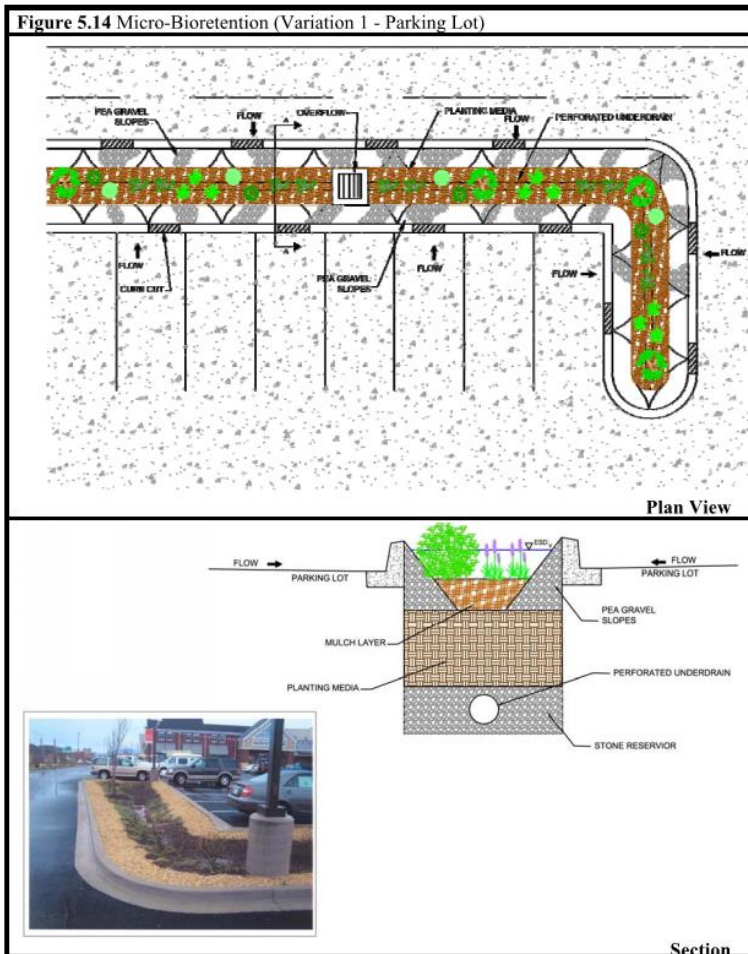
Method of H&H Analysis



- **XP-SWMM** - Dynamic rainfall-runoff modeling package
- **“Base Conditions”** model scenario
 - Ten Mile Creek study area under existing conditions
- **“1994 Master Plan with ESD”** model scenario
 - Ten Mile Creek study area after development described in the Master Plan
 - Development implemented with ESD per State and County regulations
 - Construction activities will reduce the infiltration capacity of soil

How ESD Was Modeled

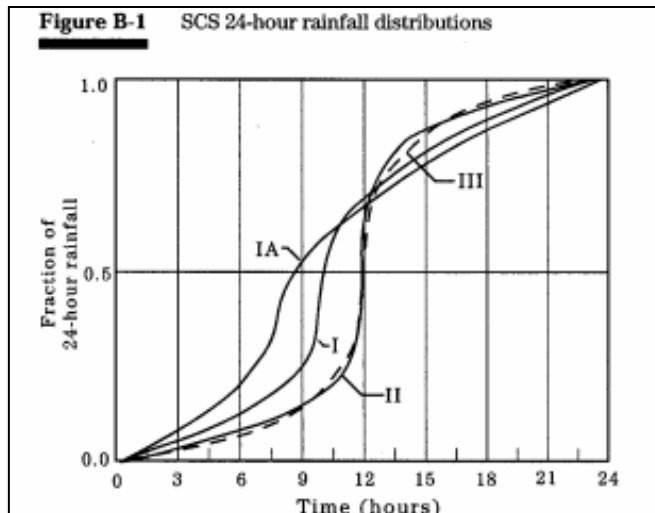
- Required storage volume computed from Maryland regulations
- Micro-bioretenion used as representative practice
- Model Run Presented March 14:
 - Conservative assumptions:
 - ESD practices sized based on Montgomery County minimum requirements (6" ponding)
 - Media partially full from prior rain event
- Additional Model Run:
 - More moderate assumptions:
 - ESD practices sized between County minimum and maximum (8" ponding)
 - Media assumed to be dry, with decaying infiltration of ponded area (more typical of "real" ESD practices)



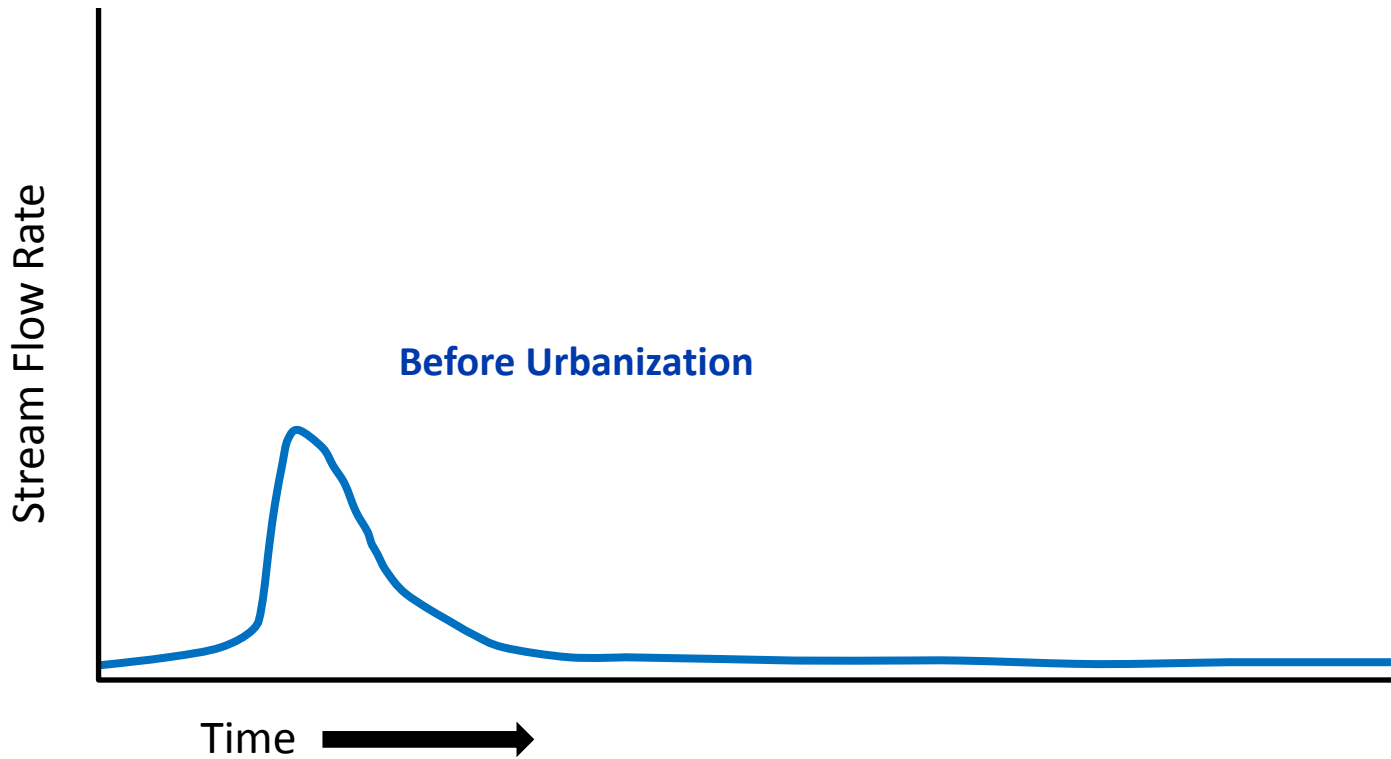
Micro-Bioretenion, Maryland Stormwater Design Manual

1-year and 2-year Storms

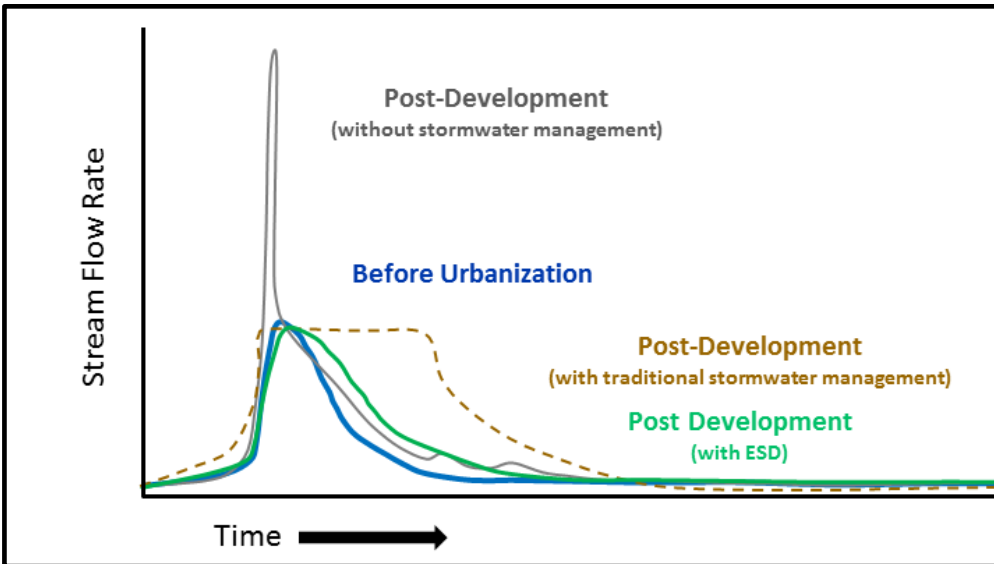
- The model simulated two storm events:
 - 1-year, 24-hour storm (2.6 in.)
 - 2-year, 24-hour storm (3.2 in.)
 - Both storms modeled with SCS Type II distribution
- Why these storms?
 - 1-year storm is design basis for channel protection
 - Natural channels often sized to convey storms in this range.



