

2016 Subdivision Staging Policy

Draft Policy Area Test and Transportation Impact Tax
Slides for MCPB Worksession #4 on 6/28/16

DISCUSSION TOPICS

Policy Area Transportation Test

- Public Hearing Draft recommendations
- Possible modifications in response to testimony

Transportation Impact Tax

- Public Hearing Draft recommendations
- Possible modifications in response to testimony

Local Area Transportation Review – follow up

- Clarification of a couple recommendations

PUBLIC HEARING DRAFT

Recommendation #3:

Adopt a new Policy Area transportation test based on transit accessibility.

Transit Accessibility test:

- No Roadway Adequacy Test
- Transit Adequacy Test - the proportion of transit accessibility that can be achieved within the next 15 years based on land use changes and the implementation of transit facilities within this time frame. Compares 2015 with 2025 and 2040 setting a threshold for adequacy at 40%.

TPAR (current Policy Area adequacy test):

- Roadway Adequacy Test - must meet a minimum Level of Service (LOS) of 40% (LOS E)
- Transit Adequacy Test - must meet minimum levels of span of service and coverage, and maximum headway for local bus service

PUBLIC HEARING DRAFT

Under Transit Accessibility Test

- Red Policy Areas (MSPAs) and Green (rural) Policy Areas are exempt from the Transit Accessibility Test (Recommendation #4)
- If a policy area is found to be inadequate - achieving less than 40% of expected transit accessibility in 40% of the time to 2040, mitigation equals 25% of the applicable impact tax

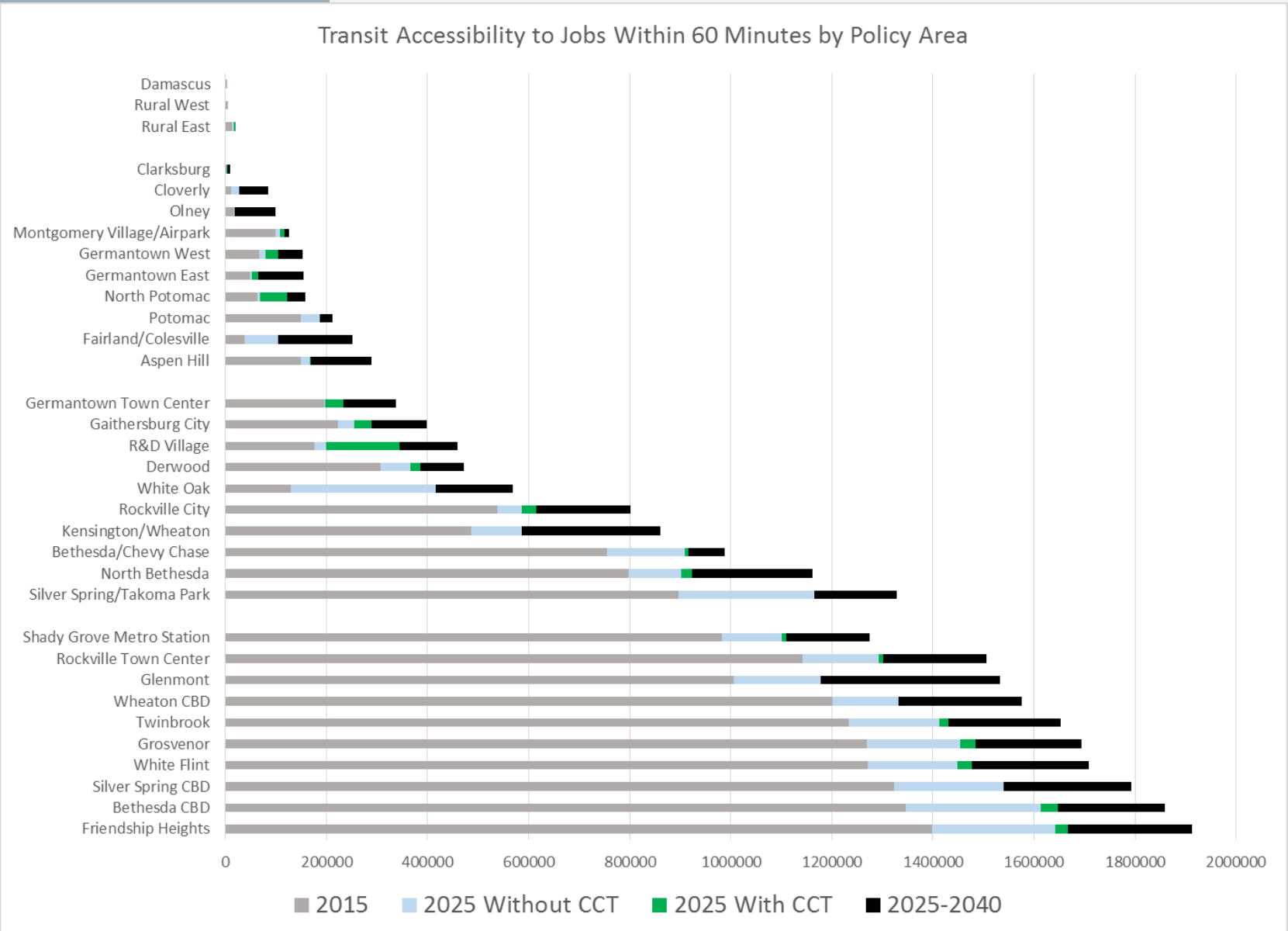
Under TPAR

- Currently **all** Urban policy areas are adequate for roadway LOS with the exception of White Oak and Bethesda Chevy-Chase
- Within the Urban policy areas all MSPAs are exempt from Transit Adequacy Test
- Rural Areas are also exempt from the Transit Adequacy Test
- If either Roadway or Transit Test is inadequate, mitigation equals 25% of the applicable impact tax

PUBLIC HEARING DRAFT

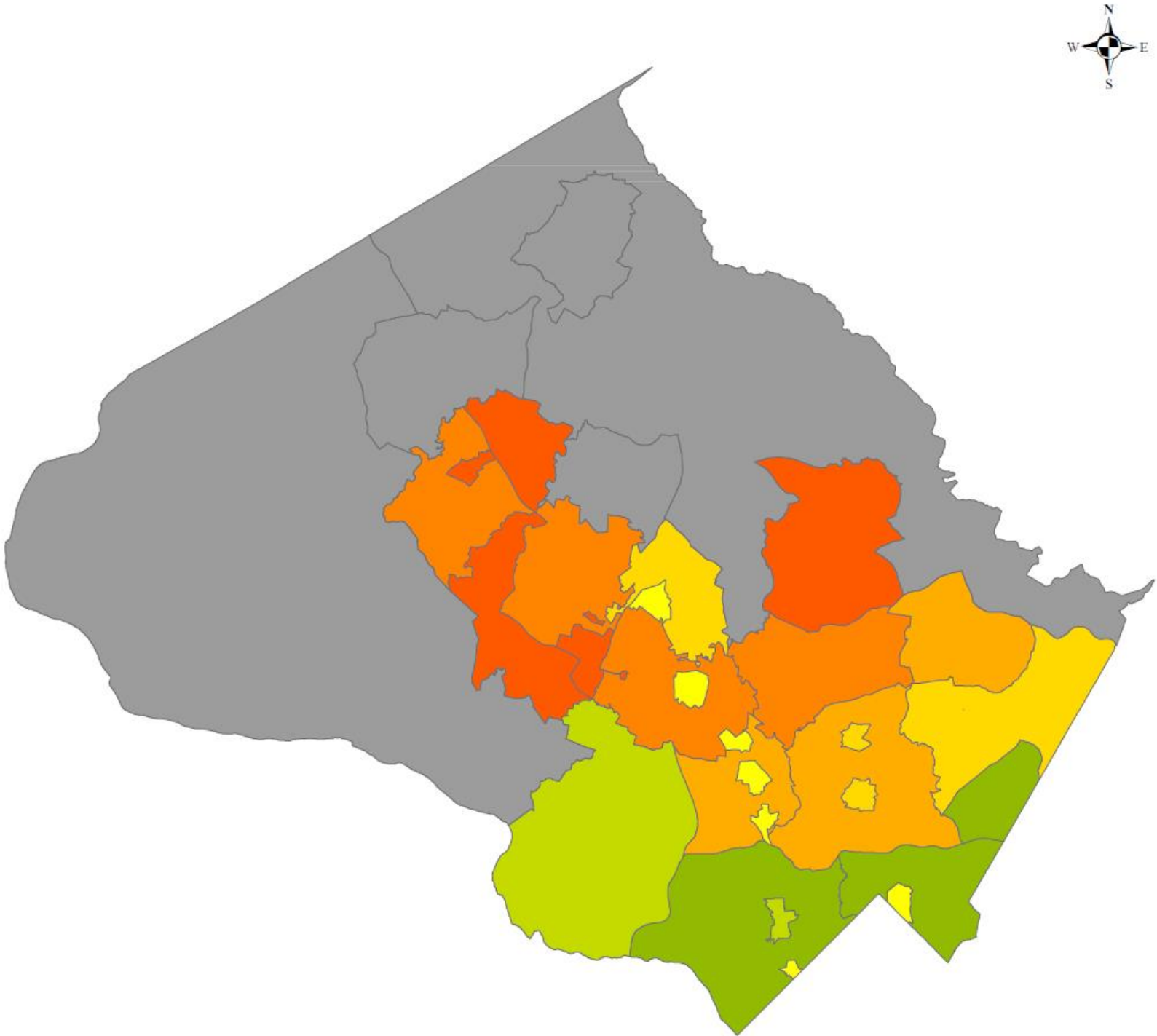
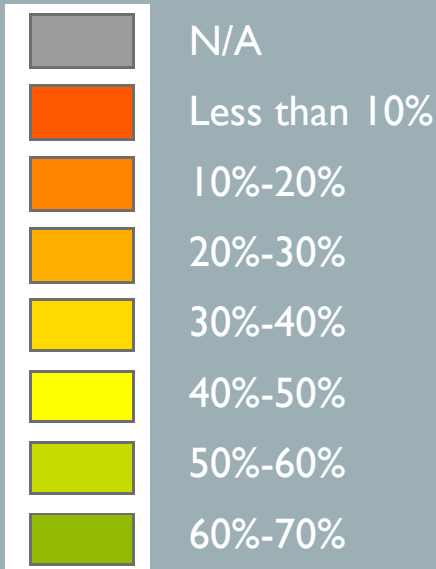
Transit Accessibility Test by Policy Area

The proportion of transit accessibility that can be achieved within the next 15 years based on land use changes and the implementation of transit facilities within this time frame. Compares 2015 with 2025 and 2040 setting a threshold for adequacy at 40% (as 2025 is 40% of the time frame between 2015 and 2040)



Adequate Transit Accessibility

Percentage of Jobs Accessible with the 2040 Transit Network achievable with the 2025 Transit Network.



PUBLIC HEARING DRAFT

Results of the Transit Accessibility Test by Policy Area

If transit accessibility measured in 2025 is at least 40% of 2040 transit accessibility, the policy area is adequate with respect to its transit accessibility goal.

If transit accessibility measured in 2025 is less than 40% of 2040 transit accessibility, the policy area is inadequate and mitigation is required.

| Policy Area | Adequate Transit Accessibility |
|----------------------------|--------------------------------|
| Friendship Heights | exempt |
| Bethesda CBD | exempt |
| Silver Spring CBD | exempt |
| White Flint | exempt |
| Grosvenor | exempt |
| Twinbrook | exempt |
| Wheaton CBD | exempt |
| Glenmont | exempt |
| Rockville Town Center | exempt |
| Shady Grove Metro Station | exempt |
| | |
| Silver Spring/Takoma Park | adequate |
| North Bethesda | inadequate |
| Bethesda/Chevy Chase | adequate |
| Kensington/Wheaton | inadequate |
| Rockville City | inadequate |
| White Oak | adequate |
| Derwood | adequate |
| R&D Village | adequate |
| Gaithersburg City | inadequate |
| Germantown Town Center | inadequate |
| | |
| Aspen Hill | inadequate |
| Fairland/Colesville | inadequate |
| Potomac | adequate |
| North Potomac | adequate |
| Germantown East | inadequate |
| Germantown West | adequate |
| Montgomery Village/Airpark | adequate |
| Olney | inadequate |
| Cloverly | inadequate |
| Clarksburg | adequate |
| | |
| Rural East | exempt |
| Rural West | exempt |
| Damascus | exempt |

PUBLIC HEARING DRAFT

Results of the Transit Accessibility Test by Policy Area

Consider partial mitigation:

If transit accessibility in 2025 is between 30%-40% of 2040 transit accessibility, the policy area is inadequate and partial mitigation is required equal to 15% of the applicable impact tax.

If transit accessibility in 2025 is less than 30% of 2040 transit accessibility, the policy area is inadequate and full mitigation is required equal to 25% of the applicable impact tax.

| Policy Area | Adequate Transit Accessibility |
|----------------------------|--------------------------------|
| Friendship Heights | exempt |
| Bethesda CBD | exempt |
| Silver Spring CBD | exempt |
| White Flint | exempt |
| Grosvenor | exempt |
| Twinbrook | exempt |
| Wheaton CBD | exempt |
| Glenmont | exempt |
| Rockville Town Center | exempt |
| Shady Grove Metro Station | exempt |
| | |
| Silver Spring/Takoma Park | adequate |
| North Bethesda | partial mitigation |
| Bethesda/Chevy Chase | adequate |
| Kensington/Wheaton | full mitigation |
| Rockville City | partial mitigation |
| White Oak | adequate |
| Derwood | adequate |
| R&D Village | adequate |
| Gaithersburg City | partial mitigation |
| Germantown Town Center | full mitigation |
| | |
| Aspen Hill | full mitigation |
| Fairland/Colesville | partial mitigation |
| Potomac | adequate |
| North Potomac | adequate |
| Germantown East | full mitigation |
| Germantown West | adequate |
| Montgomery Village/Airpark | adequate |
| Olney | full mitigation |
| Cloverly | full mitigation |
| Clarksburg | adequate |
| | |
| Rural East | exempt |
| Rural West | exempt |
| Damascus | exempt |

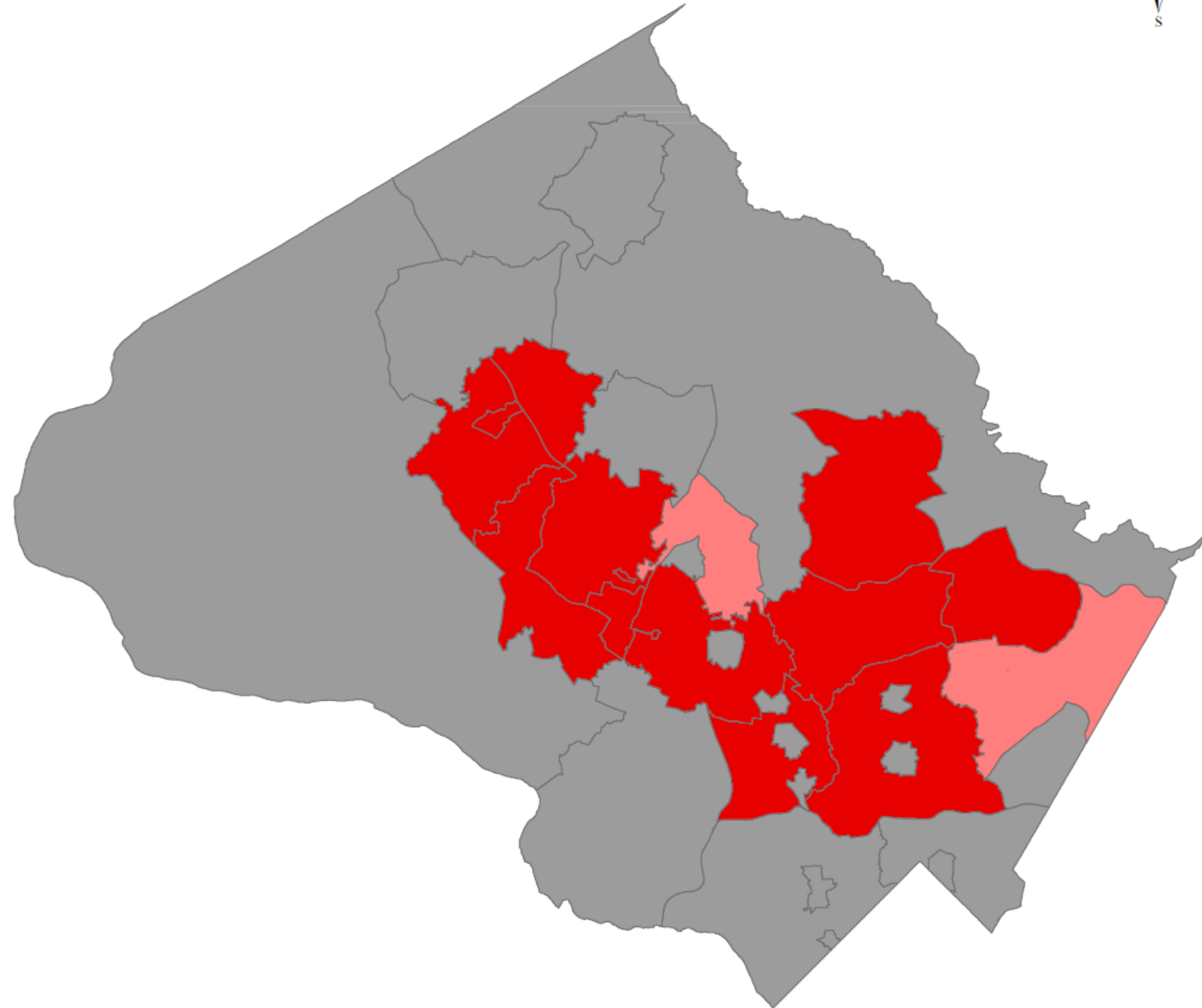
Mitigation - If transit accessibility measured in 2025 is between less than 40% of 2040 transit accessibility, the policy area is inadequate mitigation is required.

