



Subdivision Staging Policy: 2012 Draft Transportation Policy Report Worksession #3

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Completed: 05/10/12

Description

The County Council has asked the Planning Board to develop a new area wide transportation test as part of the 2012 Subdivision Staging Policy. The test currently in force, the Policy Area Mobility Review or PAMR, has been used since 2007 to show where transit and arterial roadway mobility is inadequate and require mitigation in the form of facilities or fees in order to obtain development approval in these areas. The Transportation Policy Area Review (TPAR) is proposed to replace PAMR as the area wide test.

The Initial Draft of the 2012 Transportation Policy Area Review (TPAR 12) Report was provided to the Montgomery County Planning Board on March 29, 2012 and was also posted on the Board's agenda website so as to be available to interested parties. A presentation and briefing on the Initial Draft was given to the Board on April 5, 2012. Based on comments by the Board some revisions were made to the report and a Revised Draft dated April 6, 2012 was substituted on the website. A Stakeholder Forum was held on April 9, 2012 and was attended by some half dozen interested parties and staff. An internal coordination meeting on the particulars of the report was held with staff of MCDOT on April 11, 2012. The Board's Public Hearing was held on April 19, 2012 and subsequently followed by an agenda item on the process for the 2012 Subdivision Staging Policy of which the TPAR 12 Report will be an element. Two letters were received and one person testified at the Public Hearing. The Board and the public raised several issues, some of which were addressed at a Planning Board Worksession #1 on May 3, 2012. A Planning Board Worksession #2, originally scheduled on May 10, 2012 was postponed and will be rescheduled at later date. **During the Worksession #1 discussion, the Planning Board requested additional information regarding selected items. These items will be addressed at Worksession #3 scheduled on May 17, 2012.**

Summary

This memorandum responds to the Planning Board's request for additional information in support of several key issues discussed at Worksession #1 on May 3, 2012. These issues are briefly described below ...

- **Transit categories, standards and adequacy** – The Board requested new information on possible changes to these elements as described in Exhibit 3.6 in the TPAR 12 report.
- **Refinement of Policy Area Categories** – The Board requested additional information showing how policy area categories could better reflect future conditions for transit and land use development, such as that anticipated by the General Plan.
- **Free Flow Speeds** – The Board requested additional information regarding whether the “free flow” auto speeds derived from the application of the transportation model are “realistic” (i.e., do the “free flow” speeds compare favorably to “posted speed limit” speeds.

These items will be more fully discussed using a PowerPoint presentation (attached) that will be presented to the Board at the May 17, 2012 Worksession.

At the Board's discretion, the topic of **cost allocation for needed improvements** will also be discussed by staff using a hypothetical example(s) demonstrating how the TPAR fees could be calculated for a selected policy area.

A full discussion of the cost allocation and staff recommendations on TPAR fees will be presented at a later worksession.

Attachment

1. TPAR 12 PowerPoint Presentation - Responses to Key Issues

EG/MD/kr

Additional Responses to Key Issues of MCPB WS of 5-3-12 on 2012 TPAR Report – for Review at Worksession #2 on 5-17-12

Support to MNCPPC for Refinements of the
Local Area Transportation Review (LATR) Process and the draft
Transportation Policy Area Review (TPAR) Process

Prepared by

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May 10, 2012

Focused Review on the Following Key Issues:

- Section III Roadway Issues:
 - Policy Area Adequacy versus Each road being Adequate?
 - More information on “Free-flow Speed” including checks against observed and monitored speed data
- Additional Material Requested (to go into the Appendix):
 - Include a sample calculation for average LOS
 - Also show weighting by Vehicle-Miles-of-Travel
- Section III Transit Issues:
 - On 5-3-12 reviewed Transit categories, standards, and adequacy
 - Wanted new information on possible changes
 - This packet has responses to the request for change

Issue: Application of TPAR to Policy Areas? (1 of 4)