Change in Volume and Rate Affects the Hydrograph

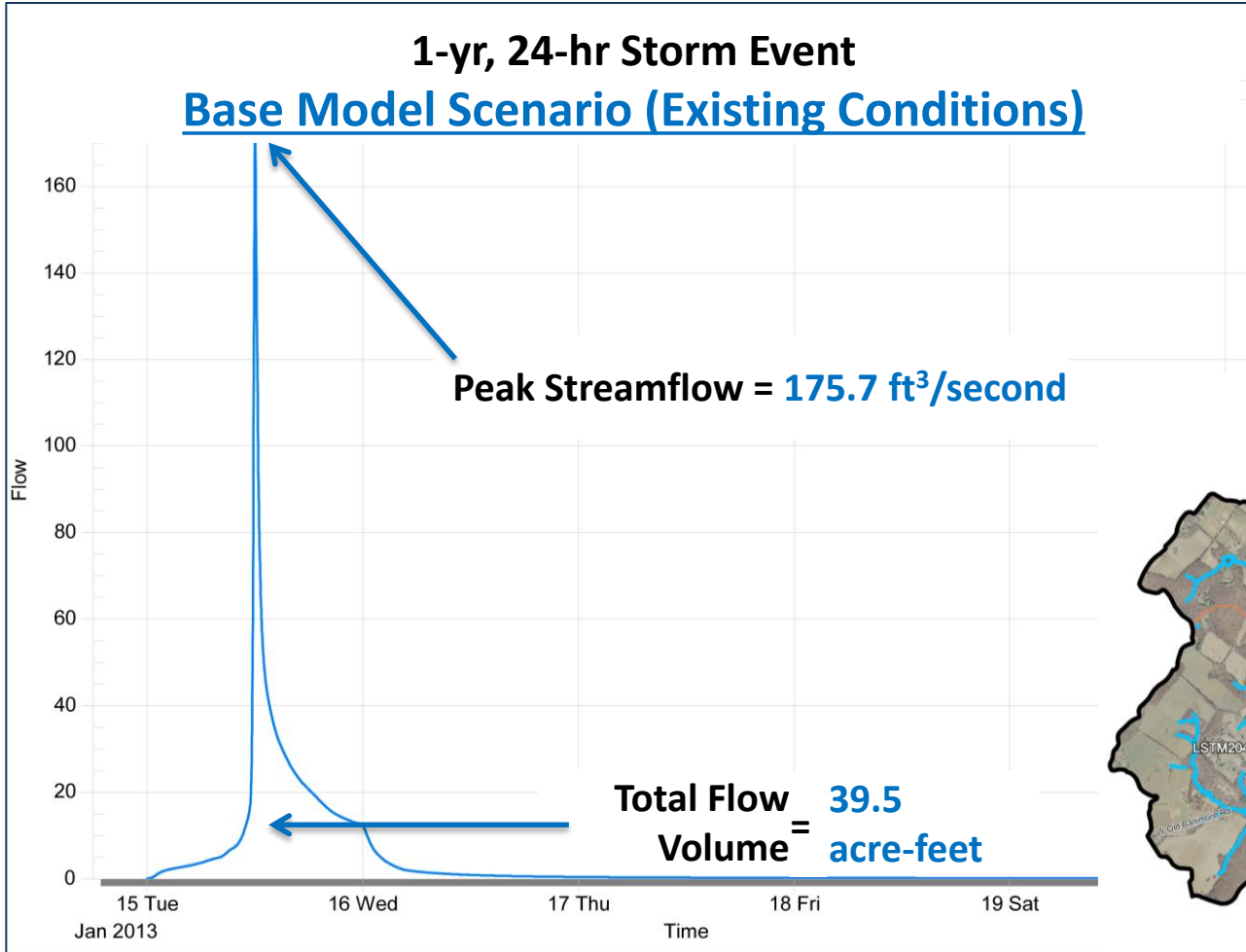


Key Metrics



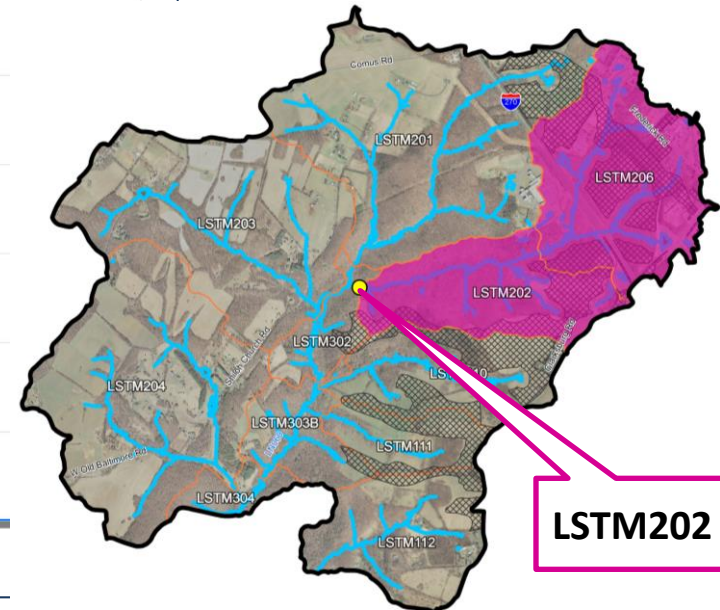
- Total Streamflow Volume
- Peak Streamflow
- Peak Stream Velocity
- Also examine: *duration* elevated flow/velocity.

Example: Sub-basin with Low to Moderate Hydrology Response (LSTM202)



Existing Conditions:

- 613 Total Acres
- 65ac Imp Cover (11%)



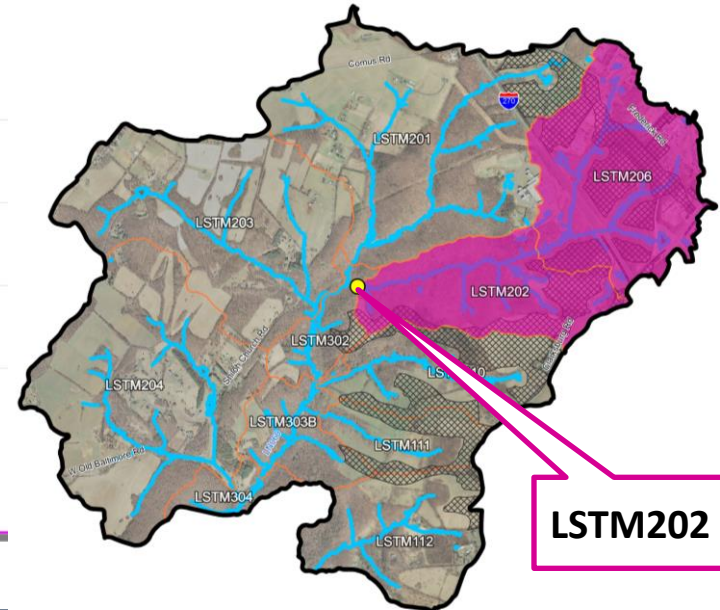
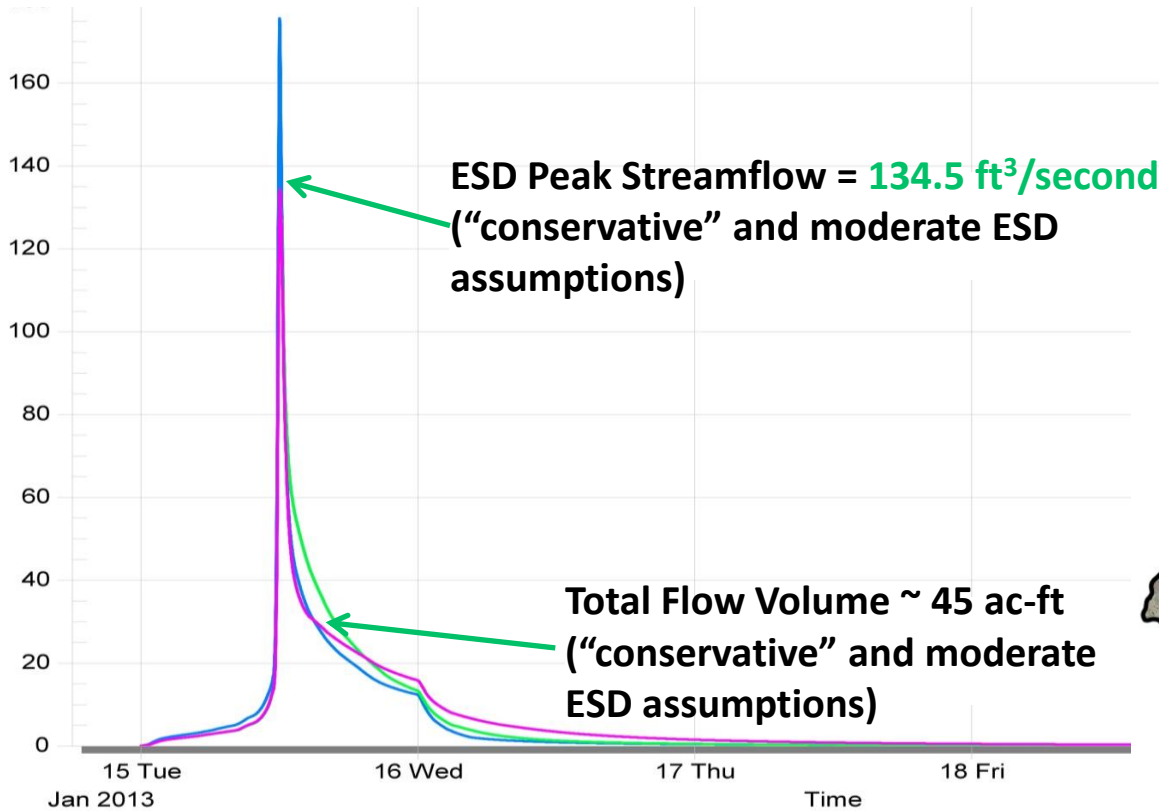
Example: Sub-basin with Low to Moderate Hydrology Response (LSTM202)