If transit accessibility in 2025 is between 30%-40% of 2040 transit accessibility, the policy area is inadequate and **partial mitigation** is required equal to 15% of the applicable impact tax.

If transit accessibility in 2025 is less than 30% of 2040 transit accessibility, the policy area is inadequate and **full mitigation** is required equal to 25% of the applicable impact tax.

Mitigation

- No Mitigation
- Full Mitigation
- Partial Mitigation

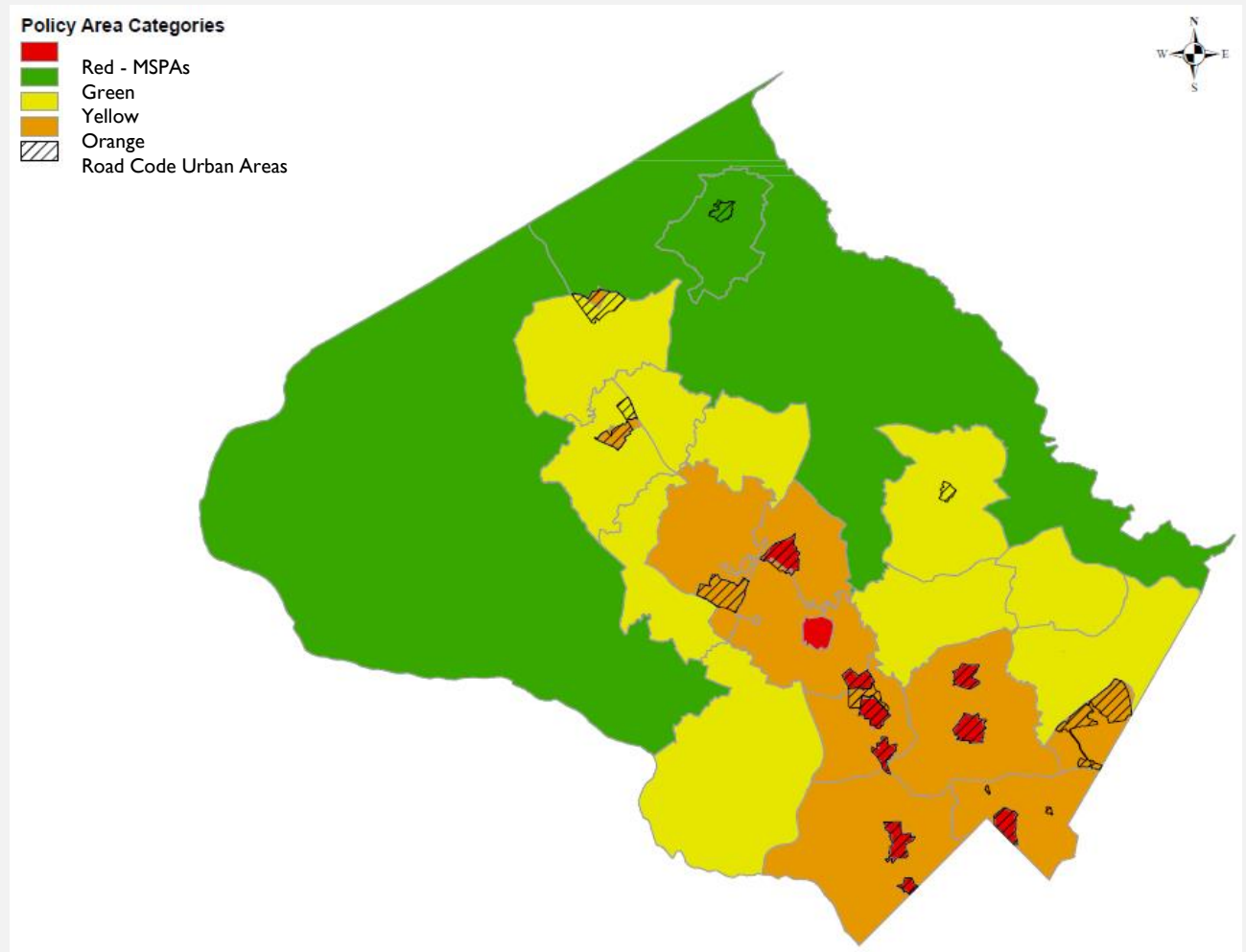


PUBLIC HEARING DRAFT

Recommendation #4:

Do not apply the Policy Area test in the Red Policy Areas (MSPAs) or the Green (rural) Policy Areas.

No testimony specifically addressing this element.
Not a change from the current TPAR Transit Adequacy Test application.



PUBLIC HEARING DRAFT

Comparison of Transit Accessibility Results to TPAR Transit Adequacy Test

| Policy Area | | Transit Accessibility Adequacy | | 2014 TPAR Transit Adequacy |
|----------------------------|--|--------------------------------------|--|-------------------------------|
| Friendship Heights | | exempt | | exempt |
| Bethesda CBD | | exempt | | exempt |
| Silver Spring CBD | | exempt | | exempt |
| White Flint | | exempt | | exempt |
| Grosvenor | | exempt | | exempt |
| Twinbrook | | exempt | | exempt |
| Wheaton CBD | | exempt | | exempt |
| Glenmont | | exempt | | exempt |
| Rockville Town Center | | exempt | | exempt |
| Shady Grove Metro Station | | exempt | | exempt |
| | | | | |
| Silver Spring/Takoma Park | | adequate | | inadequate |
| North Bethesda | | inadequate | | inadequate |
| Bethesda/Chevy Chase | | adequate | | inadequate |
| Kensington/Wheaton | | inadequate | | inadequate |
| Rockville City | | inadequate | | inadequate |
| White Oak | | adequate | | inadequate |
| Derwood | | adequate | | inadequate |
| R&D Village | | adequate | | inadequate |
| Gaithersburg City | | inadequate | | adequate |
| Germantown Town Center | | inadequate | | inadequate |
| | | | | |
| Aspen Hill | | inadequate | | adequate |
| Fairland/Colesville | | inadequate | | inadequate |
| Potomac | | adequate | | inadequate |
| North Potomac | | adequate | | inadequate |
| Germantown East | | inadequate | | inadequate |
| Germantown West | | adequate | | inadequate |
| Montgomery Village/Airpark | | adequate* | | inadequate |
| Olney | | inadequate | | inadequate |
| Cloverly | | inadequate | | inadequate |
| Clarksburg | | adequate* | | inadequate |
| | | | | |
| Rural East | | exempt | | exempt |
| Rural West | | exempt | | exempt |
| Damascus | | exempt | | exempt |

TRANSPORTATION RECOMMENDATIONS

Orange Policy Areas:

Bethesda-Chevy Chase
Derwood
Gaithersburg City
Germantown Town Center
Kensington/Wheaton
North Bethesda
R&D Village
Rockville City
Silver Spring/Takoma Park
White Oak

Examples:

Silver Spring/Takoma Park

Under TPAR

- Adequate roadway level of service
- Inadequate transit service
- Mitigation payment = 25% of impact tax

Under Transit Accessibility Test

- No roadway adequacy test
- Adequate Transit Accessibility
- No mitigation required

Derwood

Under TPAR

- Adequate roadway level of service
- Inadequate transit service
- Mitigation payment = 25% of impact tax

Under Transit Accessibility Test

- No roadway adequacy test
- Adequate Transit Accessibility
- No mitigation required

TRANSPORTATION RECOMMENDATIONS

Orange Policy Areas:

Bethesda-Chevy Chase
Derwood
Gaithersburg City
Germantown Town Center
Kensington/Wheaton
North Bethesda
R&D Village
Rockville City
Silver Spring/Takoma Park
White Oak

Bethesda-Chevy Chase

Under TPAR

- Inadequate roadway level of service
- Inadequate for transit service
- Mitigation payment = 50% of impact tax

Under Transit Accessibility Test

- No roadway adequacy test
- Adequate Transit Accessibility
- No mitigation payment

Germantown Town Center

Under TPAR

- Adequate roadway level of service
- Inadequate transit service
- Mitigation payment = 25% of impact tax

Under Transit Accessibility Test

- No roadway adequacy test
- Inadequate Transit Accessibility - less than 30%
- Mitigation payment = 25% of impact tax

TRANSPORTATION RECOMMENDATIONS

Orange Policy Areas:

Bethesda-Chevy Chase
Derwood
Gaithersburg City
Germantown Town Center
Kensington/Wheaton
North Bethesda
R&D Village
Rockville City
Silver Spring/Takoma Park
White Oak

R&D Village

Under TPAR

- Adequate roadway level of service
- Inadequate for transit service
- Mitigation payment = 25% of impact tax

Under Transit Accessibility Test

- No roadway adequacy test
- Adequate Transit Accessibility
- No mitigation payment

Gaithersburg City

Under TPAR

- Inadequate roadway level of service
- Adequate transit service
- Mitigation payment = 25% of impact tax

Under Transit Accessibility Test

- No roadway adequacy test
- Inadequate Transit Accessibility – between 30%-40%
- Mitigation payment = 15% of impact tax

TRANSPORTATION RECOMMENDATIONS

Yellow Policy areas:

Aspen Hill
Clarksburg
Cloverly
Fairland/Coleville
Germantown East
Germantown West
Potomac
Montgomery Village/ Airpark
North Potomac
Olney

Aspen Hill

Under TPAR

- Inadequate roadway level of service
- Adequate transit service
- Mitigation payment = 25% of impact tax

Under Transit Accessibility Test

- No roadway adequacy test
- Inadequate Transit Accessibility – less than 30%
- Mitigation payment = 25% of impact tax

Clarksburg

Under TPAR

- Adequate roadway level of service
- Inadequate for transit service
- Mitigation payment = 25% of impact tax

Under Transit Accessibility Test

- No roadway adequacy test
- Transit Accessibility – N/A
- No Mitigation payment

TRANSPORTATION RECOMMENDATIONS

Yellow Policy Areas:

Aspen Hill
Clarksburg
Cloverly
Fairland/Coleville
Germantown East
Germantown West
Potomac
Montgomery Village/ Airpark
North Potomac
Olney

Fairland/Colesville

Under TPAR

- Inadequate roadway level of service
- Inadequate transit service
- Mitigation payment = 50% of impact tax

Under Transit Accessibility Test

- No roadway adequacy test
- Inadequate Transit Accessibility – between 30%-40%
- Mitigation payment = 15% of impact tax

Germantown East

Under TPAR

- Adequate roadway level of service
- Inadequate transit service
- Mitigation payment = 25% of impact tax

Under Transit Accessibility Test

- No roadway adequacy test
- Inadequate Transit Accessibility – less than 30%
- Mitigation payment = 25% of impact tax

TRANSPORTATION RECOMMENDATIONS

Green Policy Areas:

Damascus
Rural East
Rural West

Damascus

Under TPAR

- Adequate roadway level of service
- Adequate transit service
- No Mitigation payment

Under Transit Accessibility Test

- No roadway adequacy test
- Exempt from transit test
- No mitigation payment

Rural East and Rural West

Under TPAR

- Exempt from roadway and transit tests
- No mitigation payment

Under Transit Accessibility Test

- No roadway adequacy test
- Exempt from transit test
- No mitigation payment

PUBLIC HEARING DRAFT TESTIMONY

Determine the accessibility of jobs and housing to transit within the policy plan area – not the region.

The proposed Transit Accessibility metric is intended to provide a relative comparison among Policy Areas as to how each is progressing toward attaining its own unique threshold for accessibility as reflected by planned land use and transit system improvements.

Transit Accessibility combines walk-access to transit with transit access to regional destinations, so that both “access to transit” and “access on transit” elements of the transit trip are considered.

We strongly object to the proposed change to go to transit accessibility as a new transportation adequacy test. The Board should better address delays and queuing that result from congested traffic congestion. A consequence of the proposal would be a worsening of traffic conditions while planners embrace a future and unfunded multimodal transit plan.

The Public Hearing Draft includes a framework for more detailed review of the road network in a congested area than exists under the current SSP process.

The transit accessibility test incorporates a metric – job accessibility via transit – that measures adequacy in terms of progress toward transit accessibility goals based on those transit system assumptions that are funded.

PUBLIC HEARING DRAFT TESTIMONY

I support the changes to the SSP. Moving away from traffic impact tests based solely on traffic delay is a first step toward a more sustainable future for Montgomery. We need growth guidelines that evaluate whether development offers more transportation options – particularly transit, walking and biking and decreases the amount residents have to drive.

Staff concurs that the Public Hearing Draft reflects an approach that is (1) consistent with views of some (but not all) in the community as expressed at community meetings, (2) responsive to many concerns heard at the Infrastructure and Growth Forum in March 2015, (3) sensitive to new initiatives nationwide that examine how best to measure adequacy for all users, (4) reflective of some of the overarching objectives identified through the TISTWG process and (5) responsive to the Planning Board request to look beyond level of service for new approaches during this SSP review.

PUBLIC HEARING DRAFT TESTIMONY

MCDOT supports the intentions of the Public Hearing Draft of the 2016 SSP revisions and the focus on improving transit accessibility, analyzing people instead of vehicles, improving transparency, and streamlining processes. However, we believe it better to understand the concerns with the current TPAR process. We feel TPAR to be conceptually successful at its goals.

Transit Accessibility most succinctly addresses the interest (incorporated within the Council's request) to develop a metric that measures progress in the development of the master planned BRT network. The TPAR metrics are useful in assessing a short term transit service plan but not as well suited for defining adequacy for a longer term horizon.

There have been no substantial TPAR contributions made since the approval of TPAR. Therefore, it may be premature to draw conclusions on the effectiveness of the program given how few new developments have yet utilized it.

The exclusion of TPAR as a regulatory tool in the 2016 Draft SSP is largely in response to its limitations with respect to the evaluation the transportation adequacy benefits of premium transit service. None of the existing funding sources (Countywide Transportation Impact Tax, Special District Tax, TPAR exactions, or PAMR exactions) have at this point contributed a significant percentage of the funds required to support expansion projects in the CIP.

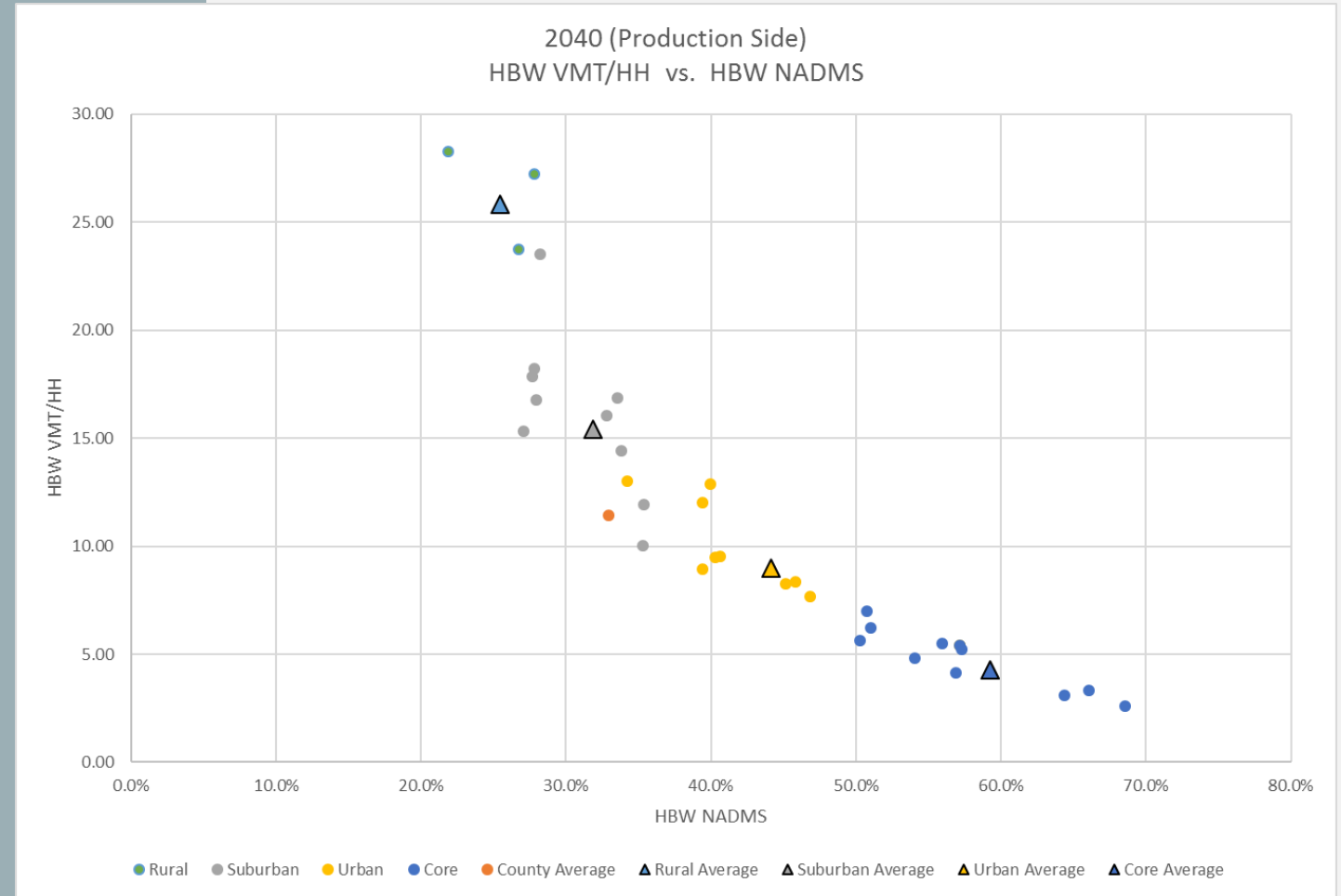
PUBLIC HEARING DRAFT

Recommendation #12

Update Transportation Impact Taxes using current CIP projects.