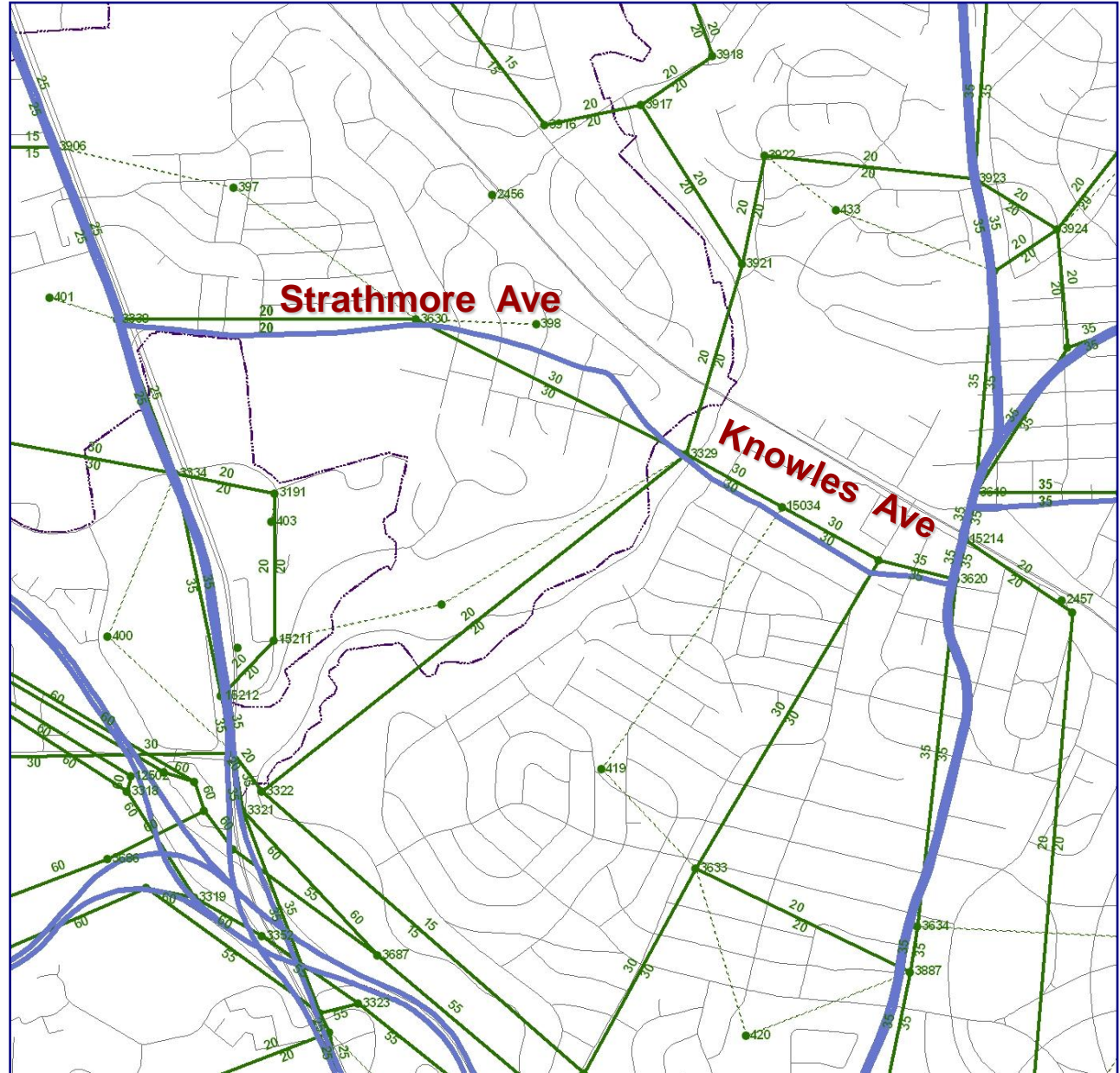
- Policy Area Adequacy vs. Each road being Adequate?
 - Issue raised with example of MD 547 (Strathmore in North Bethesda; Knowles Ave in Kensington Wheaton)
 - Section VI shows both as more congested than the standard of Average Level of Service
 - Issue: does each identified arterial roadway segments in a Policy Area need to be “adequate”?
 - Consistency with the Transit Analysis: does each identified bus route need to be adequate?
 - Answer for transit: is no, it is the collection of all routes that on average that need to be adequate

Issue: Application of TPAR to Policy Areas? (2 of 4)