1994 Master Plan ESD:

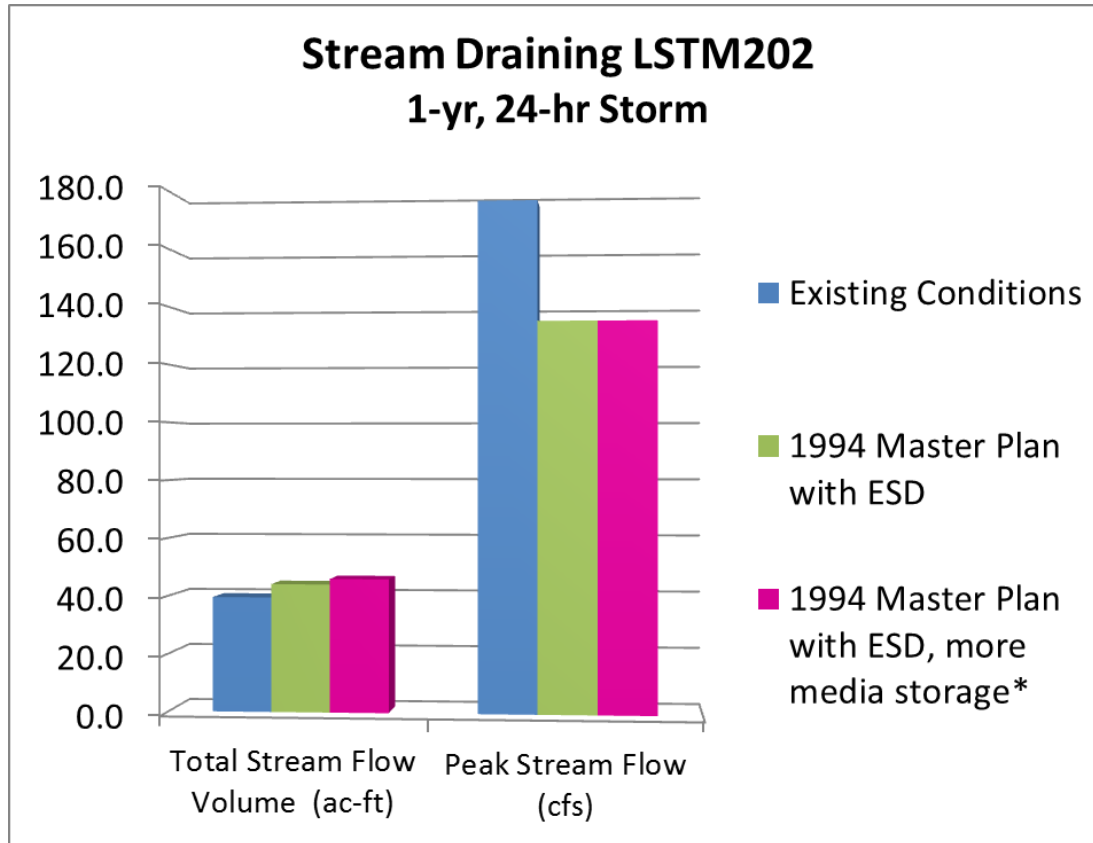
- 139ac Imp Cover (23%)
- +12 to 16% Increase in Total Volume
- -23% Decrease in Peak Stream Flow

1-yr, 24-hr Storm Event

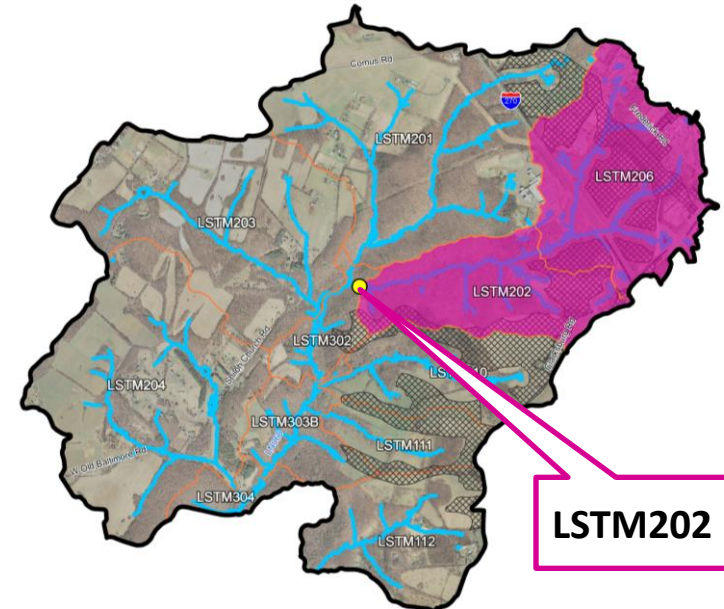
1994 Master Plan with ESD



Example: Sub-basin with Low to Moderate Hydrology Response (LSTM202)

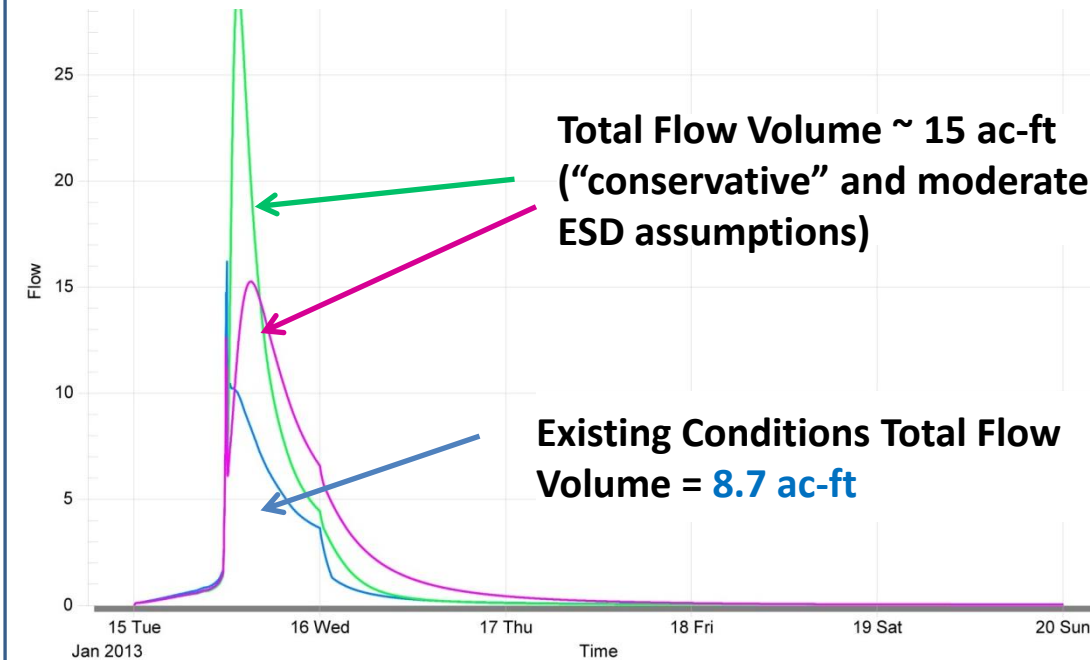


- Moderate hydrology impact
 - 12 to 16% total volume increase
 - No predicted increases to stream velocity
- ESD may be effective in mitigating increases in peak flows



Example: Sub-basin with Significant Hydrology Response (LSTM110)

1-yr, 24-hr Storm Event Total Flow Volume



Existing Conditions:

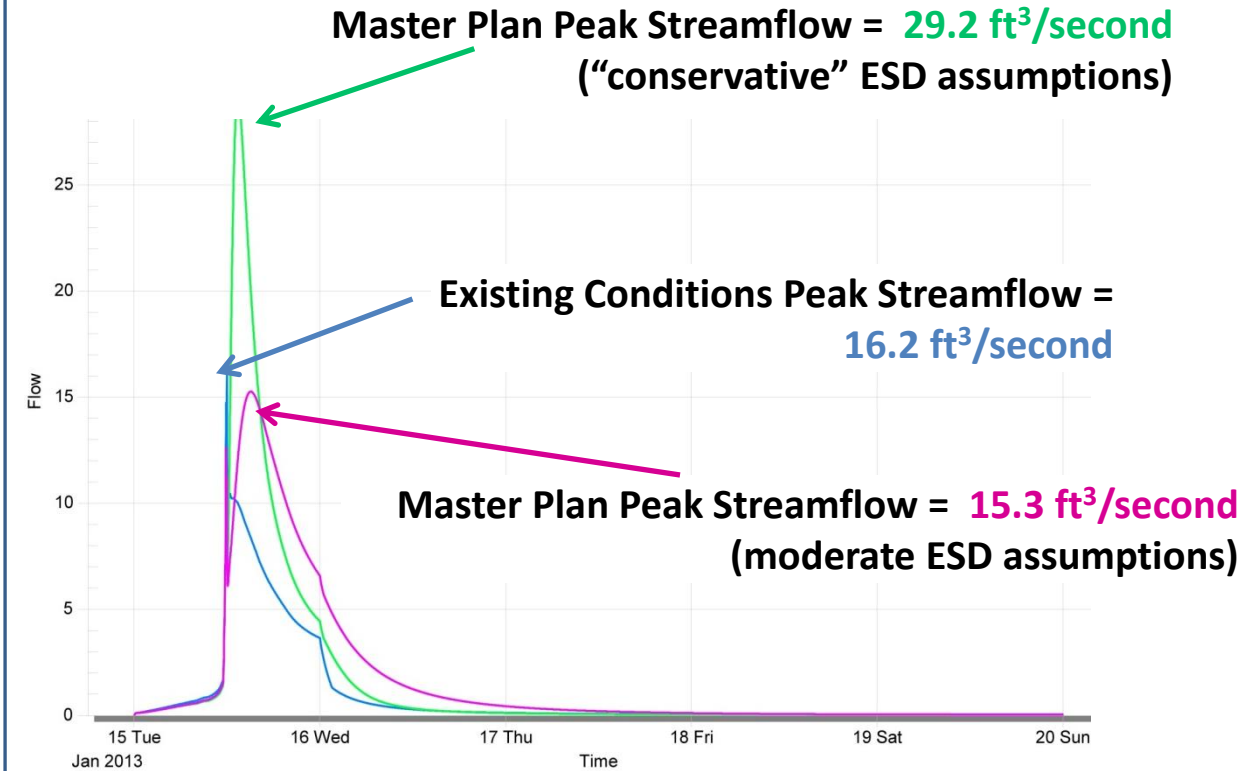
- 211 total acres
- 3.4ac imp cover (2%)