Adjust rates based on estimates of current Vehicle Miles of Travel (VMT) for trips to work which is a readily available – and relevant – measurement to use in establishing Policy Area specific rates for residential development.

A similar and complementary metric for commercial development is the non-auto driver mode share for trips to work.



PUBLIC HEARING DRAFT

Transportation Impact Taxes

- Last update was in 2007 – based on a CIP more than 9 years old
- Align tax districts with policy area categories
- Opportunity to include discount factors related to per capita VMT, NADMS, and recognizing parking reductions where applicable
- Recent bill introduced by members of the Council proposed removing the rate reduction for MSPAs as well as the premium applied to the Clarksburg rate

Public Testimony

Concern with change in the rate for office use and change in discount factors applied by policy area categories.

Related concern is that some policy areas may have higher rates as a result of the change in discount factors

PUBLIC HEARING DRAFT

Recommendation

Update Transportation Impact Taxes using current CIP projects.

Adjust rates based on estimates of current Vehicle Miles of Travel (VMT) for trips to work which is a readily available – and relevant – measurement to use in establishing Policy Area specific rates for residential development.

A similar and complementary metric for commercial development is the non-auto driver mode share for trips to work.

Transportation Impact Taxes

Public Testimony

Concern with change in the rate for office use and change in discount factors applied by policy area categories.

Related concern is that some policy areas may have higher rates as a result of the change in discount factors

PUBLIC HEARING DRAFT IMPACT TAXES

| General District Rate Comparison | | | | | |
|----------------------------------|-----------------------|--------------------|-----------------------|--|---|
| | | | | | |
| Land Use | 2007 Calculated Rates | 2007 Adopted Rates | 2016 Calculated Rates | 2016 Rates When Applying 2007 Percentage Adjustment to 2016 Calculated Rates | 2015 (Current) Rates - General District |
| Residential | | | | | |
| SF Detached | \$8,380 | \$10,649 | \$11,499 | \$14,613 | \$13,966 |
| MF Residential | \$5,884 | | \$8,032 | | |
| SF Attached | | \$8,713 | | \$8,351 | \$11,427 |
| Garden Apartments | | \$6,776 | | \$9,250 | \$8,886 |
| High - Rise Apartments | | \$4,840 | | \$6,607 | \$6,347 |
| Multi-Family Senior | | \$1,936 | | \$2,643 | \$2,539 |
| Commercial | | | | | |
| Office | \$11.56 | \$9.69 | \$16.04 | \$13.45 | \$12.75 |
| Industrial | \$5.39 | \$4.85 | \$7.43 | \$6.69 | \$6.35 |
| Bioscience | | \$0.00 | | \$0.00 | \$0.00 |
| Retail | \$18.80 | \$8.67 | \$25.93 | \$11.96 | \$11.40 |
| Place of Worship | | \$0.51 | | \$0.70 | \$0.65 |
| Private School | | \$0.77 | | \$1.06 | \$1.05 |
| Hospital | | \$0.00 | | \$0.00 | \$0.00 |

PUBLIC HEARING DRAFT

- Adjust Residential Rates based on Home Based Work Vehicle Miles of Travel
- Adjust Commercial Rates based on Home Based Work mode share
- Set ancillary retail rate at zero for first 10,000 GSF in vertical mixed use
- Proposed adjustment for Reduced Parking

Multipliers for General District Transportation Impact Tax Rates

| Policy Area Type | Residential | Commercial |
|---------------------|-------------|------------|
| Red Policy Areas | 0.25 | 0.75 |
| Orange Policy Areas | 0.75 | 1.00 |
| Yellow Policy Areas | 1.25 | 1.25 |
| Green Policy Areas | 2.00 | 1.25 |

PUBLIC HEARING DRAFT IMPACT TAXES

| General District Rate Comparison | | Current MSPA & Clarskburg Rates | | | New Rates in Public Hearing Draft After Factors Applied to 2015 Current General District Rates | | | |
|---|--|--|---|--|---|----------|-------------|----------|
| | | | | | | | | |
| 2015 (Current) Rates - General District | | 2015 (Current) Rates - Metro Station | 2015 (Current) Rates - Clarksburg | | Core | Corridor | Residential | Rural |
| | | | | | 0.25 | 0.75 | 1.25 | 2.00 |
| \$13,966 | | \$6,984 | \$20,948 | | \$3,492 | \$10,475 | \$17,478 | \$27,932 |
| \$11,427 | | \$5,714 | \$17,141 | | \$2,857 | \$8,570 | \$14,284 | \$22,854 |
| \$8,886 | | \$4,443 | \$13,330 | | \$2,222 | \$6,665 | \$11,108 | \$17,772 |
| \$6,347 | | \$3,174 | \$9,522 | | \$1,587 | \$4,760 | \$7,934 | \$12,694 |
| \$2,539 | | \$1,269 | \$3,808 | | \$635 | \$1,904 | \$3,174 | \$5,078 |
| | | | | | 0.75 | 1.00 | 1.25 | 1.25 |
| \$12.75 | | \$6.35 | \$15.30 | | \$9.56 | \$12.75 | \$15.94 | \$15.94 |
| \$6.35 | | \$3.20 | \$7.60 | | \$4.76 | \$6.35 | \$7.94 | \$7.94 |
| \$0.00 | | \$0.00 | \$0.00 | | | | | |
| \$11.40 | | \$5.70 | \$13.70 | | \$8.55 | \$11.40 | \$14.25 | \$14.25 |
| \$0.65 | | \$0.35 | \$0.90 | | | | | |
| \$1.05 | | \$0.50 | \$1.35 | | | | | |
| \$0.00 | | \$0.00 | \$0.00 | | | | | |
| \$0.00 | | \$0.00 | \$0.00 | | | | | |
| \$6.35 | | \$3.20 | \$7.60 | | \$4.76 | \$6.35 | \$7.94 | \$7.94 |

PUBLIC HEARING DRAFT

Table 1: Recommended New Adjustment Factors to Transportation Impact Tax Base Rates

| Policy Area Type | Residential HBW VMT | Ratio of impact to County Average | Proposed as Policy | Commercial HBW NADMS | Ratio of impact to County Average | Proposed as Policy |
|------------------|------------------------|---|-----------------------|-------------------------|---|-----------------------|
| County Average | 11.45 | | | 32.6 | | |
| Core | 4.27 | 37% | 0.25 | 45.2 | 81% | 0.75 |
| Urban | 9.01 | 79% | 0.75 | 28.3 | 106% | 1.00 |
| Suburban | 15.39 | 134% | 1.25 | 16.6 | 124% | 1.25 |
| Rural | 25.84 | 226% | 2.00 | 10.2 | 133% | 1.25 |

PUBLIC HEARING DRAFT IMPACT TAXES

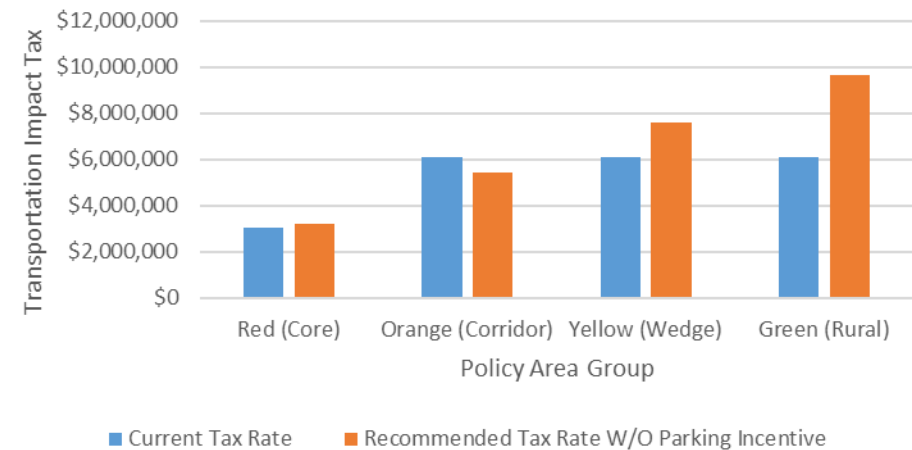
Du's - 425 / Office SF - 0 / Retail SF - 20,000



Du's - 0 / Office SF - 150,000 / Retail SF - 20,000

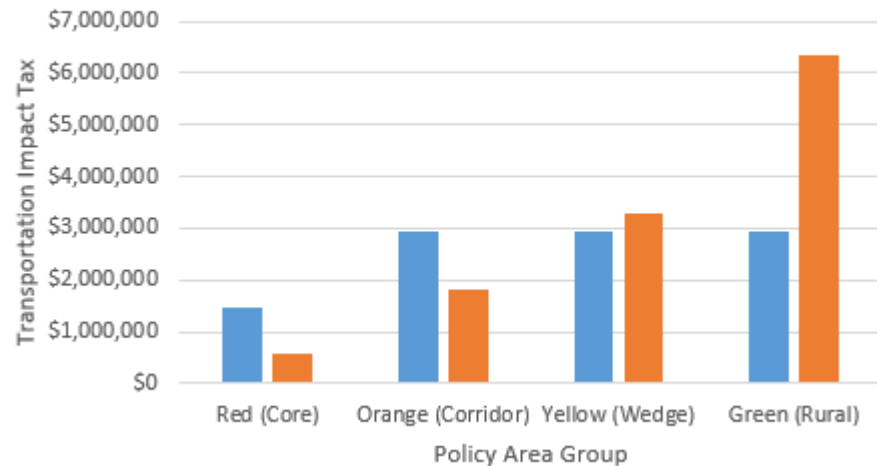


Du's - 425 / Office SF - 230,000 / Retail SF - 40,000

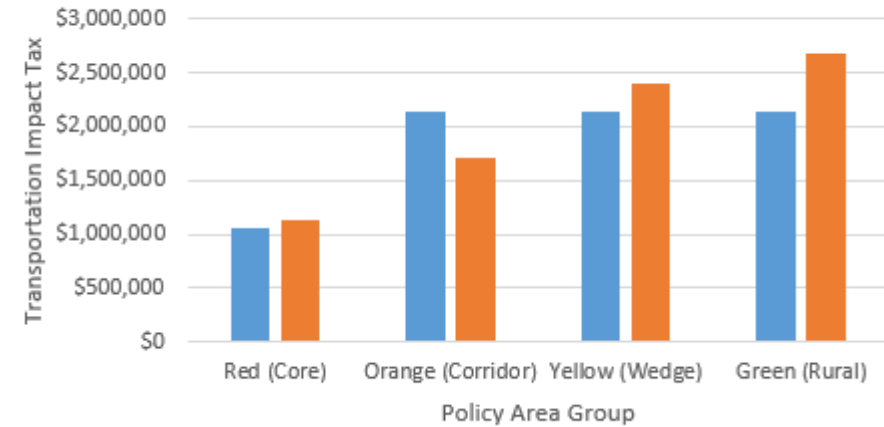


PUBLIC HEARING DRAFT

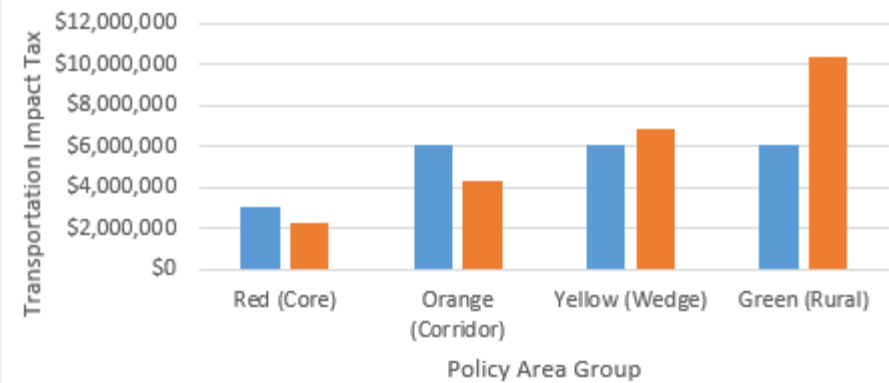
Du's - 425 / Office SF - 0 / Retail SF - 20,000



Du's - 0 / Office SF - 150,000 / Retail SF - 20,000



Du's - 425 / Office SF - 230,000 / Retail SF - 40,000



With a parking incentive

PUBLIC HEARING DRAFT IMPACT TAXES

| Estimated Transportation Impact Taxes | | | | | | | |
|---|------------------|------|-----------|-----------|-----------------------|--|-------------------------|
| Project Type | Example Location | DU's | Office SF | Retail SF | Current Tax Structure | Recommended Tax Structure <u>Without</u> Parking Incentive Applied | Difference From Current |
| 425 Residential Units, 20,000 sf Retail | Red | 425 | 0 | 20,000 | \$1,462,950 | \$845,369 | (\$617,581) |
| 425 Residential Units, 20,000 sf Retail | Orange | 425 | 0 | 20,000 | \$2,925,475 | \$2,251,106 | (\$674,369) |
| 425 Residential Units, 20,000 sf Retail | Yellow | 425 | 0 | 20,000 | \$2,925,475 | \$3,656,844 | \$731,369 |
| 425 Residential Units, 20,000 sf Retail | Green | 425 | 0 | 20,000 | \$2,925,475 | \$5,679,950 | \$2,754,475 |

PUBLIC HEARING DRAFT IMPACT TAXES

| Estimated Transportation Impact Taxes | | | | | | | |
|--|------------------|------|-----------|-----------|-----------------------|--|-------------------------|
| Project Type | Example Location | DU's | Office SF | Retail SF | Current Tax Structure | Recommended Tax Structure <u>Without</u> Parking Incentive Applied | Difference From Current |
| 425 Residential Units, 230,000 sf Office, 40,000 sf Retail | Red | 425 | 230,000 | 40,000 | \$3,037,450 | \$3,215,744 | \$178,294 |
| 425 Residential Units, 230,000 sf Office, 40,000 sf Retail | Orange | 425 | 230,000 | 40,000 | \$6,085,975 | \$5,411,606 | (\$674,369) |
| 425 Residential Units, 230,000 sf Office, 40,000 sf Retail | Yellow | 425 | 230,000 | 40,000 | \$6,085,975 | \$7,607,469 | \$1,521,494 |
| 425 Residential Units, 230,000 sf Office, 40,000 sf Retail | Green | 425 | 230,000 | 40,000 | \$6,085,975 | \$9,630,575 | \$3,544,600 |

PUBLIC HEARING DRAFT IMPACT TAXES

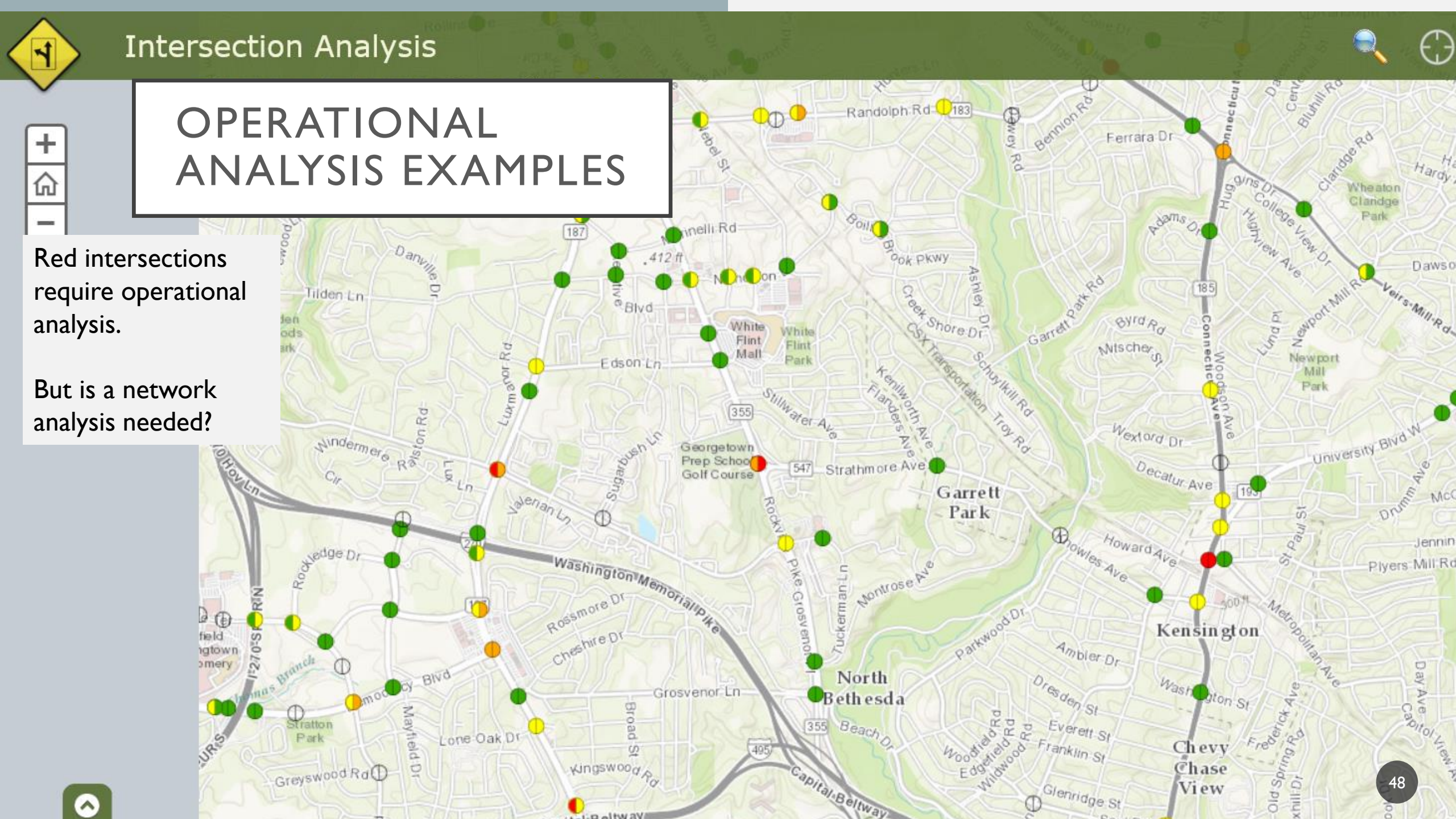
| Estimated Transportation Impact Taxes | | | | | | | |
|---------------------------------------|------------------|------|-----------|-----------|-----------------------|--|-------------------------|
| Project Type | Example Location | DU's | Office SF | Retail SF | Current Tax Structure | Recommended Tax Structure <u>Without</u> Parking Incentive Applied | Difference From Current |
| | | | | | | | |
| | | | | | | | |
| 150,000 sf Office, 20,000 sf Retail | Red | 0 | 150,000 | 20,000 | \$1,066,500 | \$1,605,375 | \$538,875 |
| 150,000 sf Office, 20,000 sf Retail | Orange | 0 | 150,000 | 20,000 | \$2,140,500 | \$2,140,500 | \$0 |
| 150,000 sf Office, 20,000 sf Retail | Yellow | 0 | 150,000 | 20,000 | \$2,140,500 | \$2,675,625 | \$535,125 |
| 150,000 sf Office, 20,000 sf Retail | Green | 0 | 150,000 | 20,000 | \$2,140,500 | \$2,675,625 | \$535,125 |
| | | | | | | | |