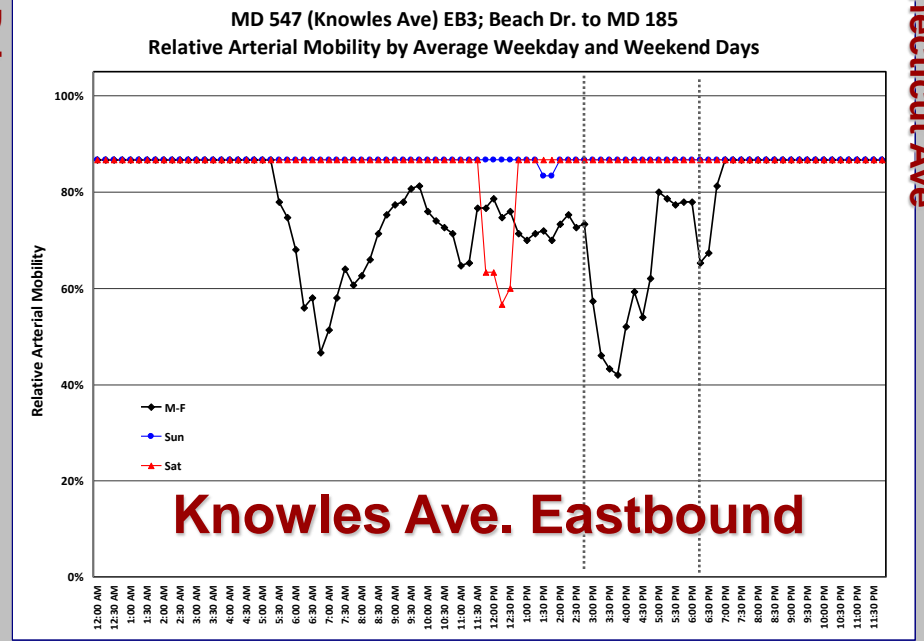
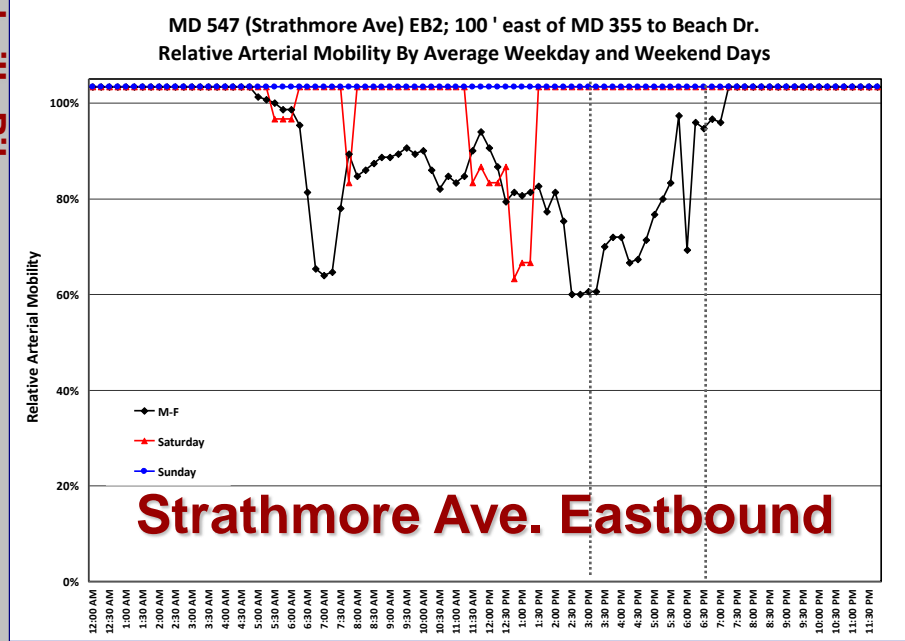
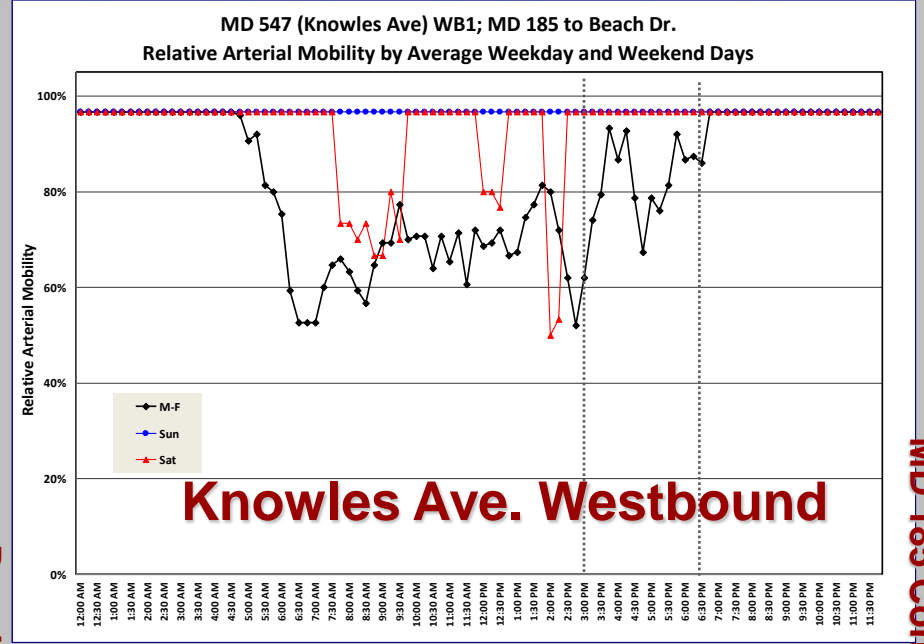
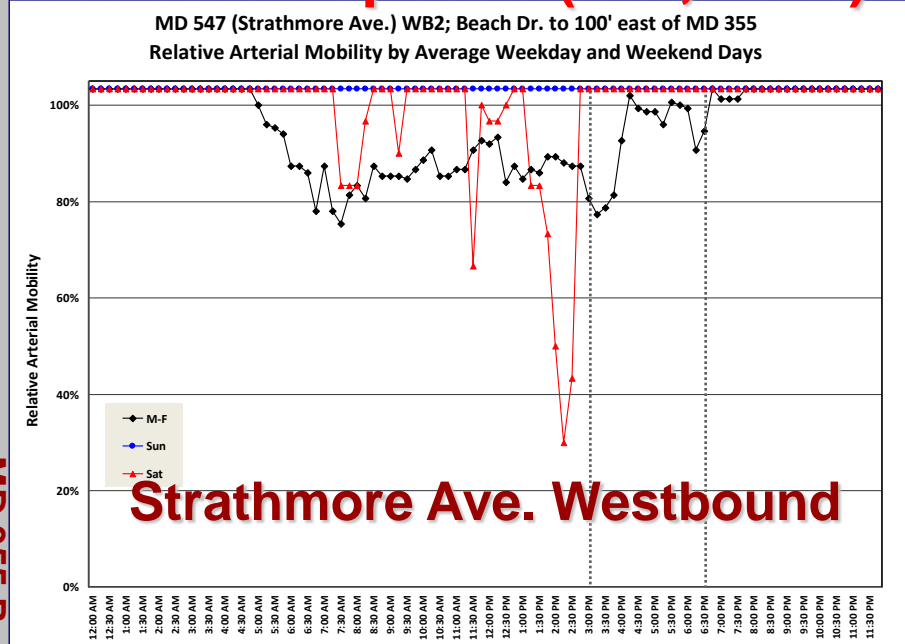
- Response for Road System Adequacy:
 - TPAR uses the variation from the Average Level of Service standard as an “indicator” of the need for improvement to the Policy Area network
 - Objective for TPAR: raise the “overall average” to an adequate level
 - Purpose of TPAR: is not to have any one roadway be less congested on average than the standard of Average Level of Service for the Policy Area
 - TPAR analysis is not a substitute for:
 - Project Planning by MCDOT or MDOT/SHA or
 - Master Plan updates to consider changes to facilities
- New data of Monitored speeds do indicate congestion issues (see next two slides)