1994 Master Plan ESD:

- 31.8 ac Imp cover (15%)
- +72 to 83% Increase in Total Stream Volume

Example: Sub-basin with Significant Hydrology Response (LSTM110)

1-yr, 24-hr Storm Event Peak Stream Flow



Existing Conditions:

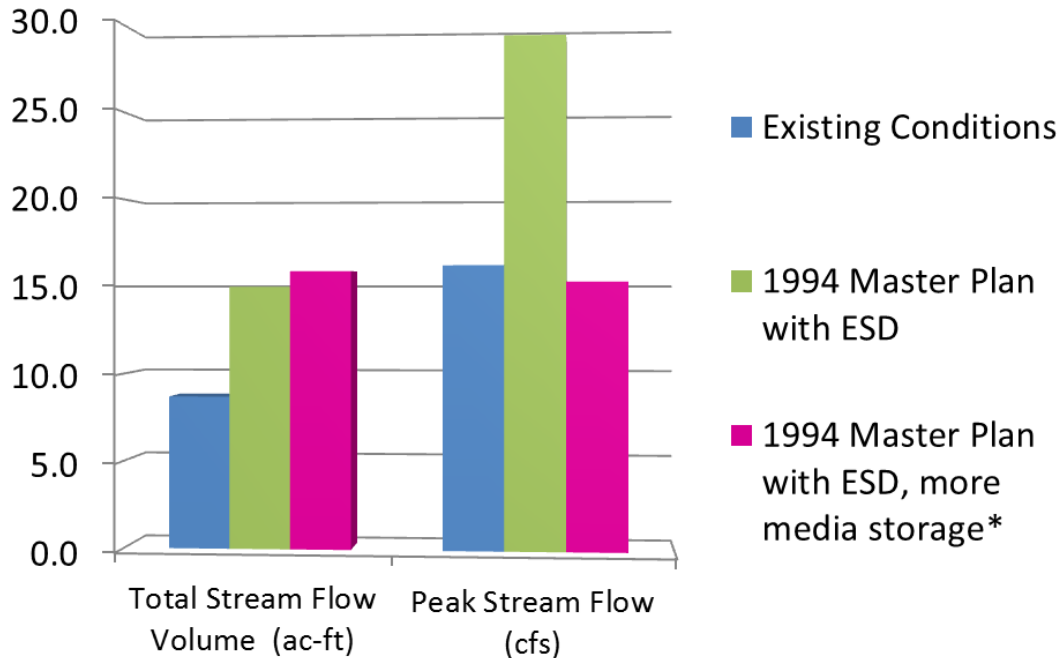
- 211 total acres
- 3.4ac imp cover (2%)

1994 Master Plan ESD:

- 31.8 ac Imp cover (15%)
- +80% Increase in Peak Stream Flow (conservative ESD assumptions)
- -6% Decrease in Peak Stream Flow (moderate ESD assumptions)

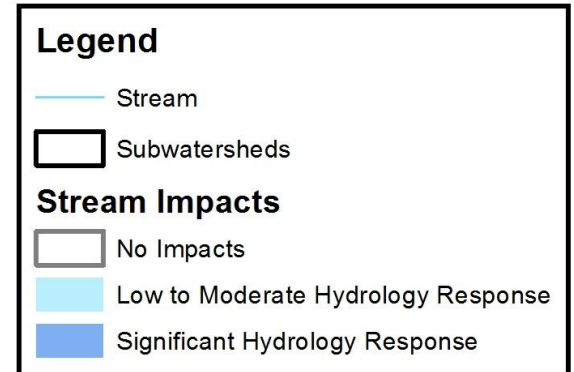
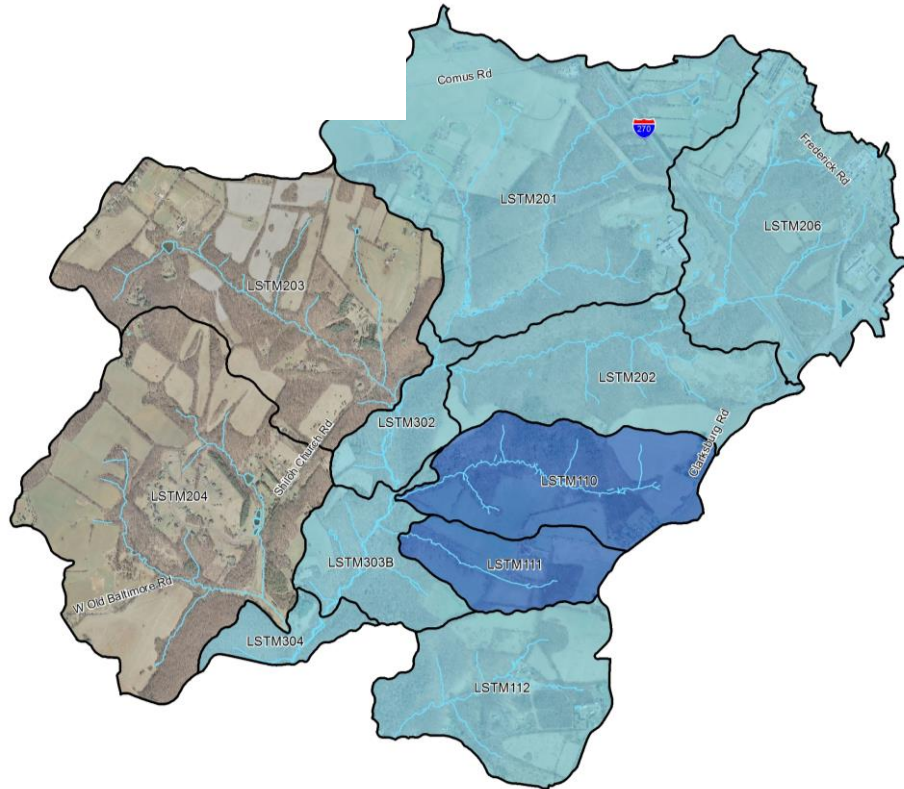
Example: Sub-basin with Significant Hydrology Response (LSTM110)

Stream Draining LSTM110
1-yr, 24-hr Storm



- Significant hydrology impacts from increased volumes
 - >800% increase in impervious surface
 - +72 to 83% Increase in Total Stream Volume
- Larger ESD practices may help mitigate peak flows
- But, natural hydrographs are not likely to be replicated due to larger volumes and longer release to stream

Overview of H&H results



Summary of H&H Impacts

- Some Ten Mile Creek sub-basins could experience
 - Lower peak flow due to ESD storage
 - Higher streamflow volume
 - Higher duration of elevated flow
- More vulnerable sub-basins could experience
 - Higher peak flow/velocity
 - Higher streamflow volume
 - Higher duration of elevated flow
 - Geomorphology impacts



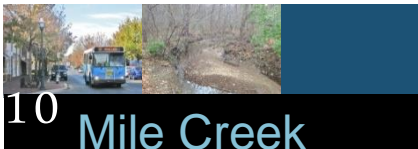
10 Mile Creek

Limited

Amendment

Spatial Watershed Analysis

Attribute	Score	
	Present	Absent
Steep Slopes, >15% – presence/absence	1	0
Steep Slopes, >25% – presence/absence	1	0
Erodible Soils – presence/absence	1	0
Hydric Soils – presence/absence	1	0
Forest – presence/absence	1	0
100-Year Floodplain – presence/absence	1	0
Perennial/Intermittent Streams – presence/absence	1	0
Ephemeral Channels – presence/absence	1	0
Wetlands – presence/absence	1	0
Springs, Seeps, and Pools – presence/absence	1	0
Maximum Possible Score	10	
Interior Forest – presence/absence	1	0
Maximum Possible Score	11	