REDUCED PARKING INCENTIVE

- Eligible for properties in Reduced Parking Areas
- Applicable for sites proposing a number of spaces equal to or less than the Baseline Minimum
- Reduced Vehicle Trip Generation Rates proportional to percentage reduction from the minimum requirement
- Transportation Impact Tax discounted for parking reductions in the Reduced Parking Areas

LATR FOLLOW UP

INTERSECTION OPERATIONAL ANALYSIS

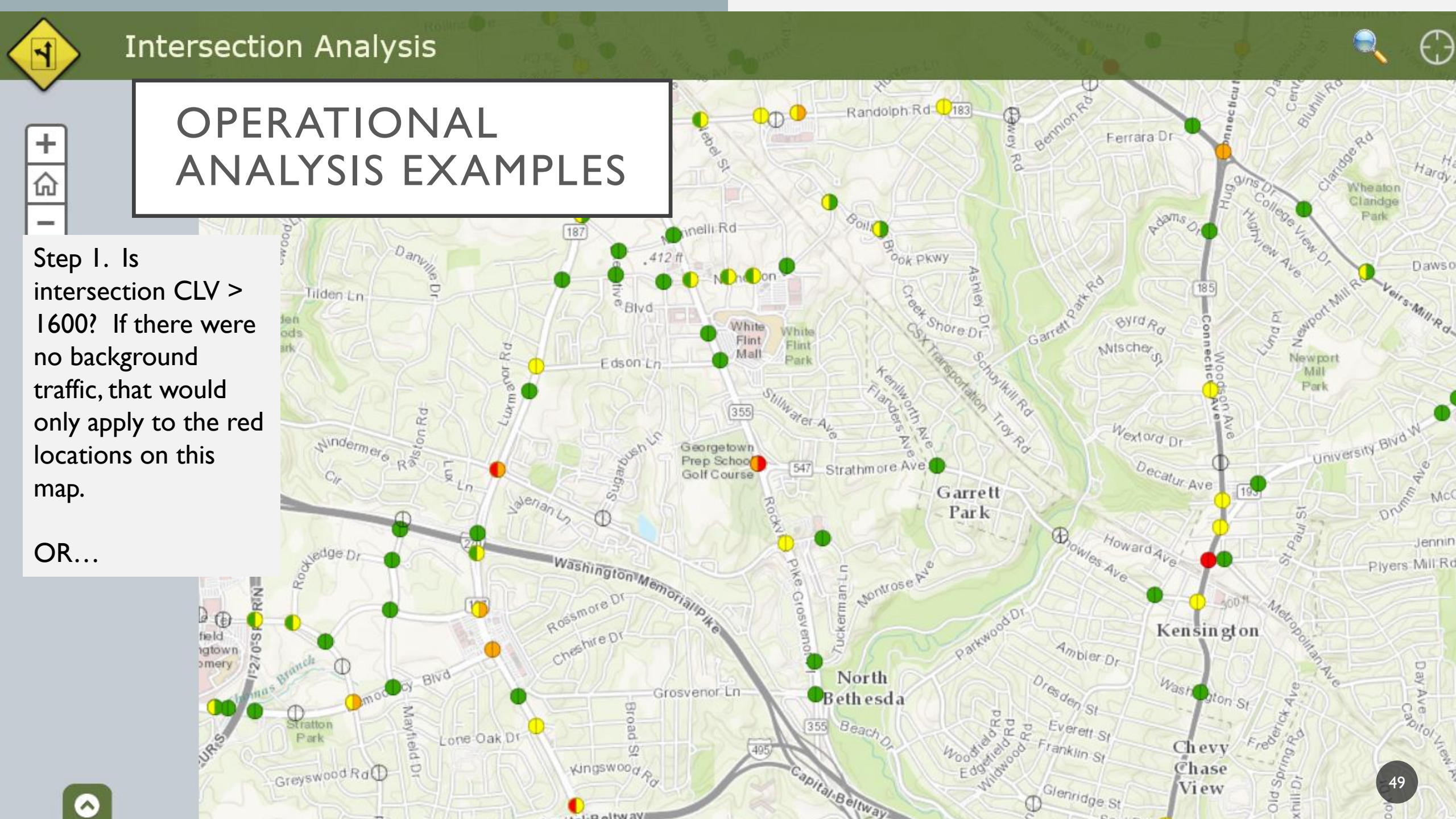


Intersection Analysis

OPERATIONAL ANALYSIS EXAMPLES

Red intersections require operational analysis.

But is a network analysis needed?

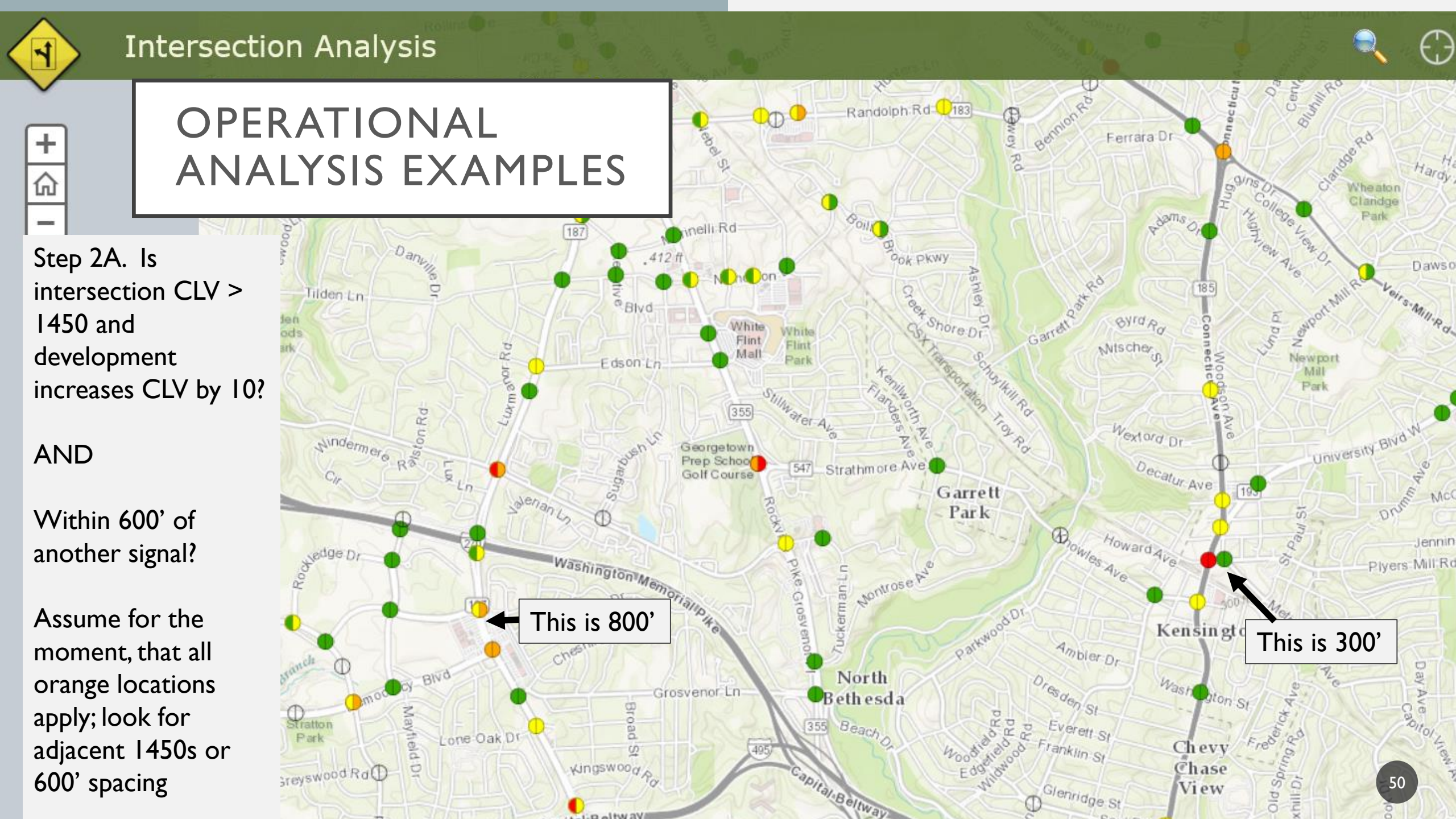


Intersection Analysis

OPERATIONAL ANALYSIS EXAMPLES

Step 1. Is intersection CLV > 1600? If there were no background traffic, that would only apply to the red locations on this map.

OR...



Intersection Analysis

OPERATIONAL ANALYSIS EXAMPLES

Step 2A. Is intersection CLV > 1450 and development increases CLV by 10?

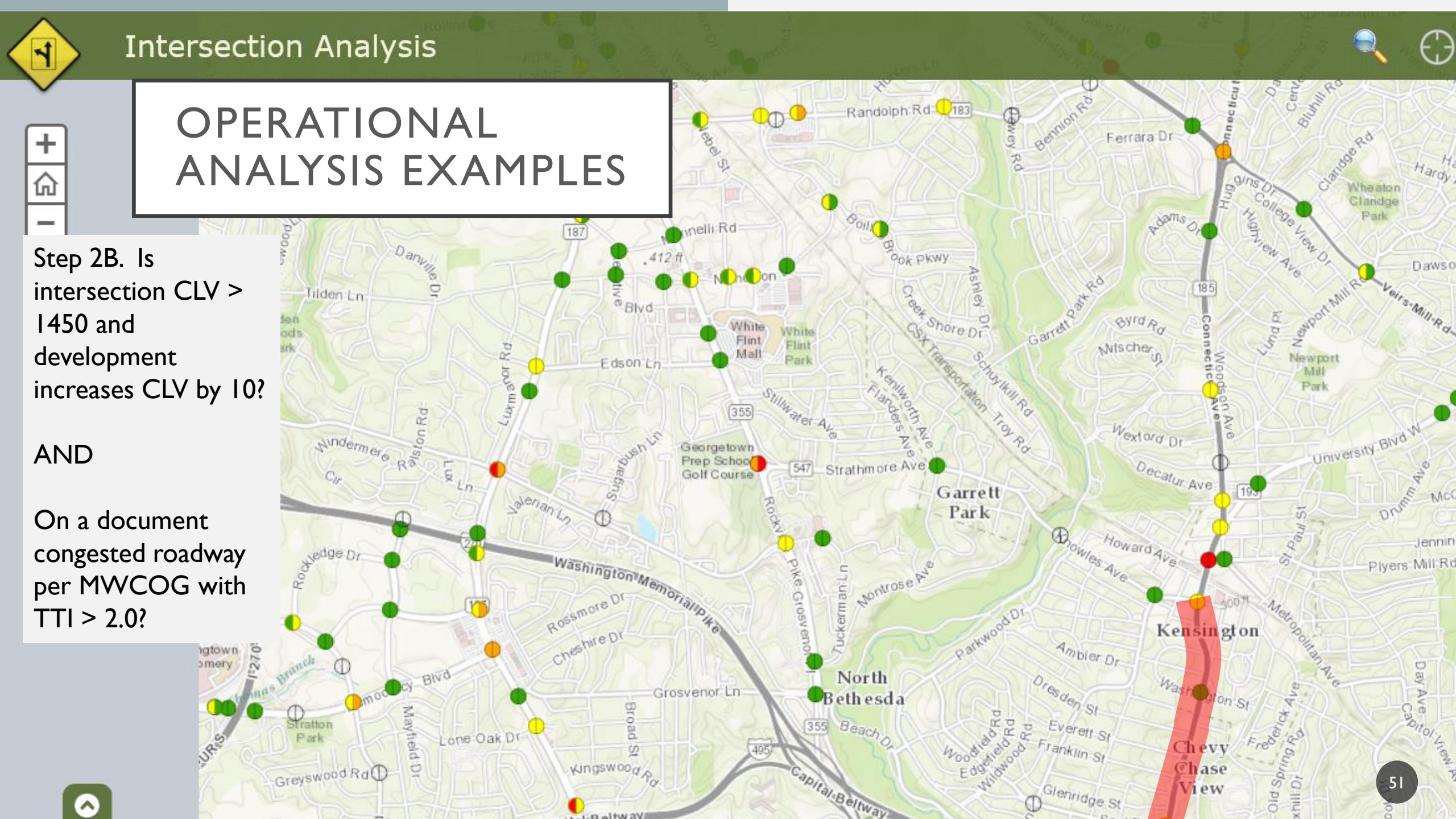
AND

Within 600' of another signal?

Assume for the moment, that all orange locations apply; look for adjacent 1450s or 600' spacing

This is 800'

This is 300'



Intersection Analysis

OPERATIONAL ANALYSIS EXAMPLES

Step 2B. Is
intersection CLV >
1450 and
development
increases CLV by 10?

AND

On a document
congested roadway
per MWCOC with
TTI > 2.0?

PEDESTRIAN IMPACT

For site with > 100 peds/hour

Fix (or fund) ADA non-compliance within 500' radius of site boundaries

Ensure LOS D for crosswalk pedestrian space at study intersections within 500' of site or within URCA/BPPA

For any intersection within URCA/BPPA

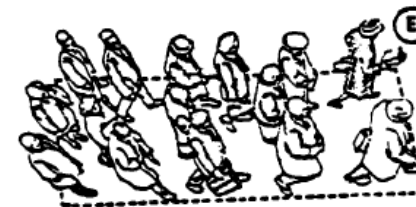
If operational analysis is triggered, mitigation must not increase average pedestrian crossing time

| LOS | Pedestrian Space (ft ² /p) | Expected Flows and Speeds | | |
|-----|---------------------------------------|-------------------------------|--|------------|
| | | Avg. Speed, <i>S</i> (ft/min) | Flow per Unit Width, <i>v</i> (p/ft/min) | <i>v/c</i> |
| A | ≥ 35 | 260 | 0-7 | 0.0-0.3 |
| B | 25-35 | 250 | 7-10 | 0.3-0.4 |
| C | 15-25 | 240 | 10-15 | 0.4-0.6 |
| D | 10-15 | 225 | 15-20 | 0.6-0.8 |
| E | 5-10 | 150 | 20-25 | 0.8-1.0 |
| F | < 5 | < 150 | Variable | Variable |



LEVEL OF SERVICE D

Freedom to select walking speed and pass others is restricted; high probability of conflicts for reverse or cross movements.