Issue: Application of TPAR to Policy Areas? (3 of 4)

MD 547 Strathmore and Knowles Avenues



Monitored Speeds (Oct, 2010): MD 547 Strathmore/Knowles Ave



MD 355 Rockville Pike

Beach Drive

MD 185 Connecticut Ave

Issue: More Information on Free-Flow Speed (1 of 7)

- **Board requested more information on “free-flow speed” used in the Roadway Adequacy Analysis:**
 - **How is it defined?**
 - **How is it determined or calculated?**
 - **How stable and “realistic” are the defined values expected to be?**
 - **Are there options for using a different metric or getting the values in a different manner?**

Issue: More Information on Free-Flow Speed (2 of 7)

Basic Answer: calculated for each link

- Feature of MWCOCG Model used by Planning Staff:
 - Has been used in the modeling for many years
 - A modeling analysis “starts” with a calculated free-flow speed for each link in the roadway network
- Modeling calculates changes in link speed by direction:
 - Iteratively loads increments of the generated traffic
 - As traffic volumes begin to “increase”,
 - Next iteration calculates a decrease in “link speeds”
 - After all of the generated traffic is “assigned”, model system reports final link speeds
- Final “link speeds”: used in the TPAR analysis to indicate the link Level of Service by direction

Issue: More Information on Free-Flow Speed (3 of 7)

- How is “Free-Flow Speed” defined?
- New (2010) version of the Highway Capacity Manual:
 - “**Free-flow speed** represents the average running speed of through automobiles traveling along a segment under low-volume conditions and not delayed by traffic control devices or other vehicles. ..(affected by) ... speed limit, access point density, median type, curb presence, and segment length.” (Chapter 17, page 32)
- Modeling procedures relied on a similar prior definition

Free-Flow Speed: How is it Determined? (4 of 7)

- Model system determines a free flow speed each time using a “look-up” table of Facility Type by Area Type
- There are 7 Facility Types and 7 Area Types:
 - Facility types include: Freeway, expressway, major arterial, minor arterial, collector road, ramp, and traffic analysis zone connectors
 - Area Types: vary by population density and employment density within a one-mile radius of the ends of the link
- The “look-up” tables that show these variations are available
- For each link, modeling has: (a) the facility type and (b) the area type and the look-up table is used to get the value for Free-Flow speed (given to the nearest 5 mph)

Free-Flow Speed: How Stable are Values? (5 of 7)

- In shorter-term modeling: the values of free-flow speed tend to be stable for most roadways
 - Near-by densities not sufficiently changed
 - Facility type only changes if a significant improvement is being modeled
- In longer term modeling (i.e. 2040): values of the free-flow speed tend to be less stable
 - Can vary if the forecast densities “cross over” into an adjacent cell in the look-up table even if the facility type is not changed
 - More likelihood of a planned or programmed change in facility type (i.e., a minor arterial being widened and becoming a major arterial)

Free-Flow Speed: How Stable are Values? (6 of 7)

- Newer technologies and data sources can be used in the future to monitor the stability of free-flow speeds
- Structured samples of speed on roadways:
 - GPS-based probe structured samples have been used in prior Highway Mobility Reports
 - Some of the samples indicate Free-Flow Speed when discount delay due to traffic signals
- Monitored Estimates of Free-Flow Speed:
 - Vehicle Probe Project uses a “reference speed”
 - Similar to Free-Flow speed but has signal delay
- Highway Capacity Manual Methods: are designed for operations application; too complex for planning use
- Posted Speed Limits: could be used in the TPAR application

Free-Flow Speed: Are there other Options? (7 of 7)