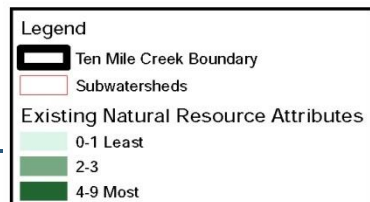
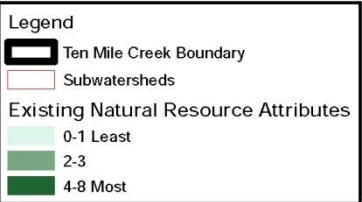
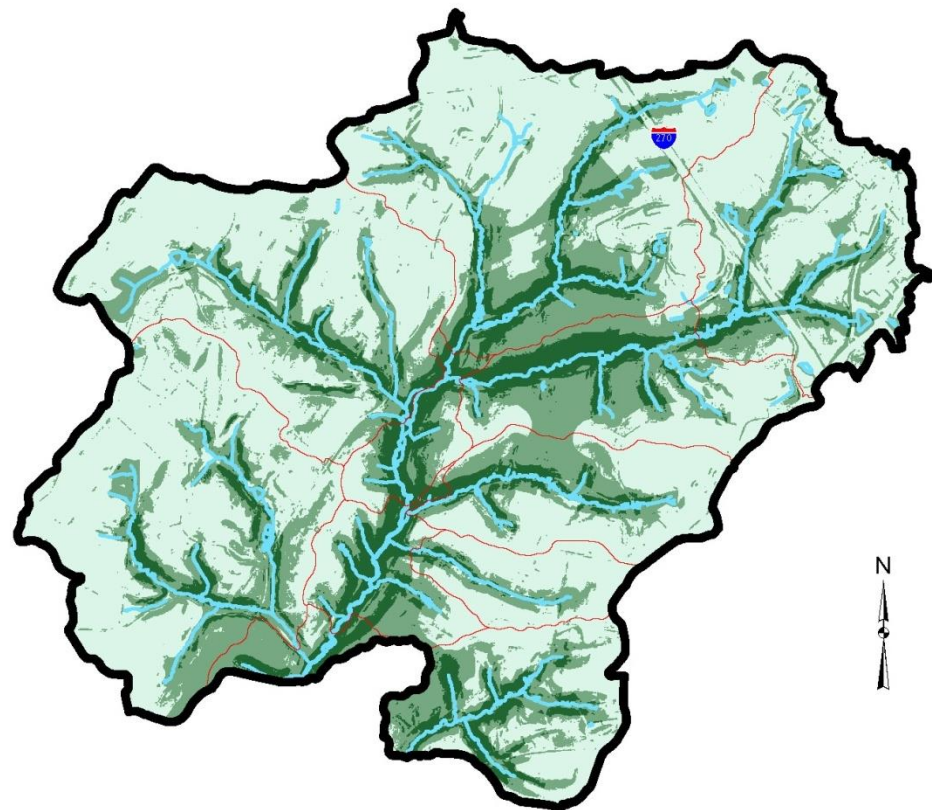
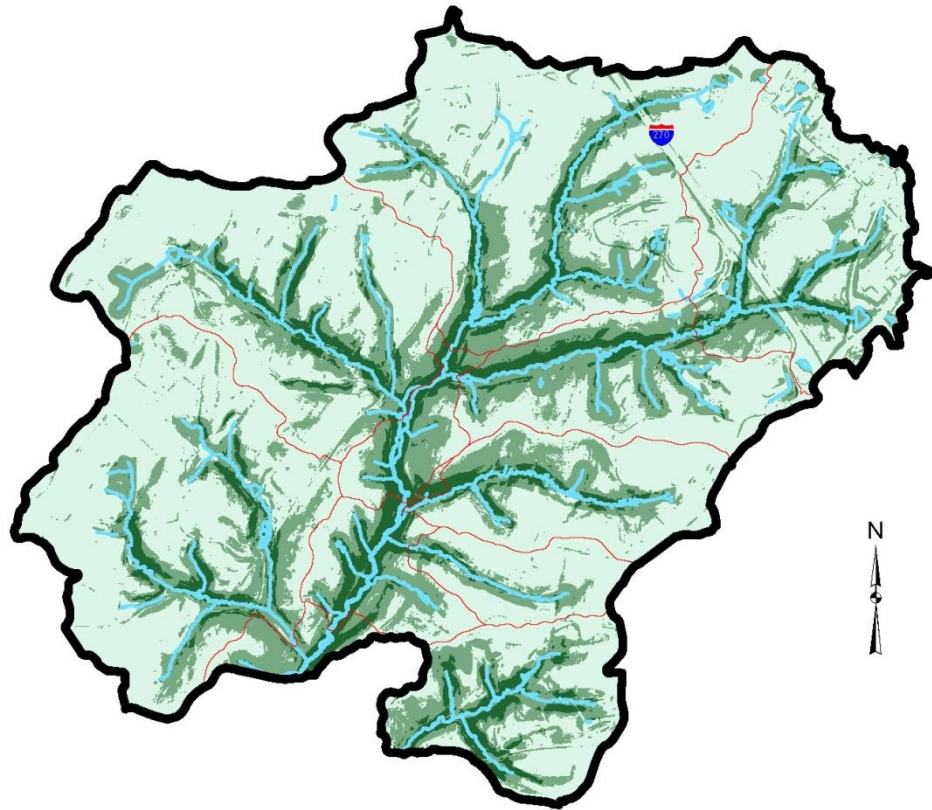
10 Mile Creek

Limited

Amendment

Without Interior Forest

With Interior Forest





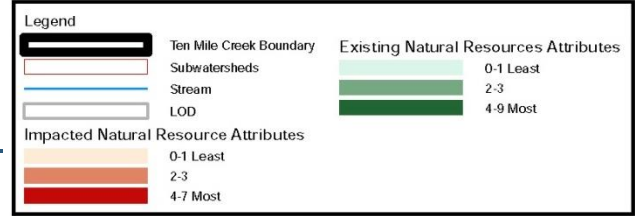
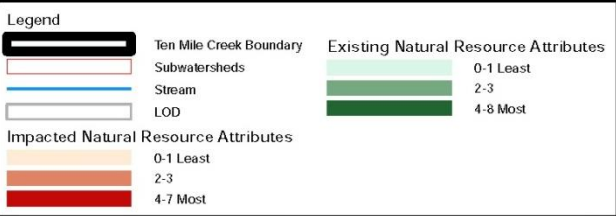
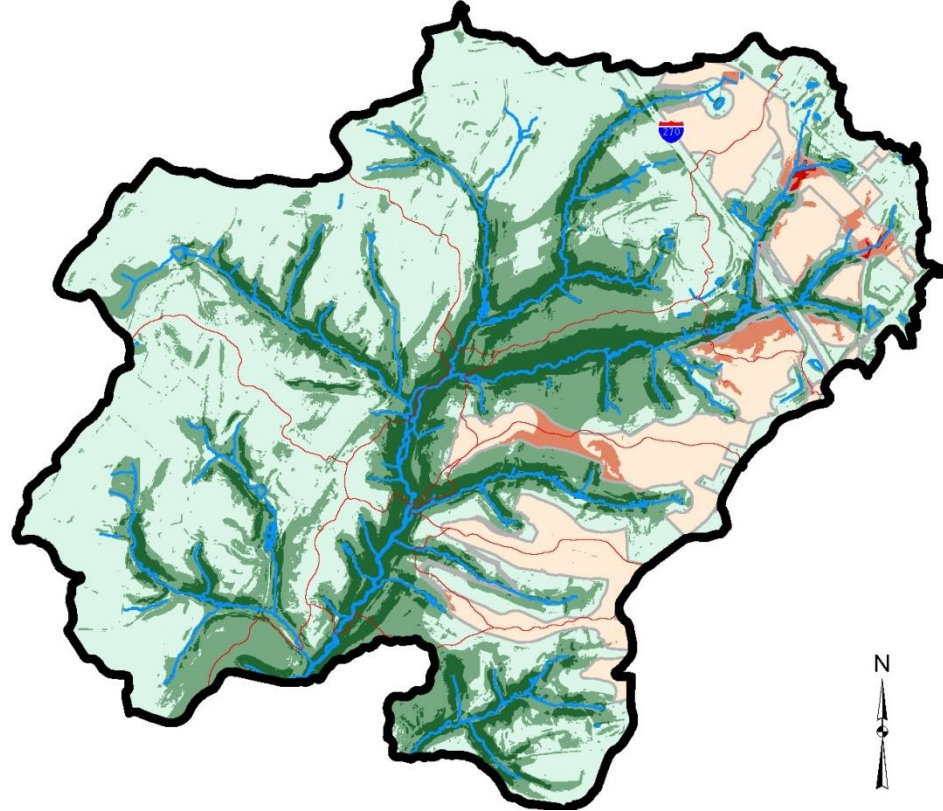
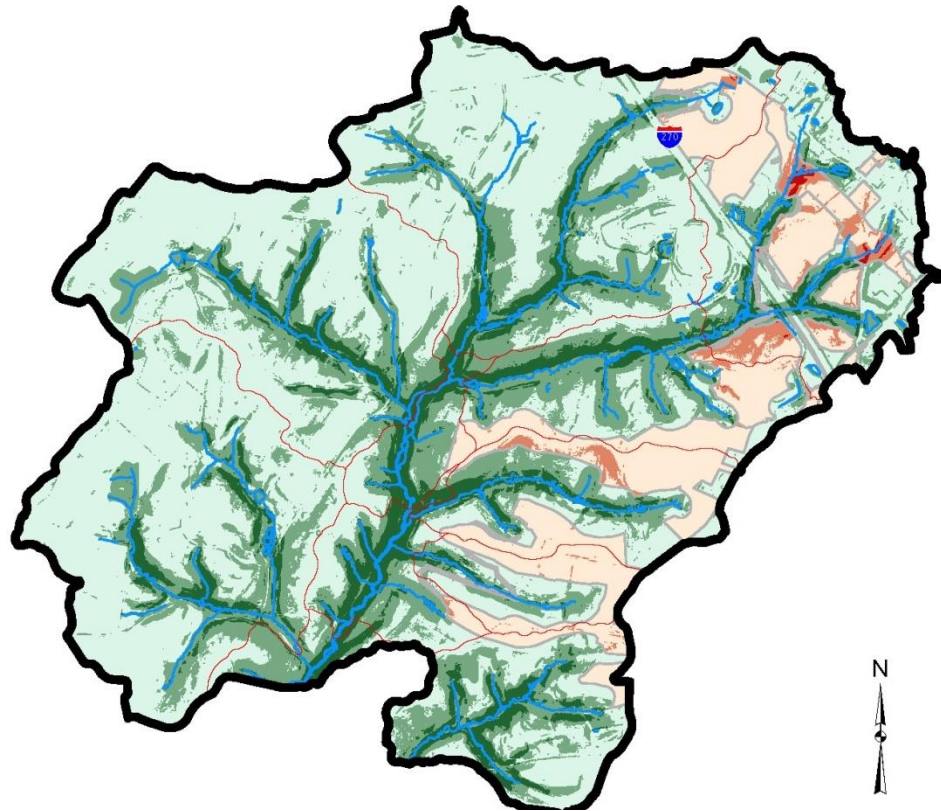
10 Mile Creek