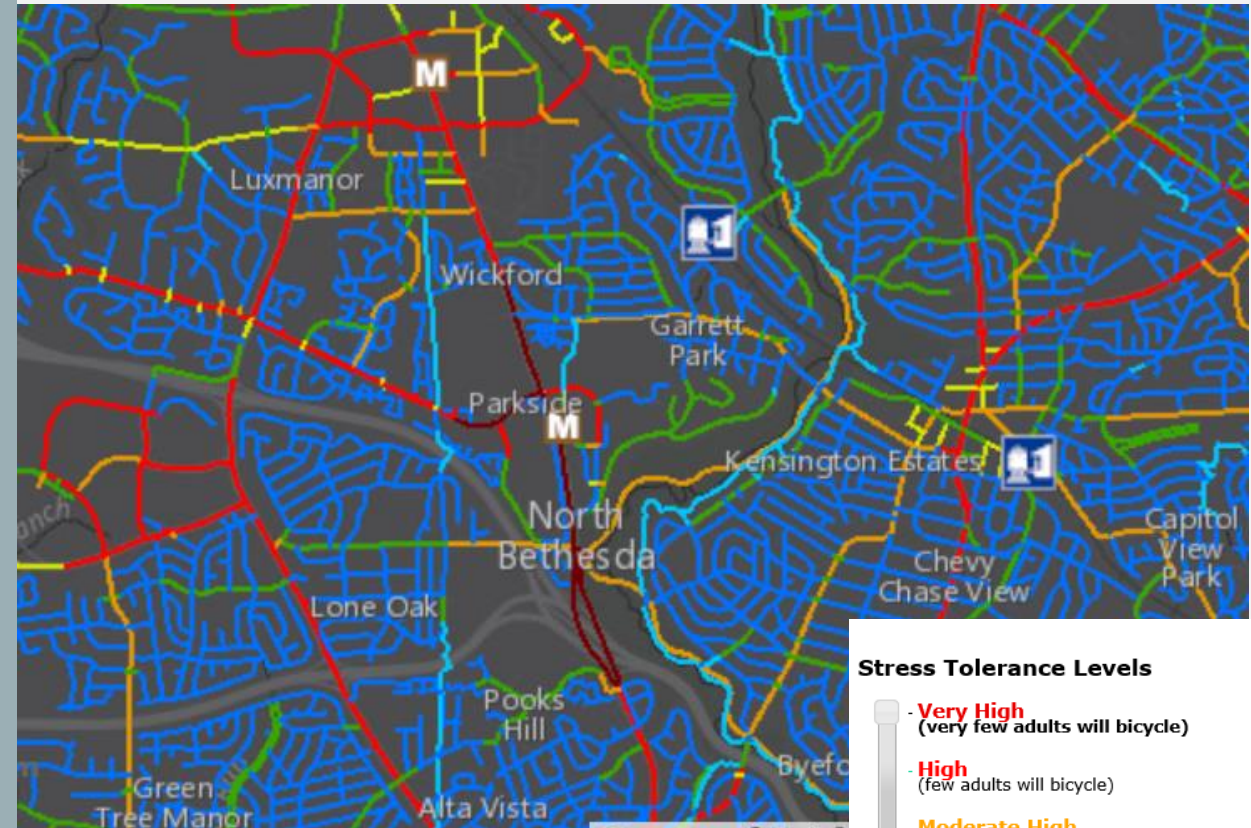
LEVEL OF SERVICE E

Walking speeds and passing ability are restricted for all pedestrians; forward movement is possible only by shuffling; reverse or cross movements are possible only with extreme difficulty; volumes approach limit of walking capacity.

BICYCLE IMPACT

For sites with significant bicycle trip generation (100 non-motorized trips per hour plus school/bikeshare proximity):

Identify routes/improvements need to provide LTS=2 (or “Low”) conditions to all destinations within 1,500 feet of site boundaries



Stress Tolerance Levels

- **Very High**
(very few adults will bicycle)
- **High**
(few adults will bicycle)
- **Moderate High**
(some adults will bicycle)
- **Moderate Low**
(many adults will bicycle)
- **Low**
(most adults will bicycle)
- **Very Low**
(all adults & some children will bicycle)
- **None**
(everyone will bicycle)

TRANSIT IMPACT

For sites with significant transit trip generation (>50 trips/hour)

Inventory buses at stops/stations within 1,000' of site

Adverse effect exists if average passenger load of buses on any one route exceed LOS D at that station during the peak hour

Rationale: additional 50+ transit riders likely to include trips on most popular routes

Mitigation to be defined in conjunction with MNCPPC and transit operator.

One possibility would be to identify the number of additional buses required to achieve LOS D for route

(Ex. 1 stop, 4 buses with 40 seats each and 240 total pax = 60 pax/bus = 1.50. Achieving 1.25 would require $240/50 = 4.8$ buses or need for 0.8 of a bus (equals mitigation cost for applicant))

Passenger Load LOS

| LOS | Load Factor (p/seat) | Standing Passenger Area | | Comments |
|-----|-------------------------|-------------------------|---------------------|---------------------------------------|
| | | (ft ² /p) | (m ² /p) | |
| A | 0.00-0.50 | >10.8† | >1.00† | No passenger need sit next to another |
| B | 0.51-0.75 | 8.2-10.8† | 0.76-1.00† | Passengers can choose where to sit |
| C | 0.76-1.00 | 5.5-8.1† | 0.51-0.75† | All passengers can sit |
| D | 1.01-1.25* | 3.9-5.4 | 0.36-0.50 | Comfortable standee load for design |
| E | 1.26-1.50* | 2.2-3.8 | 0.20-0.35 | Maximum schedule load |
| F | >1.50* | <2.2 | <0.20 | Crush load |

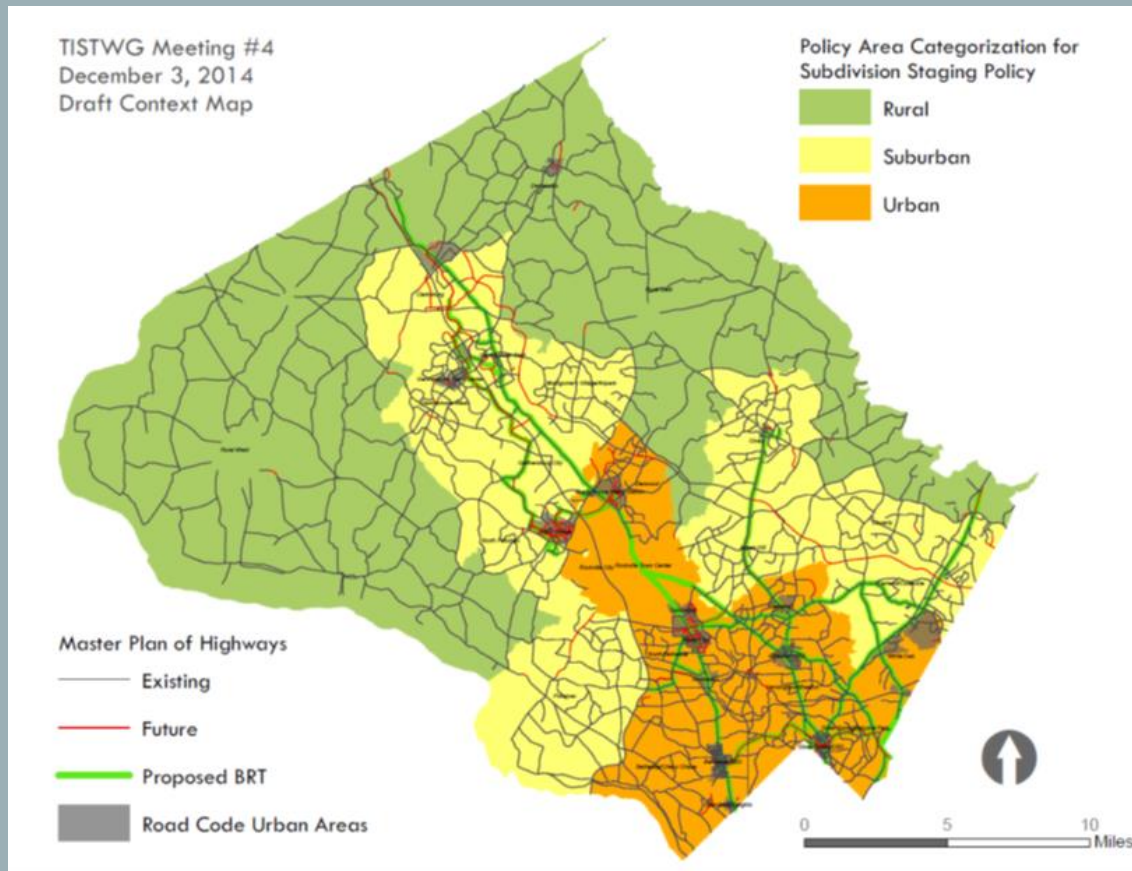
*Approximate value for comparison, for vehicles designed to have most passengers seated. LOS is based on area.

†Used for vehicles designed to have most passengers standing.

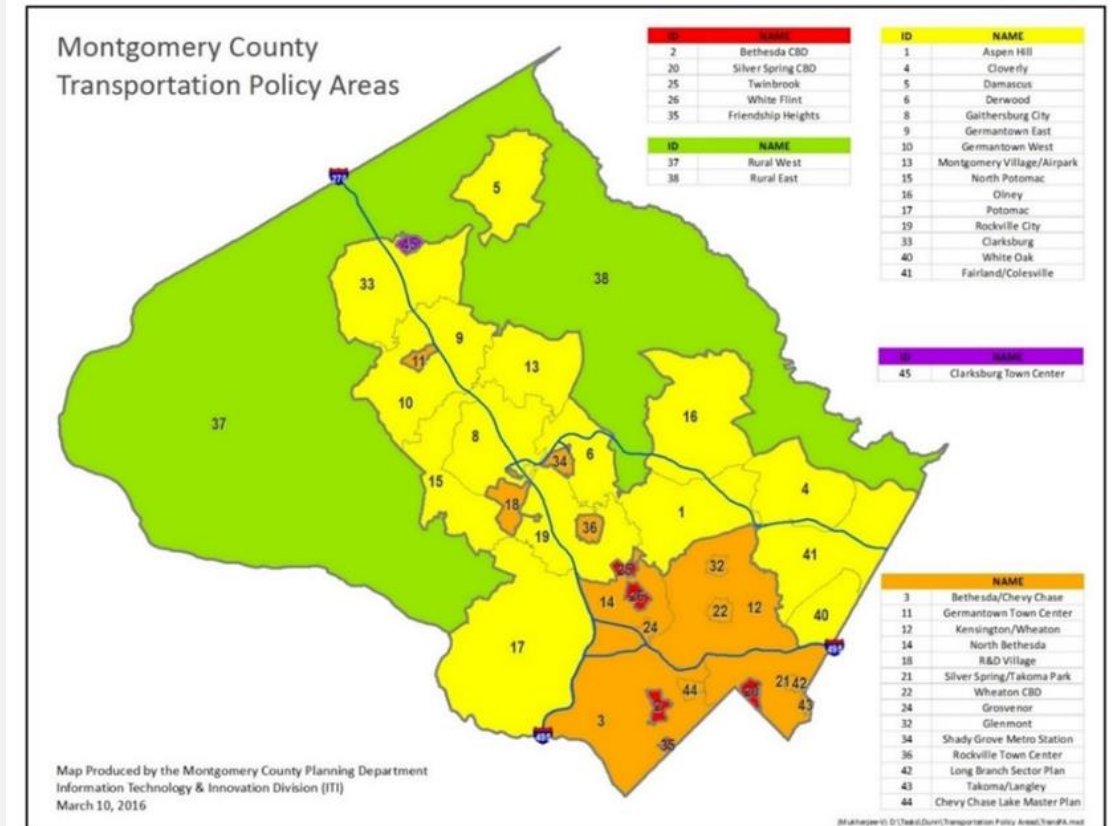
RESOURCE SLIDES

POLICY AREA CATEGORIES

Map of current policy area categories



Map of proposed policy area categories



ALTERNATIVE TRANSIT ADEQUACY MEASURES

NADMS

- Mildly responsive to land use and transportation changes
- Only measures progress towards plan implementation/adequacy where NADMS specified by policy

| Policy Area | Name | NADMS (Productions) | | | | NADMS (Attractions) | | | |
|-------------|----------------------------|---------------------|---------------------|------------------|------------------|---------------------|----------------|-----------|------------------|
| | | 2010 | 2040 Without PL/CCT | 2040 With PL/CCT | Effect of PL/CCT | 2010 | 2040 No PL/CCT | 2040 Base | Effect of PL/CCT |
| 1 | Aspen Hill | 32.09% | 35.26% | 35.28% | 0.02% | 14.59% | 16.75% | 16.81% | 0.06% |
| 2 | Bethesda CBD | 58.73% | 64.04% | 64.38% | 0.34% | 46.77% | 54.98% | 55.47% | 0.49% |
| 3 | Bethesda/Chevy Chase | 42.18% | 40.15% | 40.33% | 0.17% | 34.73% | 42.68% | 42.85% | 0.17% |
| 4 | Cloverly | 26.16% | 27.92% | 27.98% | 0.07% | 9.01% | 10.46% | 10.50% | 0.03% |
| 5 | Damascus | 21.61% | 27.83% | 27.81% | -0.02% | 7.86% | 8.43% | 8.45% | 0.02% |
| 6 | Derwood | 30.55% | 33.48% | 34.26% | 0.78% | 16.64% | 20.33% | 20.71% | 0.38% |
| 8 | Gaithersburg City | 32.56% | 38.34% | 39.40% | 1.07% | 17.50% | 21.59% | 22.53% | 0.94% |
| 9 | Germantown East | 27.55% | 32.20% | 32.83% | 0.63% | 14.06% | 17.70% | 18.29% | 0.59% |
| 10 | Germantown West | 28.07% | 32.48% | 33.55% | 1.06% | 14.01% | 17.65% | 18.79% | 1.15% |
| 11 | Germantown Town Center | 32.89% | 38.68% | 39.95% | 1.27% | 16.62% | 20.77% | 21.50% | 0.73% |
| 12 | Kensington/Wheaton | 40.88% | 45.78% | 45.83% | 0.05% | 19.49% | 24.22% | 24.36% | 0.14% |
| 13 | Montgomery Village/Airpark | 29.76% | 33.42% | 33.79% | 0.37% | 13.85% | 15.45% | 15.59% | 0.13% |
| 14 | North Bethesda | 41.36% | 45.08% | 45.18% | 0.10% | 22.27% | 29.81% | 29.93% | 0.12% |
| 15 | North Potomac | 23.19% | 26.22% | 27.66% | 1.44% | 9.81% | 12.30% | 12.91% | 0.61% |
| 16 | Olney | 25.77% | 27.71% | 27.80% | 0.09% | 9.82% | 10.95% | 10.98% | 0.03% |
| 17 | Potomac | 26.28% | 26.93% | 27.08% | 0.15% | 13.83% | 18.94% | 19.05% | 0.11% |
| 18 | R&D Village | 32.47% | 37.28% | 40.63% | 3.35% | 18.20% | 23.65% | 26.43% | 2.78% |
| 19 | Rockville City | 35.54% | 38.38% | 39.43% | 1.05% | 18.04% | 23.58% | 25.17% | 1.59% |
| 20 | Silver Spring CBD | 61.34% | 68.19% | 68.57% | 0.38% | 50.20% | 56.41% | 56.89% | 0.48% |
| 21 | Silver Spring/Takoma Park | 49.74% | 57.14% | 57.15% | 0.00% | 33.71% | 41.47% | 41.93% | 0.46% |
| 22 | Wheaton CBD | 51.82% | 57.26% | 57.30% | 0.04% | 26.28% | 31.81% | 31.95% | 0.14% |
| 24 | Grosvenor | 50.49% | 55.77% | 55.98% | 0.21% | 24.49% | 30.34% | 30.50% | 0.16% |
| 25 | Twinbrook | 45.35% | 56.63% | 56.88% | 0.25% | 28.42% | 34.50% | 34.63% | 0.13% |
| 26 | White Flint | 49.55% | 53.86% | 54.04% | 0.18% | 28.86% | 35.48% | 35.61% | 0.13% |
| 32 | Glenmont | 46.63% | 50.75% | 50.76% | 0.01% | 23.77% | 28.55% | 28.60% | 0.05% |
| 33 | Clarksburg | 22.07% | 27.49% | 28.24% | 0.75% | 7.30% | 11.38% | 11.48% | 0.09% |
| 34 | Shady Grove Metro Station | 39.35% | 48.15% | 51.02% | 2.88% | 21.25% | 24.62% | 25.25% | 0.63% |
| 35 | Friendship Heights | 64.27% | 66.00% | 66.05% | 0.05% | 48.83% | 57.51% | 57.56% | 0.05% |
| 36 | Rockville Town Center | 44.95% | 50.10% | 50.29% | 0.19% | 26.42% | 31.76% | 31.87% | 0.11% |
| 37 | Rural West | 18.99% | 21.33% | 21.88% | 0.54% | 7.56% | 10.57% | 10.69% | 0.12% |
| 38 | Rural East | 22.95% | 26.57% | 26.77% | 0.20% | 8.70% | 10.29% | 10.33% | 0.03% |
| 40 | White Oak | 40.03% | 46.71% | 46.86% | 0.14% | 15.58% | 21.28% | 21.43% | 0.15% |
| 41 | Fairland/Colesville | 29.87% | 35.24% | 35.39% | 0.15% | 13.42% | 18.70% | 18.82% | 0.11% |
| 99 | County | 35.98% | 39.88% | 40.37% | 0.48% | 25.19% | 30.91% | 31.53% | 0.62% |

ALTERNATIVE TRANSIT ADEQUACY TEST

VMT

- Site-level monitoring an option but reduces applicant predictability
- Related to congestion concerns, part of national interest led by California's SB 743, but not related to master plan implementation/adequacy