- GPS-based probe samples: while they can be used to measure a specific roadway, challenges is having enough samples for all roadways
- Monitored Vehicle Probe Project:
 - Use of “reference speed” appears reasonable, is widespread, and will change over the long term
 - Coverage is not complete; link definitions not match
- “Posted Speed Limits”:
 - They are available for all links
 - Issue of consistency with remainder of the region
- Implementing a changed procedure:
 - Change would need to be done as part of the “new” model being implemented over the next few years

Focused Review on the Following Key Issues:

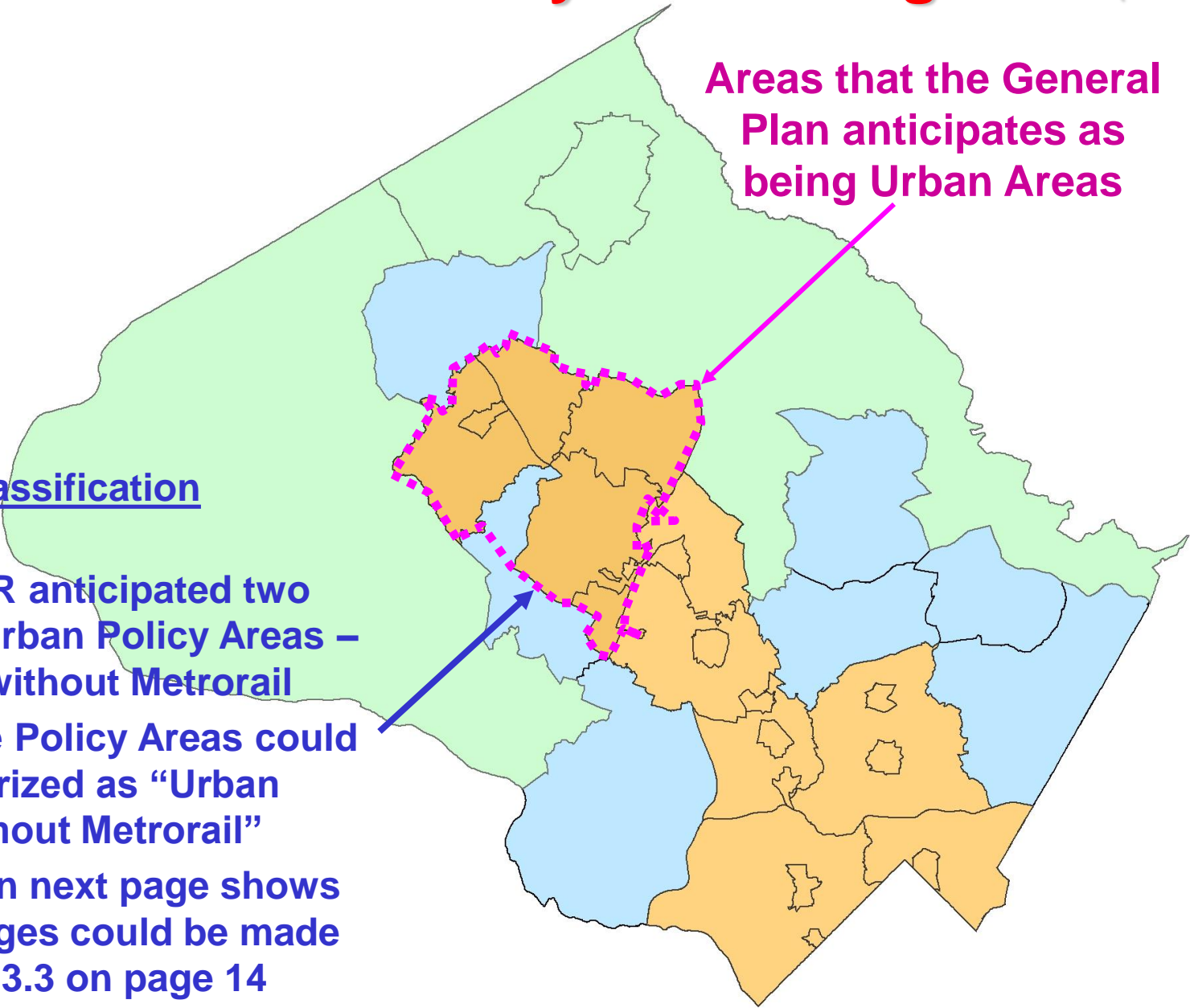
- **Section III Additional Transit Issues:**
 - On 5-3-12 reviewed Transit categories, standards, and adequacy
 - Board wanted new information on possible changes
 - This is the response to the request for changes
- **Question: Can Jobs-to-Housing Ratios help categorize Policy Areas?**
- **Potential impacts/effects/costs of changing the Draft Transit Categories and standards**
- **Identification of Additional Issues for the Next TPAR:**
 - Time period for the next TPAR Review
 - Potential carry-over issues; new concerns – listed later in this handout and as identified during these Worksessions

Issue: Refinement of Policy Area Categories (1 of 6)

- **Issue**: Should the Policy Area Categories better reflect future conditions for transit and development, such as that anticipated by the General Plan?
 - Classification of Policy Areas: by transit categories based on the **quantity** of available transit service, and densities
 - Adequacy Standards by Category: deals more with the **quality** of the transit service and how to measure that
- **Concern**: using type of transit in setting Policy Area categories may be a circular in definition
- Would more information on future densities and/or Jobs-to-Housing ratios work around the concern?
- Should the transit and/or roadway adequacy standards be refined to reflect such possible category changes?