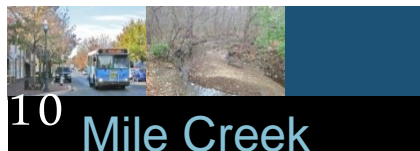
Limited

Amendment

Without Interior Forest

With Interior Forest





10 Mile Creek
 Limited
 Amendment

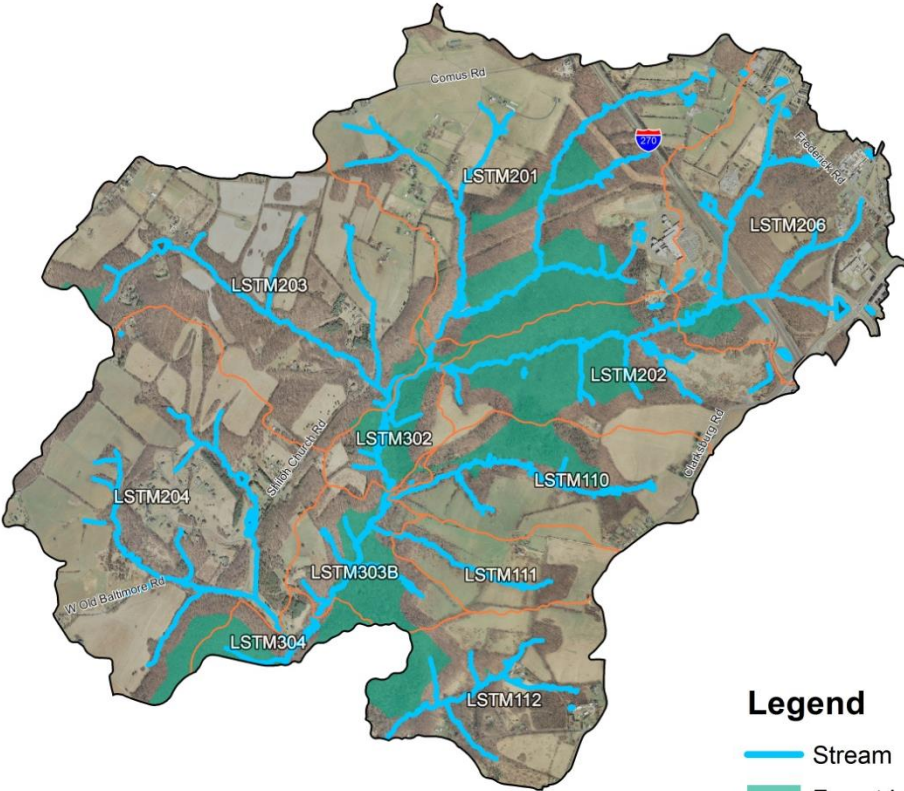
Extent of Limit of Disturbance (LOD) Across the Subwatersheds

Subwatershed	Subwatershed Area (acres)	LOD within Subwatershed (acres)	% of Subwatershed	% of Total LOD
110	211.0	88.1	42%	22%
111	103.5	47.5	46%	12%
112	228.2	21.7	10%	5%
201	610.5	40.8	7%	10%
202	242.9	61.7	25%	15%
203	493.2	-	0%	0%
204	543.6	-	0%	0%
206	370.0	135.9	37%	33%
302	77.3	5.1	7%	1%
303B	117.0	6.6	6%	2%
304	49.0	-	0%	0%
TOTAL	3,046.2	407.4		100%



10 Mile Creek Area Limited Amendment





Interior Forest, Existing



Interior Forest, 1994 Master Plan Scenario



Legend

-  Stream
-  Forest Interior
-  Subwatersheds
-  Study Area

Existing Imperviousness







Legend

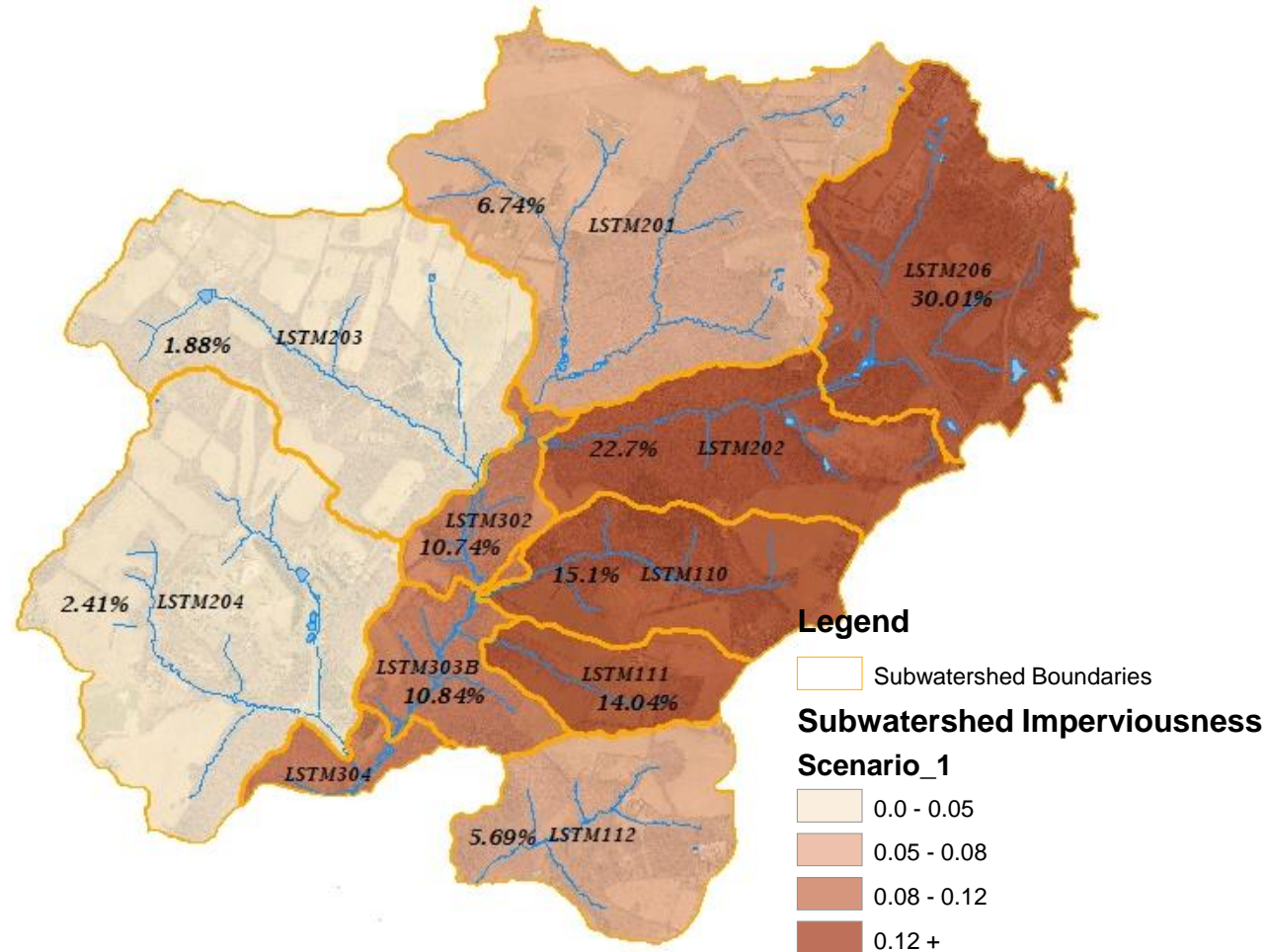
 Subwatershed Boundaries

Subwatershed Imperviousness

Scenario_1

-  0.0 - 0.05
-  0.05 - 0.08
-  0.08 - 0.12
-  0.12 +

1994 Master Plan Imperviousness Analysis



CSPS Score Change Estimate (CSCE) Model

- Statistical model used in earlier master plans to estimate potential changes in stream biology scores
- Based on changes in impervious cover as an predictive indicator of overall development impacts
- Used to predict changes in stream scores, not actual scores
- Potential score changes combined with actual monitored scores to produce estimated scores under new development
- Model developed using data that reflects pre-ESD standards, and cannot predict score changes using ESD

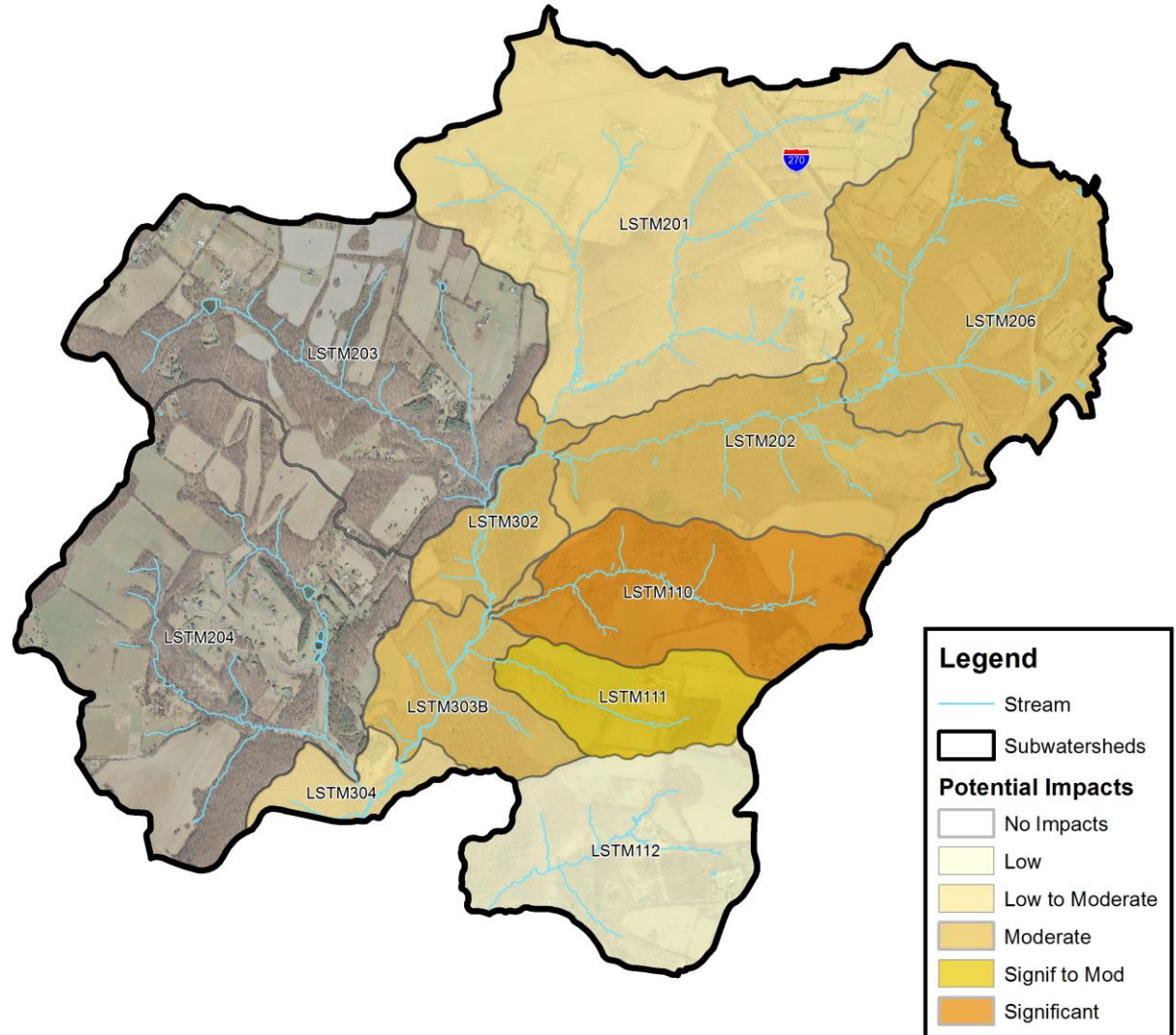
Application of the CSCE Model in Ten Mile Creek