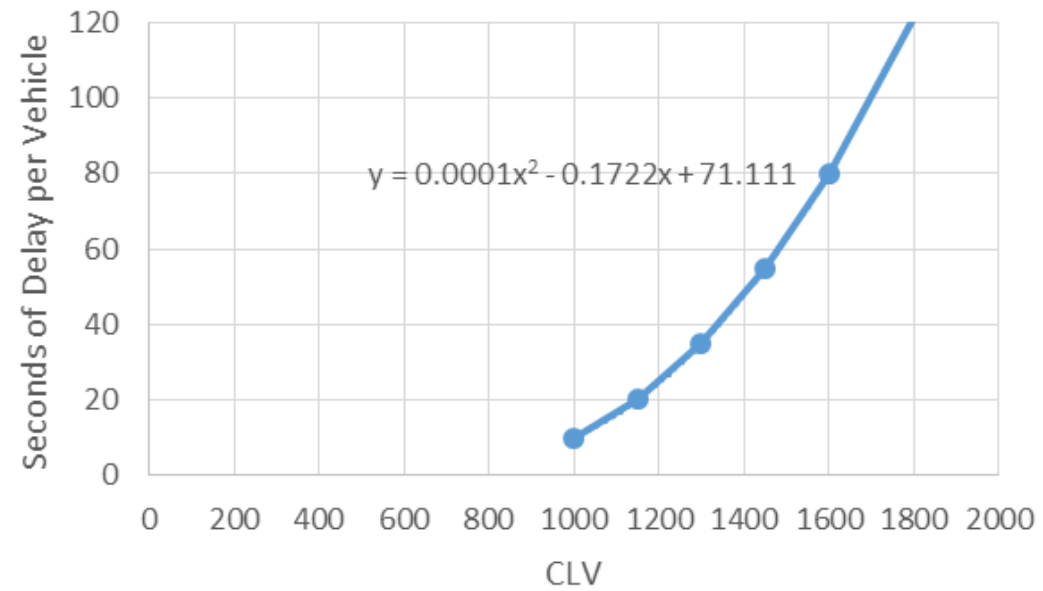
| Policy Area | Name | 2010 | 2040 Without Purple Line/CCT | 2040 With Purple Line/CCT | Effect of Purple Line/CCT |
|-------------|----------------------------|------|------------------------------|---------------------------|---------------------------|
| 3 | Bethesda/Chevy Chase | 24.4 | 25.7 | 25.8 | 0.1 |
| 35 | Friendship Heights | 18.1 | 9.2 | 9.3 | 0.0 |
| 2 | Bethesda CBD | 19.7 | 8.3 | 8.3 | 0.0 |
| 21 | Silver Spring/Takoma Park | 24.5 | 15.2 | 15.1 | 0.0 |
| 20 | Silver Spring CBD | 20.6 | 7.0 | 6.9 | 0.0 |
| 12 | Kensington/Wheaton | 27.0 | 21.5 | 21.5 | 0.0 |
| 22 | Wheaton CBD | 24.4 | 12.5 | 12.4 | 0.0 |
| 32 | Glenmont | 25.9 | 19.6 | 19.6 | 0.0 |
| 14 | North Bethesda | 25.3 | 20.9 | 21.0 | 0.0 |
| 24 | Grosvenor | 23.9 | 14.4 | 14.3 | 0.0 |
| 26 | White Flint | 22.1 | 10.1 | 10.1 | 0.0 |
| 25 | Twinbrook | 20.5 | 9.9 | 9.9 | 0.0 |
| 19 | Rockville City | 25.9 | 20.7 | 20.6 | 0.0 |
| 36 | Rockville Town Center | 23.5 | 13.7 | 13.7 | 0.0 |
| 6 | Derwood | 27.4 | 29.9 | 30.1 | 0.2 |
| 34 | Shady Grove Metro Station | 23.6 | 16.3 | 16.1 | -0.1 |
| 10 | Germantown West | 35.6 | 33.9 | 33.7 | -0.2 |
| 11 | Germantown Town Center | 32.8 | 24.3 | 24.1 | -0.2 |
| 1 | Aspen Hill | 29.4 | 22.3 | 22.4 | 0.1 |
| 4 | Cloverly | 36.3 | 38.7 | 38.7 | 0.0 |
| 5 | Damascus | 47.1 | 49.9 | 50.0 | 0.1 |
| 8 | Gaithersburg City | 28.5 | 25.5 | 25.5 | -0.1 |
| 9 | Germantown East | 33.2 | 33.1 | 33.0 | 0.0 |
| 13 | Montgomery Village/Airpark | 30.9 | 30.3 | 30.4 | 0.1 |
| 15 | North Potomac | 31.2 | 39.2 | 38.8 | -0.4 |
| 16 | Olney | 36.6 | 40.6 | 41.2 | 0.5 |
| 17 | Potomac | 30.5 | 39.6 | 39.6 | 0.0 |
| 18 | R&D Village | 28.3 | 21.0 | 20.6 | -0.4 |
| 33 | Clarksburg | 40.6 | 44.4 | 44.6 | 0.1 |
| 37 | Rural West | 47.5 | 59.8 | 59.8 | 0.0 |
| 38 | Rural East | 47.3 | 50.8 | 51.0 | 0.2 |
| 40 | White Oak | 28.1 | 19.1 | 19.0 | -0.1 |
| 41 | Fairland/Colesville | 32.9 | 26.7 | 26.6 | 0.0 |
| 99 | Total | 29.6 | 25.9 | 25.9 | 0.0 |

PUBLIC HEARING DRAFT

| | | | | | | | |
|----------------------------|-----------|--|---------|--|-----------|--|--------|
| Friendship Heights | 1,397,959 | | 269,244 | | 1,913,126 | | exempt |
| Bethesda CBD | 1,346,446 | | 301,822 | | 1,859,479 | | exempt |
| Silver Spring CBD | 1,323,371 | | 216,277 | | 1,792,117 | | exempt |
| White Flint | 1,270,391 | | 207,528 | | 1,707,890 | | exempt |
| Grosvenor | 1,268,554 | | 215,938 | | 1,693,911 | | exempt |
| Twinbrook | 1,234,181 | | 196,814 | | 1,652,567 | | exempt |
| Wheaton CBD | 1,200,581 | | 131,862 | | 1,575,229 | | exempt |
| Glenmont | 1,006,288 | | 172,459 | | 1,532,455 | | exempt |
| Rockville Town Center | 1,142,379 | | 159,438 | | 1,505,618 | | exempt |
| Shady Grove Metro Station | 983,099 | | 127,475 | | 1,275,198 | | exempt |
| | | | | | | | |
| Silver Spring/Takoma Park | 896,521 | | 269,515 | | 1,329,032 | | 62% |
| North Bethesda | 797,331 | | 126,010 | | 1,161,807 | | 35% |
| Bethesda/Chevy Chase | 754,231 | | 162,059 | | 987,919 | | 69% |
| Kensington/Wheaton | 485,434 | | 100,796 | | 860,758 | | 27% |
| Rockville City | 537,279 | | 78,628 | | 801,302 | | 30% |
| White Oak | 128,915 | | 287,480 | | 569,144 | | 65% |
| Derwood | 306,032 | | 80,010 | | 472,153 | | 48% |
| R&D Village | 175,651 | | 168,499 | | 458,996 | | 59% |
| Gaithersburg City | 222,917 | | 65,469 | | 398,589 | | 37% |
| Germantown Town Center | 195,351 | | 38,152 | | 336,800 | | 27% |
| | | | | | | | |
| Aspen Hill | 148,517 | | 20,615 | | 289,590 | | 15% |
| Fairland/Colesville | 38,561 | | 66,420 | | 252,034 | | 31% |
| Potomac | 149,876 | | 37,297 | | 212,029 | | 60% |
| North Potomac | 63,637 | | 59,169 | | 157,798 | | 63% |
| Germantown East | 49,404 | | 14,684 | | 155,173 | | 14% |
| Germantown West | 66,822 | | 38,370 | | 153,136 | | 44% |
| Montgomery Village/Airpark | 98,457 | | 18,111 | | 126,401 | | 65% |
| Olney | 16,008 | | 3,161 | | 99,175 | | 4% |
| Cloverly | 10,437 | | 16,328 | | 85,030 | | 22% |
| Clarksburg | 2,807 | | 1,197 | | 8,278 | | 22% |
| | | | | | | | |
| Rural East | 12,154 | | 7,334 | | 19,321 | | exempt |
| Rural West | 3,423 | | 314 | | 3,619 | | exempt |
| Damascus | 2,259 | | 1,862 | | 2,969 | | exempt |
| | | | | | | | |

RESOURCE SLIDE

Comparison of CLV and HCM Delay Thresholds



RESOURCE SLIDE

Red (MSPAs):

Bethesda CBD
Friendship Heights
Glenmont
Grosvenor
Shady Grove
Rockville Town Center
Silver Spring CBD
Twinbrook
Wheaton CBD
White Flint

Orange:

Bethesda/Chevy Chase
Derwood
Germantown Town Center
Kensington/Wheaton
North Bethesda
R&D Village
Rockville City
Silver Spring/Takoma Park
White Oak
Clarksburg Town Center
Chevy Chase Lake
Long Branch
Takoma/Langley

Yellow:

Aspen Hill
Clarksburg
Cloverly
Fairland/Colesville
Gaithersburg City
Germantown East
Germantown West
Montgomery Village/Airpark
North Potomac
Olney
Potomac

Green:

Damascus
Rural West
Rural East

RESOURCE SLIDE

| policy area | critical lane volume standard |
|---|-------------------------------|
| 26 Rural East 27 Rural West | 1,350 |
| 7 Damascus | 1,400 |
| 5 Clarksburg 11 Gaithersburg City 12 Germantown East 14 Germantown West 18 Montgomery Village/Airpark | 1,425 |
| 6 Cloverly 20 North Potomac 21 Olney 22 Potomac 23 R&D Village | 1,450 |
| 2 Aspen Hill 8 Derwood 9 Fairland/White Oak | 1,475 |

| policy area | critical lane volume standard |
|--|-------------------------------|
| 24 Rockville City | 1,500 |
| 19 North Bethesda | 1,550 |
| 4 Bethesda-Chevy Chase 17 Kensington-Wheaton 13 Germantown Town Center 30 Silver Spring-Takoma Park | 1,600 |
| 3 Bethesda CBD 10 Friendship Heights CBD 29 Silver Spring CBD 32 Wheaton CBD 15 Glenmont MSPA 16 Grosvenor MSPA 25 Rockville Town Center MSPA 28 Shady Grove MSPA 31 Twinbrook MSPA 33 White Flint MSPA | 1,800 |

BACKGROUND

Multimodal Trip Generation Rates

Proposed significant threshold (to be defined by Board) is 50 person trips

(Would be 75 person trips in MSPAs if LATR studies were to apply in MPSAs)

Can be further reduced by proximity to transit (<1,000') and parking reduction (2:1 ratio of parking below baseline to vehicle trips for residential, 3:1 ratio for office, none for retail/other).

First 15,000 GSF of ground floor retail provided without off-street parking in a mixed-use development exempted from trip generation by any mode for purposes of assessing impacts.

| | | ITE Vehicle Trip Reduction Factors | | | Other |
|----|----------------------------|------------------------------------|--------|--------|-------|
| | | Residential | Office | Retail | |
| 1 | Aspen Hill | 97% | 98% | 99% | 97% |
| 2 | Bethesda CBD | 79% | 63% | 61% | 62% |
| 3 | Bethesda/Chevy Chase | 87% | 81% | 85% | 79% |
| 4 | Cloverly | 99% | 100% | 100% | 100% |
| 5 | Damascus | 100% | 100% | 100% | 100% |
| 6 | Derwood | 94% | 94% | 87% | 94% |
| 8 | Gaithersburg City | 88% | 86% | 74% | 85% |
| 9 | Germantown East | 95% | 90% | 95% | 91% |
| 10 | Germantown West | 93% | 87% | 92% | 88% |
| 11 | Germantown Town Center | 85% | 89% | 77% | 88% |
| 12 | Kensington/Wheaton | 91% | 92% | 96% | 92% |
| 13 | Montgomery Village/Airpark | 93% | 100% | 93% | 100% |
| 14 | North Bethesda | 83% | 87% | 71% | 82% |
| 15 | North Potomac | 97% | 100% | 100% | 100% |
| 16 | Olney | 99% | 100% | 99% | 100% |
| 17 | Potomac | 97% | 98% | 96% | 98% |
| 18 | R&D Village | 89% | 88% | 80% | 90% |
| 19 | Rockville City | 88% | 94% | 87% | 98% |
| 20 | Silver Spring CBD | 77% | 65% | 58% | 65% |
| 21 | Silver Spring/Takoma Park | 83% | 83% | 82% | 84% |
| 22 | Wheaton CBD | 85% | 85% | 76% | 84% |
| 24 | Grosvenor | 81% | 84% | 75% | 80% |
| 25 | Twinbrook | 81% | 80% | 74% | 79% |
| 26 | White Flint | 79% | 78% | 72% | 78% |
| 32 | Glenmont | 90% | 91% | 96% | 91% |
| 33 | Clarksburg | 100% | 100% | 100% | 100% |
| 34 | Shady Grove Metro Station | 89% | 88% | 77% | 88% |
| 35 | Friendship Heights | 78% | 70% | 73% | 70% |
| 36 | Rockville Town Center | 79% | 80% | 70% | 79% |
| 37 | Rural West | 100% | 100% | 100% | 100% |
| 38 | Rural East | 99% | 99% | 98% | 100% |
| 40 | White Oak | 89% | 90% | 91% | 88% |
| 41 | Fairland/Colesville | 96% | 96% | 99% | 97% |

BACKGROUND

Proposed re-instatement of mitigation priorities from pre-2012 Guidelines, but with a modification in priorities to:

- **Trip reduction**
- **Ped / bike facilities**
- **Transit facilities**
- **Intersection improvements**
- **Roadway link improvements**

Ped / bike and transit facilities have an equivalency of \$12K per vehicle trip

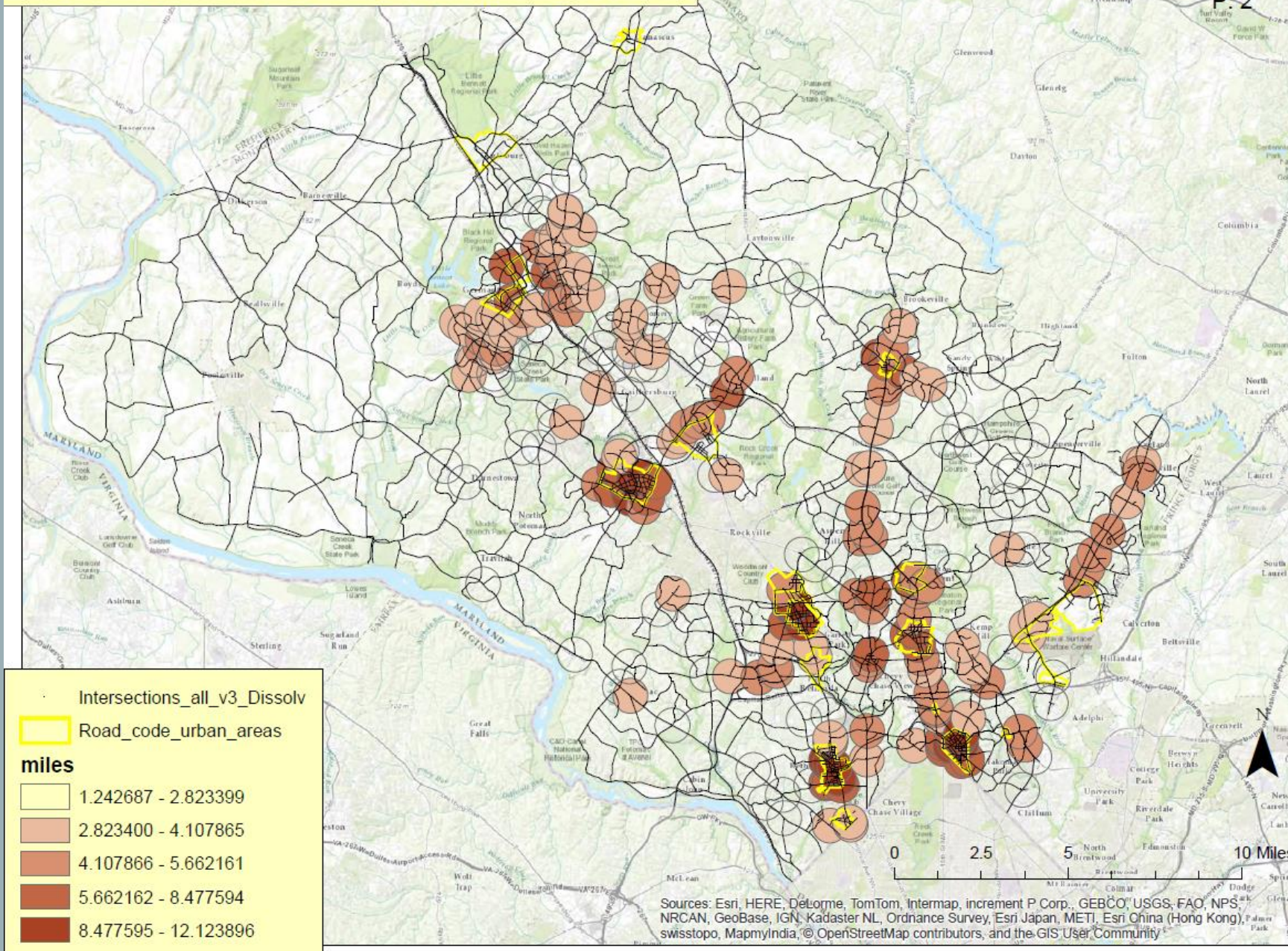
Consideration of priority improvements to be documented in LATR study

Priorities can be reversed if a lower priority type of improvement is implementing a master planned facility.

| Priority | Mitigation Approach | PAMR Mechanism | LATR Mechanism | Single Mitigation Action Addresses | Examples of Mitigation Actions |
|----------|----------------------------------|-------------------------------------|---|--|--|
| 1 | Peak hour vehicle trip reduction | Traffic mitigation agreement (TMAG) | Traffic mitigation agreement (TMAG) | Both PAMR and LATR impacts | Vehicle trip caps, flex-time /telecommute programs, shuttle services |
| 2 | Public transit capacity | Service provision | Not applicable | PAMR impacts only | Purchase of RideOn bus with 12 years of operation |
| 3 | Non-auto facilities | Project implementation | Project implementation | Both PAMR and LATR impacts | Offsite sidewalks |
| 4 | Intersection improvements | Applicable if required by LATR | Project implementation | Both PAMR and LATR impacts | Turn lanes, change of lane use configurations |
| 5 | Roadway link improvements | Project implementation | Project implementation only if site-specific LATR impacts are addressed | PAMR impacts, LATR impacts if applicable | Roadway widening |