Issue: Refinement of Policy Area Categories (2 of 6)

- Potential Classification Refinement:
 - Draft TPAR anticipated two kinds of Urban Policy Areas – with and without Metrorail
 - These five Policy Areas could be categorized as “Urban Areas without Metrorail”
 - Graphic on next page shows how changes could be made to Exhibit 3.3 on page 14



Areas that the General Plan anticipates as being Urban Areas

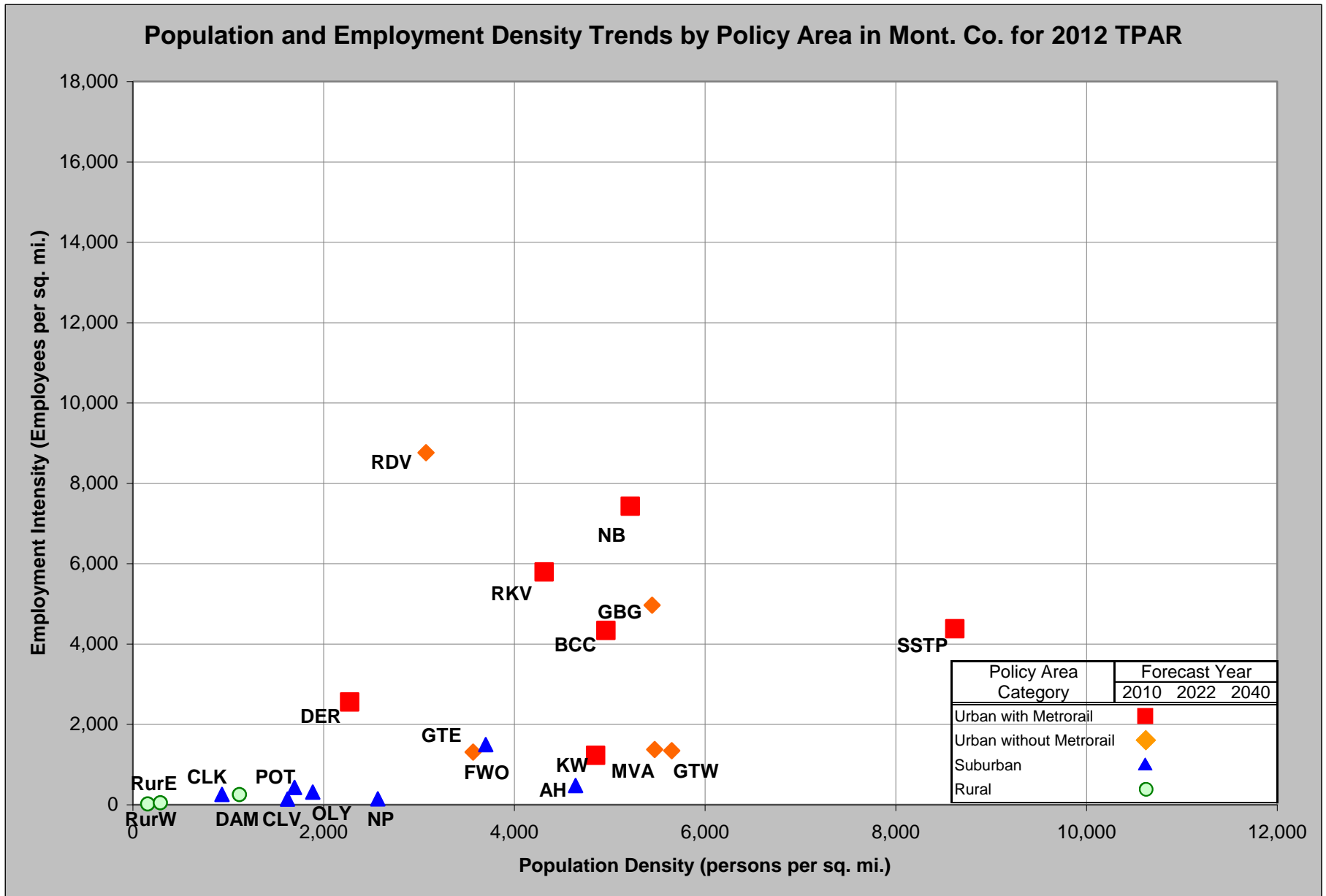
Issue: Refinement of Policy Area Categories (3 of 6)

Policy Areas Categorized by Type of Transit and Population and Employment Density for TPAR 2012 (*potential change 5-10-12*)