- Because of lake impacts on fish, stream invertebrate scores the best indicator of TMC stream health
- Cannot currently predict stream biology response to ESD due to lack of ESD watershed monitoring
- Provides estimates of lower endpoints for the range of potential improvements that could result from the same development using ESD and any additional enhancements
- TMC stream biology impacts still expected using ESD, but will be less than CSCE estimates.
- Exceeding ESD standards will reduce stream biology impacts even further

Potential Change to Stream Conditions

Subwater-shed ID	1994-2012 BIBI	1994-2012 BIBI Narrative Ranking	95% Confidence Upper Value	95% Confidence Upper Value Narrative Ranking	95% Confidence Lower Value	95% Confidence Lower Value Narrative Ranking
LSTM 201	31	Good	29	Good	28	Low Good
LSTM 111	30	Good	24	High Fair	16	Poor
LSTM 112	30	Good	29	Good	27	Low Good
LSTM 206	21	Fair	13	Poor	7	Poor
LSTM 202	30	Good	23	Fair	18	Low Fair
LSTM 302	35	High Good	32	Good	30	Good
LSTM 110	35	High Good	29	Good	20	Fair
LSTM 303B	36	Low Excellent	33	High Good	31	Good
LSTM 304	34	High Good	31	Good	29	Good

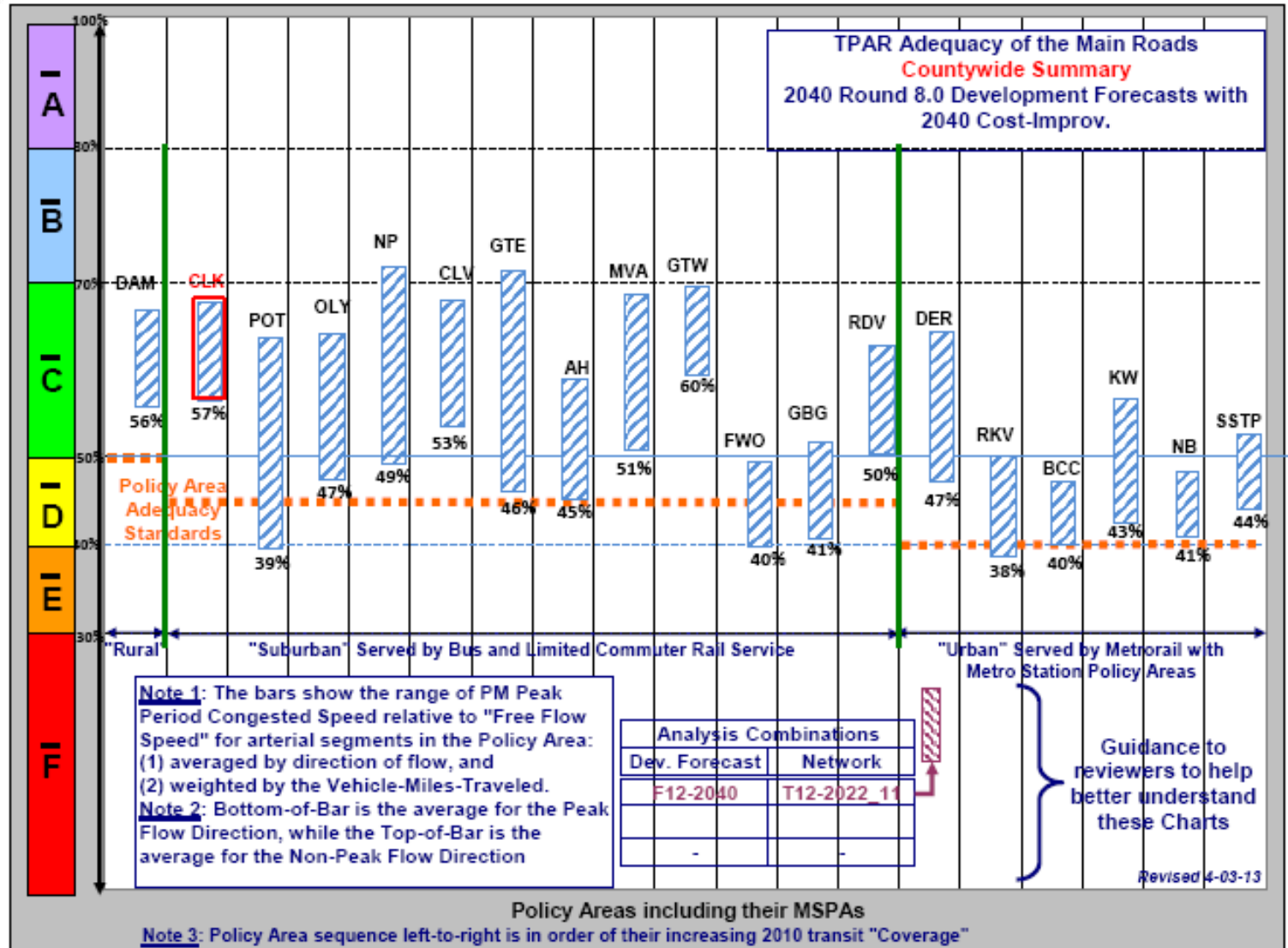
Potential Change from Existing Conditions



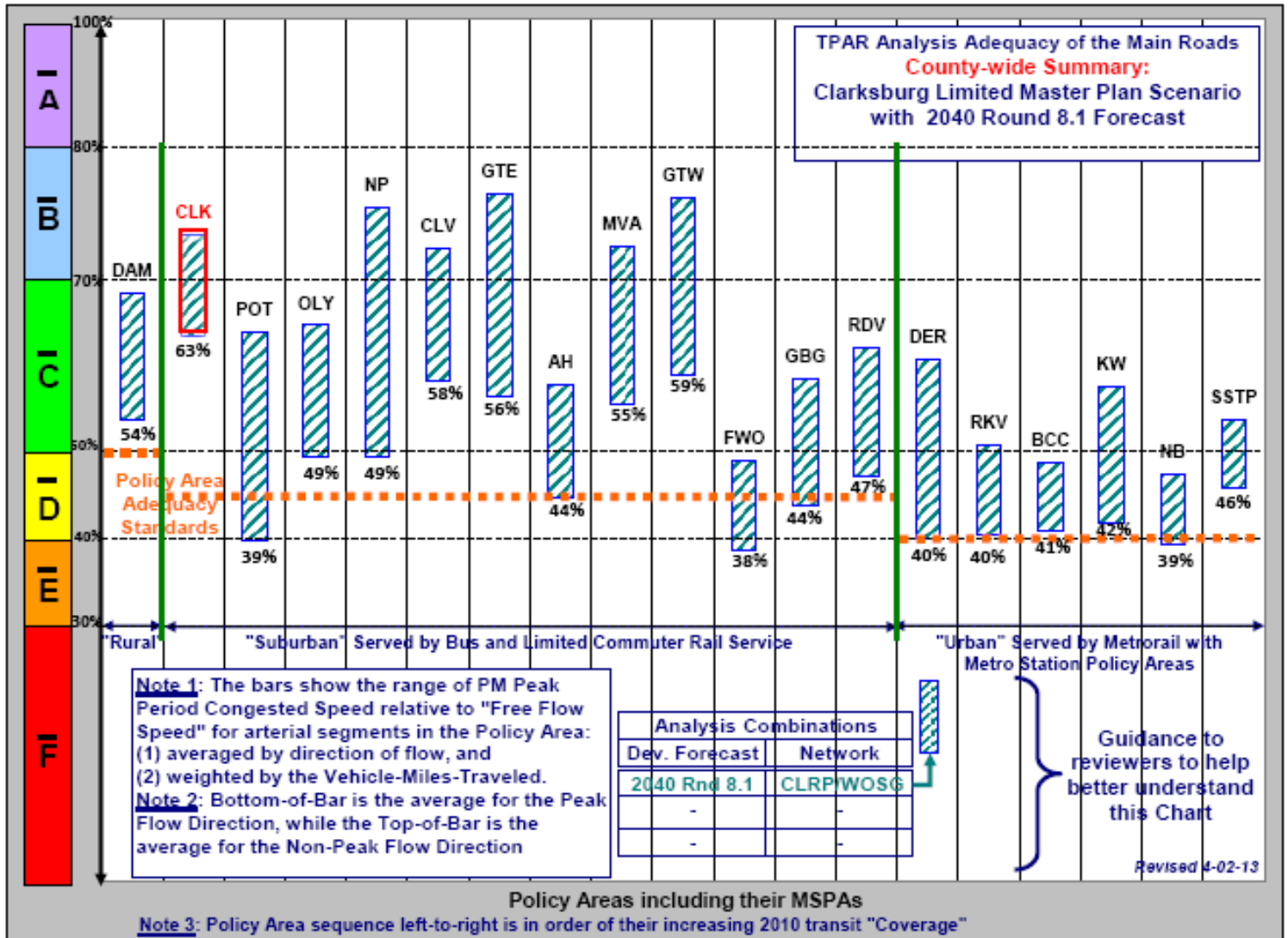
Principles for Protection

- Protecting natural resources
- Minimizing the footprint of development within the watershed
- Protecting the immediate drainage area beyond the stream buffer
- Reforesting farm fields outside of the development footprint to native plant communities
- Reducing the extent of disturbance to stream buffers
- Limiting the total imperviousness in the watershed
- Incorporating higher standards than current regulations for stormwater management
- Retrofitting impervious surfaces that do not currently have stormwater management control