- Table from pre-2012 Guidelines as example of concept

Miles of Road within 0.5 Miles of Major Intersections



CRITICAL LANE VOLUME (CLV) METHODOLOGY for Montgomery County

E/W Road: Middlebrook Rd

Date of Count: 9/10/2014

N/S Road: Fetlock Dr/Md 119

Day of Count: Wednesday

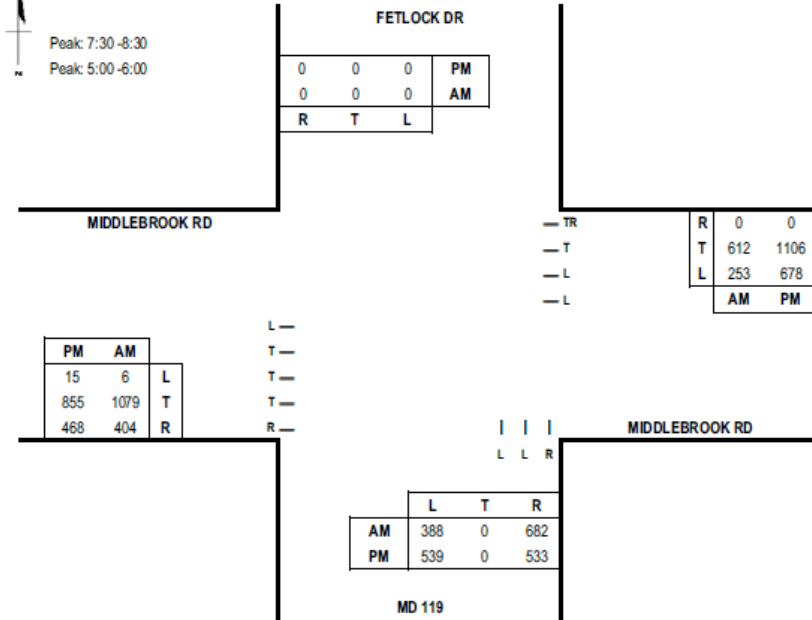
Conditions: Total Traffic

Analyst: Qiang Tian

qt, 070310a_blackhills/ev1dv128.xls-dv, f11/24/14



Peak 7:30-8:30
Peak 5:00-6:00



Capacity Analysis

| Morning Peak Hour | | | | | | |
|-------------------|--------------|-------|---------|------------------|-------|---------|
| Dir | Thru Volumes | | | + Opposing Lefts | | |
| | VOL | x LUF | = Total | VOL | x LUF | = Total |
| NB | 548 | 1.00 | 548 | 0 | 0.00 | 0 |
| SB | 0 | 0.00 | 0 | 388 | 0.53 | 206 |
| EB | 1079 | 0.37 | 399 | 253 | 0.53 | 134 |
| WB | 612 | 0.53 | 324 | 6 | 1.00 | 6 |
| CLV TOTAL= | | | | | | 1,081 |

| Evening Peak Hour | | | | | | |
|-------------------|--------------|-------|---------|------------------|-------|---------|
| Dir | Thru Volumes | | | + Opposing Lefts | | |
| | VOL | x LUF | = Total | VOL | x LUF | = Total |
| NB | 174 | 1.00 | 174 | 0 | 0.00 | 0 |
| SB | 0 | 0.00 | 0 | 539 | 0.53 | 286 |
| EB | 855 | 0.37 | 316 | 678 | 0.53 | 359 |
| WB | 1106 | 0.53 | 586 | 15 | 1.00 | 15 |
| CLV TOTAL= | | | | | | 961 |

Scenario ID - TOT28

Lanes, Volumes, Timings 13: Aircraft Dr & MD 118

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12/1/2014

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|-------|------|------|-------|------|------|-------|-------|------|-------|-------|------|
| Lane Configurations | ↔ | ↔↔ | ↔ | ↔ | ↔↔ | ↔ | ↔ | ↔ | ↔ | ↔ | ↔ | ↔ |
| Volume (vph) | 129 | 1273 | 58 | 113 | 1063 | 334 | 11 | 12 | 10 | 248 | 98 | 58 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | 320 | | 0 | 250 | | 400 | 360 | | 400 | 0 | | 0 |
| Storage Lanes | 1 | | 0 | 1 | | 1 | 1 | | 1 | 1 | | 0 |
| Taper Length (ft) | 100 | | | 100 | | | 100 | | | 100 | | |
| Satd. Flow (prot) | 1770 | 5050 | 0 | 1770 | 5085 | 1583 | 0 | 1820 | 2787 | 1681 | 1675 | 0 |
| Fit Permitted | 0.208 | | | 0.140 | | | | 0.977 | | 0.950 | 0.989 | |
| Satd. Flow (perm) | 387 | 5050 | 0 | 261 | 5085 | 1583 | 0 | 1820 | 2787 | 1681 | 1675 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 7 | | | | 344 | | | 136 | | 16 | |
| Link Speed (mph) | 45 | | | 45 | | | | 35 | | | 35 | |
| Link Distance (ft) | 720 | | | 943 | | | | 956 | | | 1686 | |
| Travel Time (s) | 10.9 | | | 14.3 | | | | 18.6 | | | 32.8 | |
| Peak Hour Factor | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Shared Lane Traffic (%) | | | | | | | | | | 18% | | |
| Lane Group Flow (vph) | 133 | 1372 | 0 | 116 | 1096 | 344 | 0 | 23 | 10 | 210 | 207 | 0 |
| Turn Type | pm+pt | NA | | pm+pt | NA | Perm | Split | NA | Prot | Split | NA | |
| Protected Phases | 5 | 2 | | 1 | 6 | | 4 | 4 | 4 | 8 | | |
| Permitted Phases | 2 | | | 6 | | 6 | | | | | | |
| Total Split (s) | 19.0 | 55.0 | | 19.0 | 55.0 | 55.0 | 11.0 | 11.0 | 11.0 | 35.0 | 35.0 | |
| Total Lost Time (s) | 6.0 | 6.0 | | 6.0 | 6.0 | 6.0 | | 6.0 | 6.0 | 6.0 | 6.0 | |
| Act Effct Green (s) | 75.3 | 66.2 | | 74.8 | 66.0 | 66.0 | | 5.0 | 5.0 | 20.4 | 20.4 | |
| Actuated g/C Ratio | 0.63 | 0.55 | | 0.62 | 0.55 | 0.55 | | 0.04 | 0.04 | 0.17 | 0.17 | |
| v/c Ratio | 0.38 | 0.49 | | 0.42 | 0.39 | 0.34 | | 0.31 | 0.04 | 0.74 | 0.70 | |
| Control Delay | 12.4 | 6.7 | | 14.9 | 10.9 | 1.3 | | 66.6 | 0.3 | 62.1 | 55.0 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 12.4 | 6.7 | | 14.9 | 10.9 | 1.3 | | 66.6 | 0.3 | 62.1 | 55.0 | |
| LOS | B | A | | B | B | A | | E | A | E | E | |
| Approach Delay | | 7.2 | | | 9.1 | | | 46.5 | | 58.6 | | |
| Approach LOS | | A | | | A | | | D | | E | | |

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 41 (34%), Referenced to phase 2EBTL, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.74

Intersection Signal Delay: 14.5

Intersection LOS: B

Intersection Capacity Utilization 65.0%

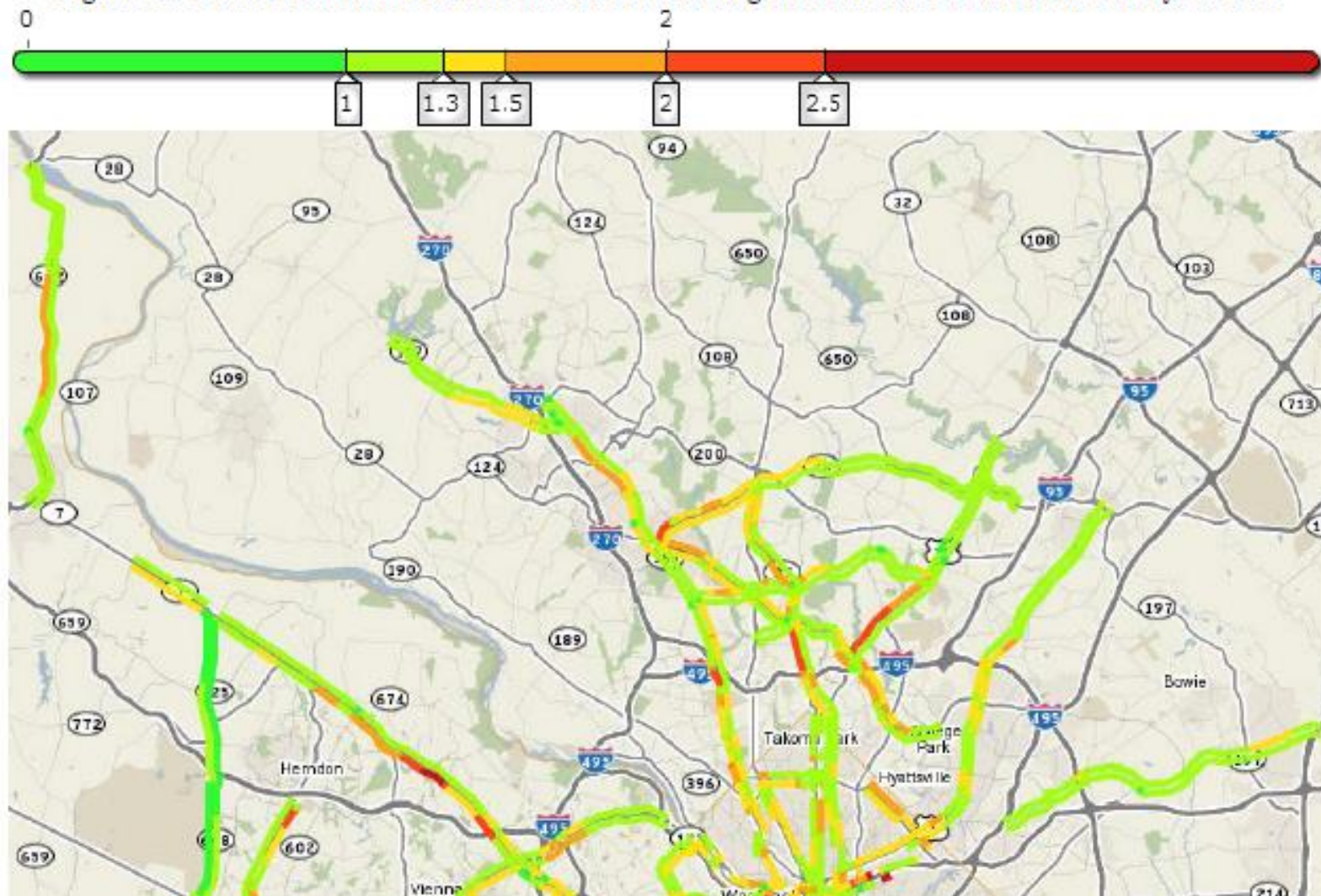
ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 13: Aircraft Dr & MD 118

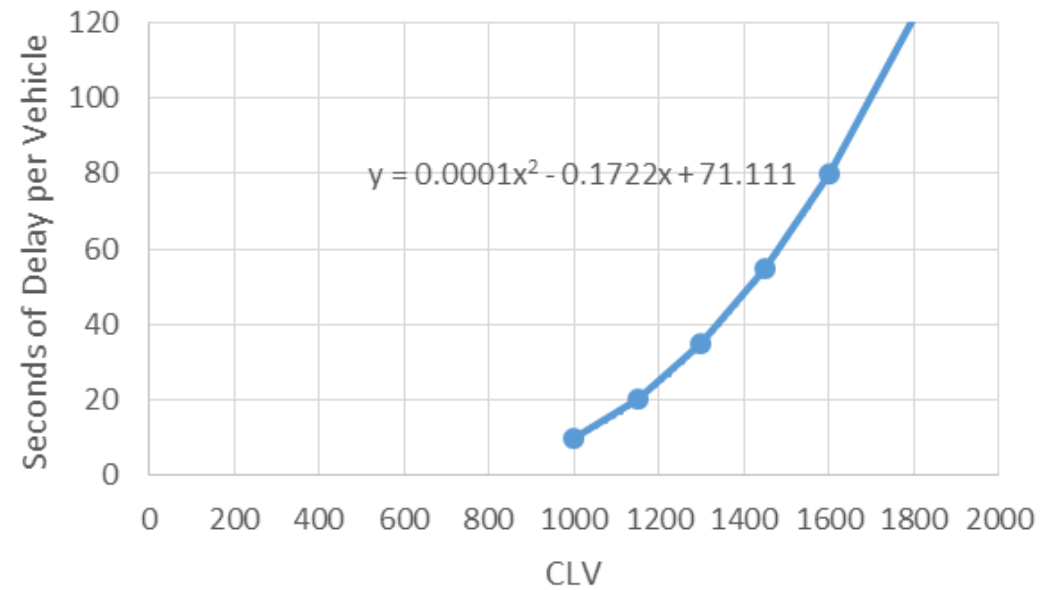


Figure 30: Travel Time Index on Selected Arterials during 8:00-9:00 am on Middle Weekdays in 2013



RESOURCE SLIDE

Comparison of CLV and HCM Delay Thresholds



RESOURCE SLIDE

Red (MSPAs):

Bethesda CBD
Friendship Heights
Glenmont
Grosvenor
Shady Grove
Rockville Town Center
Silver Spring CBD
Twinbrook
Wheaton CBD
White Flint

Orange:

Bethesda/Chevy Chase
Derwood
Germantown Town Center
Kensington/Wheaton
North Bethesda
R&D Village
Rockville City
Silver Spring/Takoma Park
White Oak
Clarksburg Town Center
Chevy Chase Lake
Long Branch
Takoma/Langley

Yellow:

Aspen Hill
Clarksburg
Cloverly
Fairland/Colesville
Gaithersburg City
Germantown East
Germantown West
Montgomery Village/Airpark
North Potomac
Olney
Potomac

Green:

Damascus
Rural West
Rural East

RESOURCE SLIDE

| policy area | critical lane volume standard |
|---|-------------------------------|
| 26 Rural East 27 Rural West | 1,350 |
| 7 Damascus | 1,400 |
| 5 Clarksburg 11 Gaithersburg City 12 Germantown East 14 Germantown West 18 Montgomery Village/Airpark | 1,425 |
| 6 Cloverly 20 North Potomac 21 Olney 22 Potomac 23 R&D Village | 1,450 |
| 2 Aspen Hill 8 Derwood 9 Fairland/White Oak | 1,475 |

| policy area | critical lane volume standard |
|--|-------------------------------|
| 24 Rockville City | 1,500 |
| 19 North Bethesda | 1,550 |
| 4 Bethesda-Chevy Chase 17 Kensington-Wheaton 13 Germantown Town Center 30 Silver Spring-Takoma Park | 1,600 |
| 3 Bethesda CBD 10 Friendship Heights CBD 29 Silver Spring CBD 32 Wheaton CBD 15 Glenmont MSPA 16 Grosvenor MSPA 25 Rockville Town Center MSPA 28 Shady Grove MSPA 31 Twinbrook MSPA 33 White Flint MSPA | 1,800 |

BACKGROUND

Multimodal Trip Generation Rates

Proposed significant threshold (to be defined by Board) is 50 person trips

(Would be 75 person trips in MSPAs if LATR studies were to apply in MPSAs)

Can be further reduced by proximity to transit (<1,000') and parking reduction (2:1 ratio of parking below baseline to vehicle trips for residential, 3:1 ratio for office, none for retail/other).