	Number of Bus Routes			Metro Rail?	MARC Com-muter Rail?	Future Light Rail and/or BRT?	Area of the Policy Area (sq. mi.)	Pop. Density in 2010 (person per sq. mi.)	Emp. Density in 2010 (emp. per sq. mi.)
	Total of all Routes	Peak Period Only	All-Day Routes						
"Urban" Policy Areas served by Metrorail									
Silver Spring/Takoma Park	35	14	21	Y	Y	Y	10.49	8,622	4,376
North Bethesda	15	4	11	Y	Y	Y	9.25	5,216	7,430
Kensington/Wheaton	29	12	17	Y	Y		19.26	4,853	1,230
Bethesda/Chevy Chase	17	6	11	Y		Y	20.24	4,962	4,339
Rockville City	16	2	14	Y	Y	Y	13.64	4,314	5,794
Derwood	7	2	5	Y	Y		8.22	2,274	2,556
"Urban" Policy Areas not served by Metrorail									
R&D Village	5	2	3			Y	2.38	3,076	8,764
Gaithersburg City	10	1	9		Y	Y	11.03	5,446	4,967
Montgomery Village/Airpark	9	3	6				9.41	5,472	1,372
Germantown West	9	2	7		Y	Y	10.98	5,652	1,347
Germantown East	5	2	3			Y	6.57	3,568	1,310
"Suburban" Policy Areas									
Fairland/White Oak	14	7	7				20.66	3,700	1,495
Aspen Hill	11	3	8				13.05	4,644	478
Cloverly	2	2	0				9.83	1,621	137
North Potomac	7	3	4				10.49	2,570	143
Olney	5	4	1				17.36	1,887	317
Potomac	10	2	8			Y	28.07	1,696	431
Clarksburg	2	1	1			Y	14.91	934	255
"Rural" Policy Areas									
Rural West	1	1	0		Y		132.90	157	20
Damascus	1	0	1				9.42	1,119	248
Rural East	1	0	1				117.18	289	48

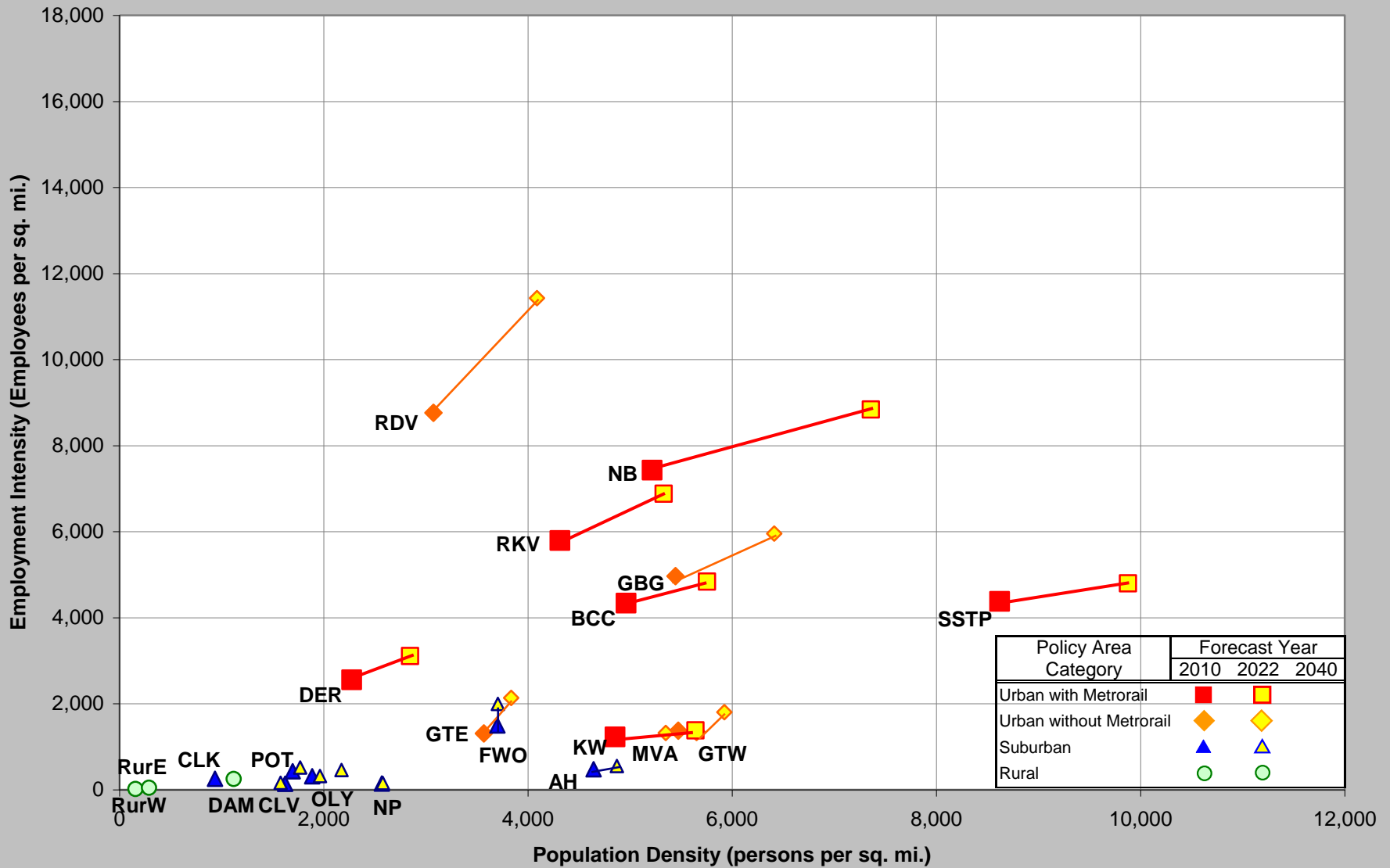
See the next page for a graph of Employment Density vs. Population Density