2040 Traffic Conditions 1994 Plan



2040 Traffic Conditions High Alternative



Traffic Impacts

Summary CLV Table

Intersection	Existing		2040 No-Build		2040 Build		2040 HI No-Build		2040 HI Build											
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM										
MD 121 & I-270 Western Intersection	A	365	A	250	B	1125	A	675	B	1125	A	675	B	1125	A	675	B	1125	A	700
I-270 & MD 121 Eastern Intersection	A	609	A	480	C	1213	D	1325	C	1200	D	1325	D	1306	D	1325	D	1306	D	1350
MD 355 & MD 121	C	1225	C	1150	D	1425	F	1850	A	875	F	1800	E	1525	F	1850	A	950	F	1800
MD 355 & Shawnee Lane	A	750	A	875	B	1083	B	1117	B	1096	B	1142	C	1183	B	1100	C	1196	C	1225
MD 355 & Stringtown Road	A	914	B	1068	F	1719	F	2431	B	1073	E	1522	F	1970	F	2431	C	1210	F	1657
Gateway Center Dr. & Stringtown Road	A	667	A	846	D	1397	D	1325	E	1540	E	1468	F	1721	D	1325	F	1802	F	1870
New Road & Stringtown Road									D	1386	F	1616					D	1445	F	1801

Existing CLV Standard = 1425

Potential Congested Intersections



Potential Scenarios

- East of I-270
 - Review alternatives for 355 Bypass
 - Explore moving fire station to an already disturbed area
 - Establish an impervious cap
 - Changes in land use
- West of I-270
 - Reduce development potential of County property
 - Change development mix to increase resource protection
 - Expand protection areas to protect resources and reduce stream impact and reforest open areas
 - Employ decompaction and increased storage volumes for ESD
 - Establish an 8% impervious cap

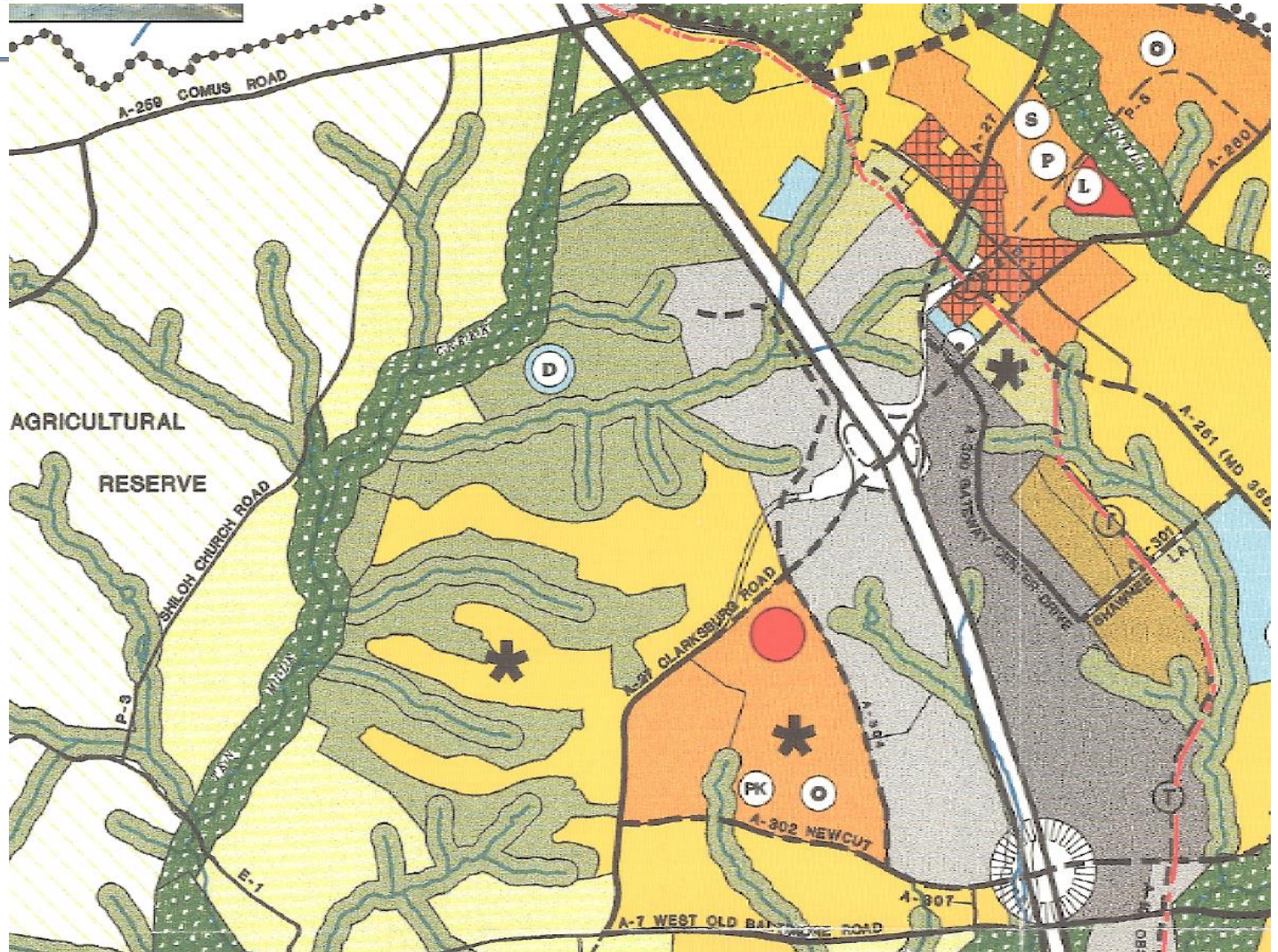
Potential Alternatives to Study





10 Mile Creek Area Limited Amendment

1994 Plan with Conservation Areas



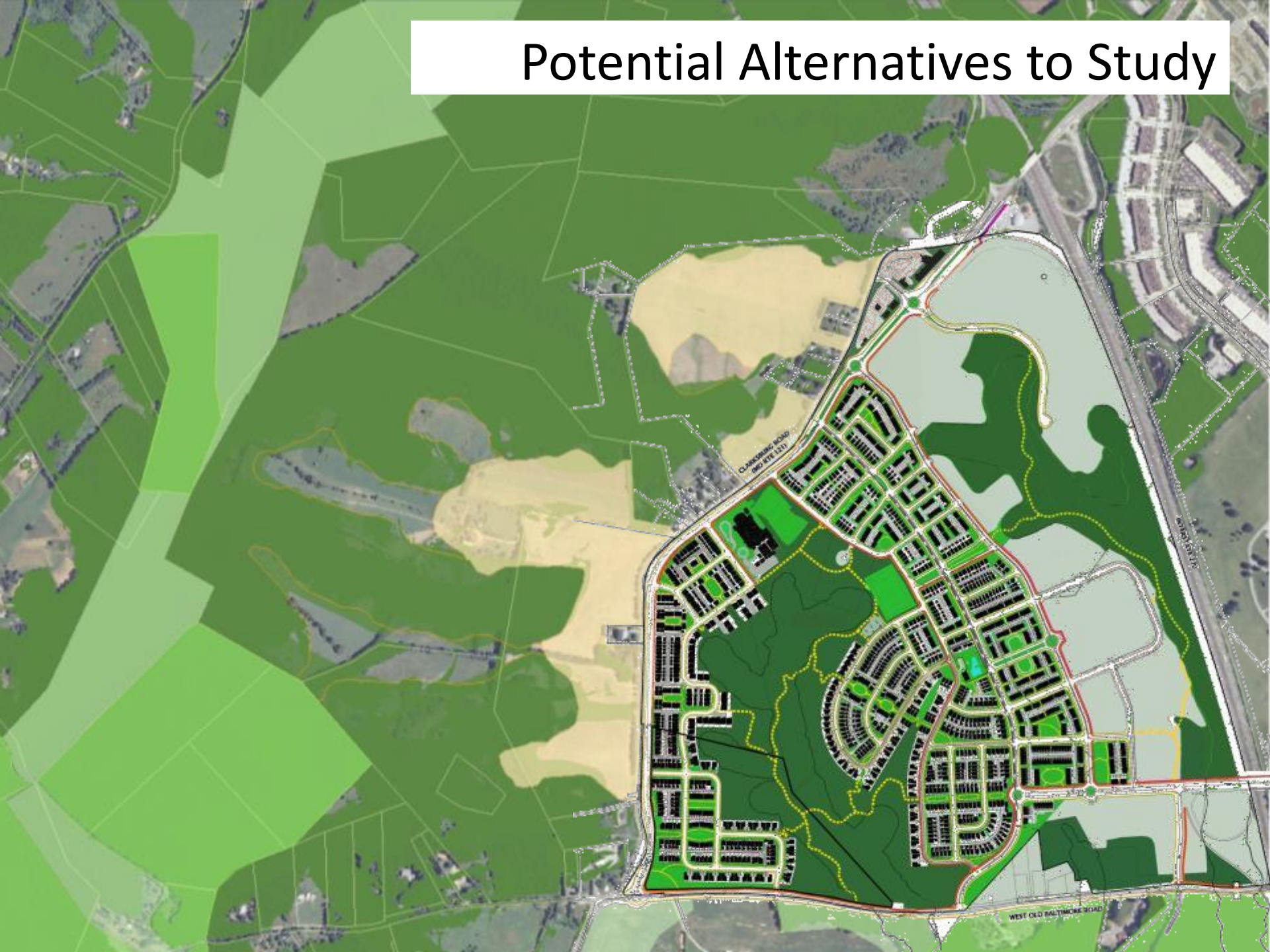
Alternatives on County Properties



Principles for Protection

- Protecting natural resources.
- Minimizing the footprint of development within the watershed.
- Protecting the immediate drainage area beyond the stream buffer.
- Reforesting farm fields outside of the development footprint to native plant communities.
- Reducing the extent of disturbance to stream buffers.
- Limiting the total imperviousness in the watershed.
- Incorporating higher standards than current regulations for stormwater management.
- Retrofitting impervious surfaces that do not currently have stormwater management control

Potential Alternatives to Study





10 Mile Creek Area Limited Amendment



How do we balance policies that support the 1994 plan vision?

- Clarksburg at a town scale and with a transit orientation
- Protection of natural features
- Importance of I-270 high tech corridor with employment options

How significantly could the watershed be impacted by development?

How well can those impacts be mitigated?

What constitutes an acceptable level of stream quality decline?

What other development options should be considered?