First 15,000 GSF of ground floor retail provided without off-street parking in a mixed-use development exempted from trip generation by any mode for purposes of assessing impacts.

| | | ITE Vehicle Trip Reduction Factors | | | Other |
|----|----------------------------|------------------------------------|--------|--------|-------|
| | | Residential | Office | Retail | |
| 1 | Aspen Hill | 97% | 98% | 99% | 97% |
| 2 | Bethesda CBD | 79% | 63% | 61% | 62% |
| 3 | Bethesda/Chevy Chase | 87% | 81% | 85% | 79% |
| 4 | Cloverly | 99% | 100% | 100% | 100% |
| 5 | Damascus | 100% | 100% | 100% | 100% |
| 6 | Derwood | 94% | 94% | 87% | 94% |
| 8 | Gaithersburg City | 88% | 86% | 74% | 85% |
| 9 | Germantown East | 95% | 90% | 95% | 91% |
| 10 | Germantown West | 93% | 87% | 92% | 88% |
| 11 | Germantown Town Center | 85% | 89% | 77% | 88% |
| 12 | Kensington/Wheaton | 91% | 92% | 96% | 92% |
| 13 | Montgomery Village/Airpark | 93% | 100% | 93% | 100% |
| 14 | North Bethesda | 83% | 87% | 71% | 82% |
| 15 | North Potomac | 97% | 100% | 100% | 100% |
| 16 | Olney | 99% | 100% | 99% | 100% |
| 17 | Potomac | 97% | 98% | 96% | 98% |
| 18 | R&D Village | 89% | 88% | 80% | 90% |
| 19 | Rockville City | 88% | 94% | 87% | 98% |
| 20 | Silver Spring CBD | 77% | 65% | 58% | 65% |
| 21 | Silver Spring/Takoma Park | 83% | 83% | 82% | 84% |
| 22 | Wheaton CBD | 85% | 85% | 76% | 84% |
| 24 | Grosvenor | 81% | 84% | 75% | 80% |
| 25 | Twinbrook | 81% | 80% | 74% | 79% |
| 26 | White Flint | 79% | 78% | 72% | 78% |
| 32 | Glenmont | 90% | 91% | 96% | 91% |
| 33 | Clarksburg | 100% | 100% | 100% | 100% |
| 34 | Shady Grove Metro Station | 89% | 88% | 77% | 88% |
| 35 | Friendship Heights | 78% | 70% | 73% | 70% |
| 36 | Rockville Town Center | 79% | 80% | 70% | 79% |
| 37 | Rural West | 100% | 100% | 100% | 100% |
| 38 | Rural East | 99% | 99% | 98% | 100% |
| 40 | White Oak | 89% | 90% | 91% | 88% |
| 41 | Fairland/Colesville | 96% | 96% | 99% | 97% |

BACKGROUND

Proposed re-instatement of mitigation priorities from pre-2012 Guidelines, but with a modification in priorities to:

- **Trip reduction**
- **Ped / bike facilities**
- **Transit facilities**
- **Intersection improvements**
- **Roadway link improvements**

Ped / bike and transit facilities have an equivalency of \$12K per vehicle trip

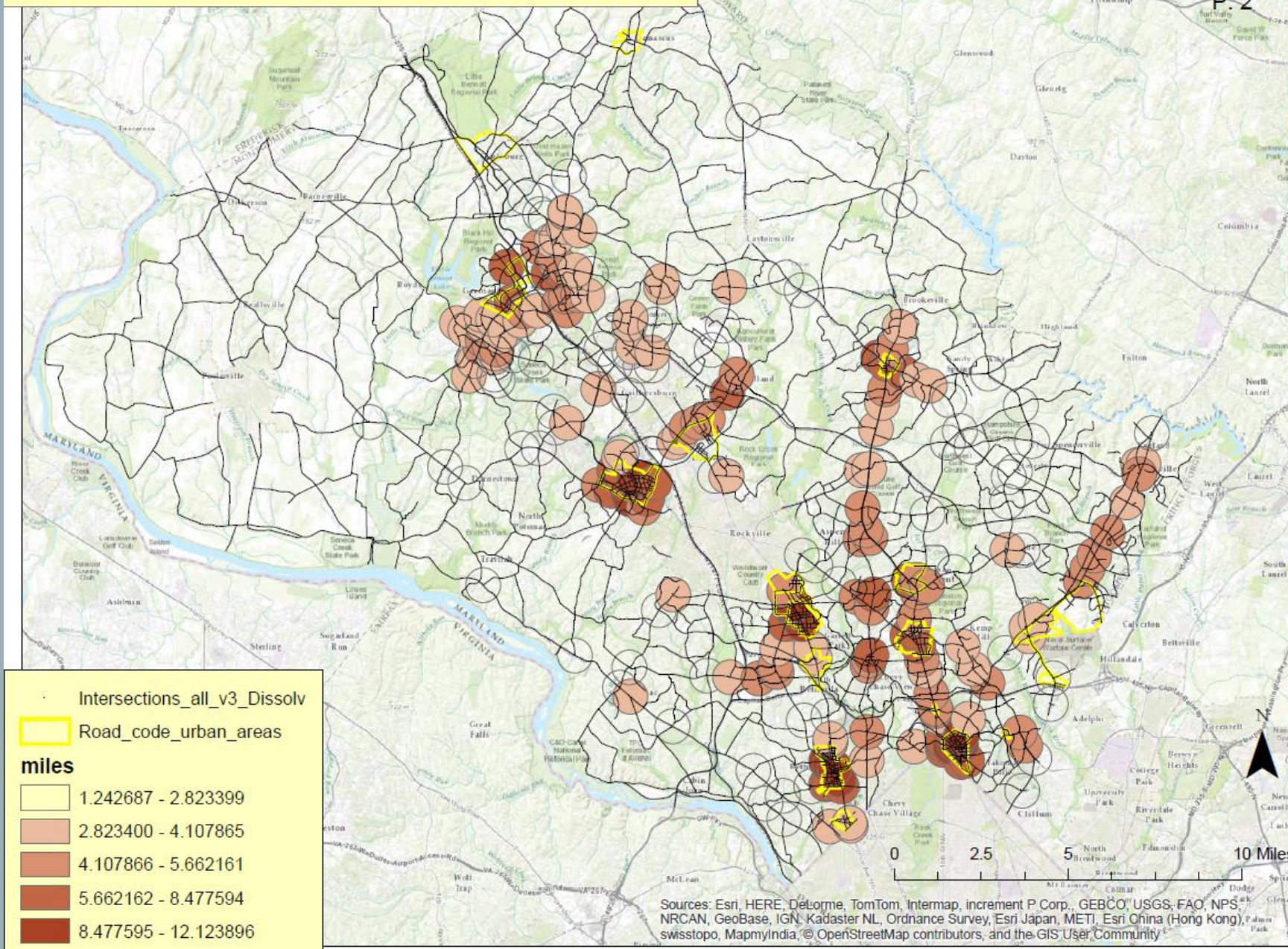
Consideration of priority improvements to be documented in LATR study

Priorities can be reversed if a lower priority type of improvement is implementing a master planned facility.

| Priority | Mitigation Approach | PAMR Mechanism | LATR Mechanism | Single Mitigation Action Addresses | Examples of Mitigation Actions |
|----------|----------------------------------|-------------------------------------|---|--|--|
| 1 | Peak hour vehicle trip reduction | Traffic mitigation agreement (TMAG) | Traffic mitigation agreement (TMAG) | Both PAMR and LATR impacts | Vehicle trip caps, flex-time /telecommute programs, shuttle services |
| 2 | Public transit capacity | Service provision | Not applicable | PAMR impacts only | Purchase of RideOn bus with 12 years of operation |
| 3 | Non-auto facilities | Project implementation | Project implementation | Both PAMR and LATR impacts | Offsite sidewalks |
| 4 | Intersection improvements | Applicable if required by LATR | Project implementation | Both PAMR and LATR impacts | Turn lanes, change of lane use configurations |
| 5 | Roadway link improvements | Project implementation | Project implementation only if site-specific LATR impacts are addressed | PAMR impacts, LATR impacts if applicable | Roadway widening |

- Table from pre-2012 Guidelines as example of concept

Miles of Road within 0.5 Miles of Major Intersections



CRITICAL LANE VOLUME (CLV) METHODOLOGY for Montgomery County

E/W Road: Middlebrook Rd

Date of Count: 9/10/2014

N/S Road: Fetlock Dr/Md 119

Day of Count: Wednesday

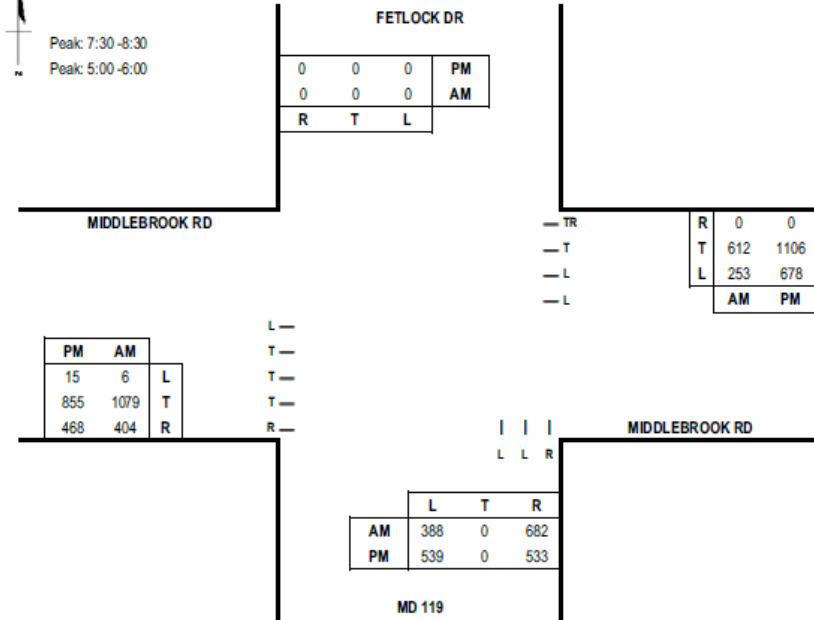
Conditions: Total Traffic

Analyst: Qiang Tian

qt, 070310a_blackhills/ev1dv128.xls-dv, f11/24/14



Peak 7:30-8:30
Peak 5:00-6:00



Capacity Analysis

| Morning Peak Hour | | | | | | |
|-------------------|--------------|-------|---------|------------------|-------|---------|
| Dir | Thru Volumes | | | + Opposing Lefts | | |
| | VOL | x LUF | = Total | VOL | x LUF | = Total |
| NB | 548 | 1.00 | 548 | 0 | 0.00 | 0 |
| SB | 0 | 0.00 | 0 | 388 | 0.53 | 206 |
| EB | 1079 | 0.37 | 399 | 253 | 0.53 | 134 |
| WB | 612 | 0.53 | 324 | 6 | 1.00 | 6 |
| CLV TOTAL= | | | | | | 1,081 |

| Evening Peak Hour | | | | | | |
|-------------------|--------------|-------|---------|------------------|-------|---------|
| Dir | Thru Volumes | | | + Opposing Lefts | | |
| | VOL | x LUF | = Total | VOL | x LUF | = Total |
| NB | 174 | 1.00 | 174 | 0 | 0.00 | 0 |
| SB | 0 | 0.00 | 0 | 539 | 0.53 | 286 |
| EB | 855 | 0.37 | 316 | 678 | 0.53 | 359 |
| WB | 1106 | 0.53 | 586 | 15 | 1.00 | 15 |
| CLV TOTAL= | | | | | | 961 |

Scenario ID - TOT28

Lanes, Volumes, Timings 13: Aircraft Dr & MD 118

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12/1/2014

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|-------|------|-------|------|------|-------|------|-------|-------|-------|-------|------|
| Lane Configurations | ↔ | ↔ | ↔ | ↔ | ↔ | ↔ | ↔ | ↔ | ↔ | ↔ | ↔ | ↔ |
| Volume (vph) | 129 | 1273 | 58 | 113 | 1063 | 334 | 11 | 12 | 10 | 248 | 98 | 58 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | 320 | 0 | 250 | 400 | 360 | 400 | 360 | 400 | 360 | 400 | 360 | 400 |
| Storage Lanes | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Taper Length (ft) | 100 | 0 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| Satd. Flow (prot) | 1770 | 5050 | 0 | 1770 | 5085 | 1583 | 0 | 1820 | 2787 | 1681 | 1675 | 0 |
| Fit Permitted | 0.208 | 0 | 0.140 | 0 | 0 | 0.977 | 0 | 0.977 | 0 | 0.950 | 0.989 | 0 |
| Satd. Flow (perm) | 387 | 5050 | 0 | 261 | 5085 | 1583 | 0 | 1820 | 2787 | 1681 | 1675 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 7 | | | 344 | | | 136 | | | 16 | |
| Link Speed (mph) | 45 | | 45 | | 45 | | 35 | | 35 | | 35 | |
| Link Distance (ft) | 720 | | 943 | | 956 | | 1686 | | 1686 | | 1686 | |
| Travel Time (s) | 10.9 | | 14.3 | | 18.6 | | 32.8 | | 32.8 | | 32.8 | |
| Peak Hour Factor | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Shared Lane Traffic (%) | | | | | | | 18% | | 18% | | 18% | |
| Lane Group Flow (vph) | 133 | 1372 | 0 | 116 | 1096 | 344 | 0 | 23 | 10 | 210 | 207 | 0 |
| Turn Type | pm+pt | NA | pm+pt | NA | Perm | Split | NA | Prot | Split | NA | NA | NA |
| Protected Phases | 5 | 2 | 1 | 6 | 1 | 4 | 4 | 4 | 4 | 8 | 8 | 8 |
| Permitted Phases | 2 | | 6 | | 6 | | | | | | | |
| Total Split (s) | 19.0 | 55.0 | 19.0 | 55.0 | 55.0 | 11.0 | 11.0 | 11.0 | 35.0 | 35.0 | 35.0 | 35.0 |
| Total Lost Time (s) | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 |
| Act Effct Green (s) | 75.3 | 66.2 | 74.8 | 66.0 | 66.0 | 5.0 | 5.0 | 20.4 | 20.4 | 20.4 | 20.4 | 20.4 |
| Actuated g/C Ratio | 0.63 | 0.55 | 0.62 | 0.55 | 0.55 | 0.04 | 0.04 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 |
| v/c Ratio | 0.38 | 0.49 | 0.42 | 0.39 | 0.34 | 0.31 | 0.04 | 0.74 | 0.70 | 0.70 | 0.70 | 0.70 |
| Control Delay | 12.4 | 6.7 | 14.9 | 10.9 | 1.3 | 66.6 | 0.3 | 62.1 | 55.0 | 55.0 | 55.0 | 55.0 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 12.4 | 6.7 | 14.9 | 10.9 | 1.3 | 66.6 | 0.3 | 62.1 | 55.0 | 55.0 | 55.0 | 55.0 |
| LOS | B | A | B | B | A | E | A | E | E | E | E | E |
| Approach Delay | 7.2 | | 9.1 | | | 46.5 | | 58.6 | | | | |
| Approach LOS | A | | A | | | D | | E | | | | |

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 41 (34%), Referenced to phase 2EBTL, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.74

Intersection Signal Delay: 14.5

Intersection LOS: B

Intersection Capacity Utilization 65.0%

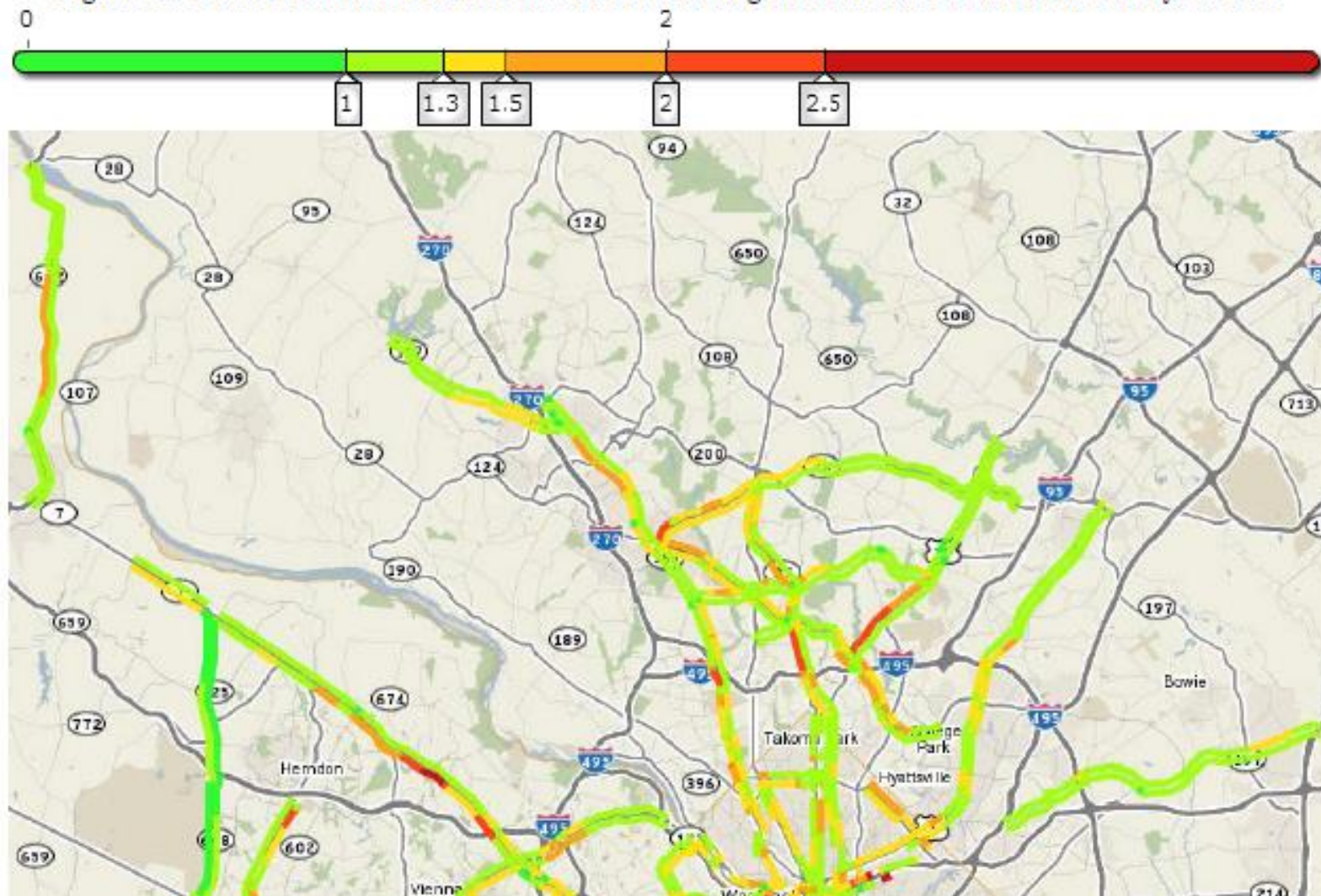
ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 13: Aircraft Dr & MD 118



Figure 30: Travel Time Index on Selected Arterials during 8:00-9:00 am on Middle Weekdays in 2013



EXTRA SLIDES