Policy Areas by Population & Employment Densities (4 of 6)



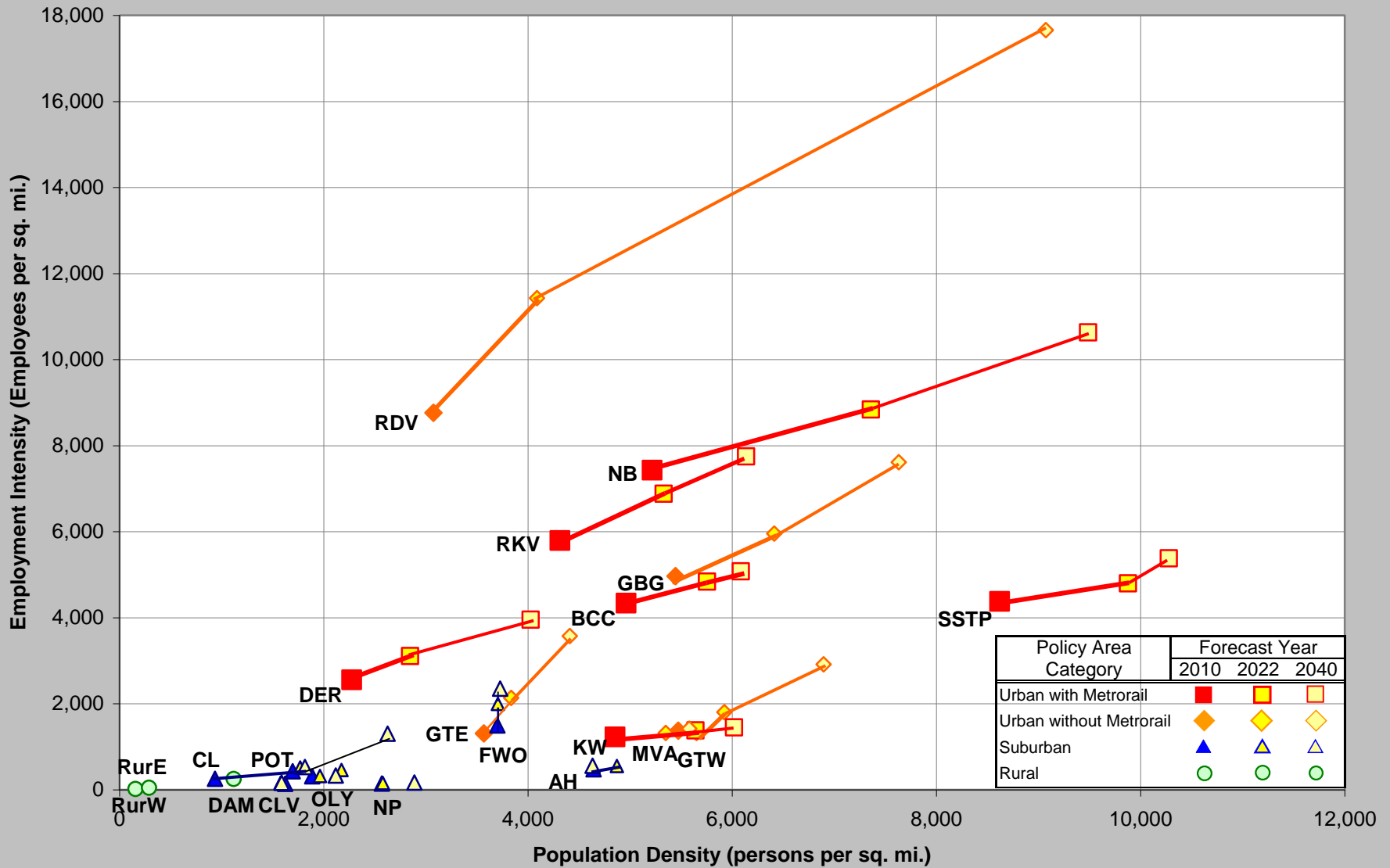
Policy Areas by Population & Employment Densities (5 of 6)

Population and Employment Density Trends by Policy Area in Mont. Co. for 2012 TPAR



Policy Areas by Population & Employment Densities (6 of 6)

Population and Employment Density Trends by Policy Area in Mont. Co. for 2012 TPAR

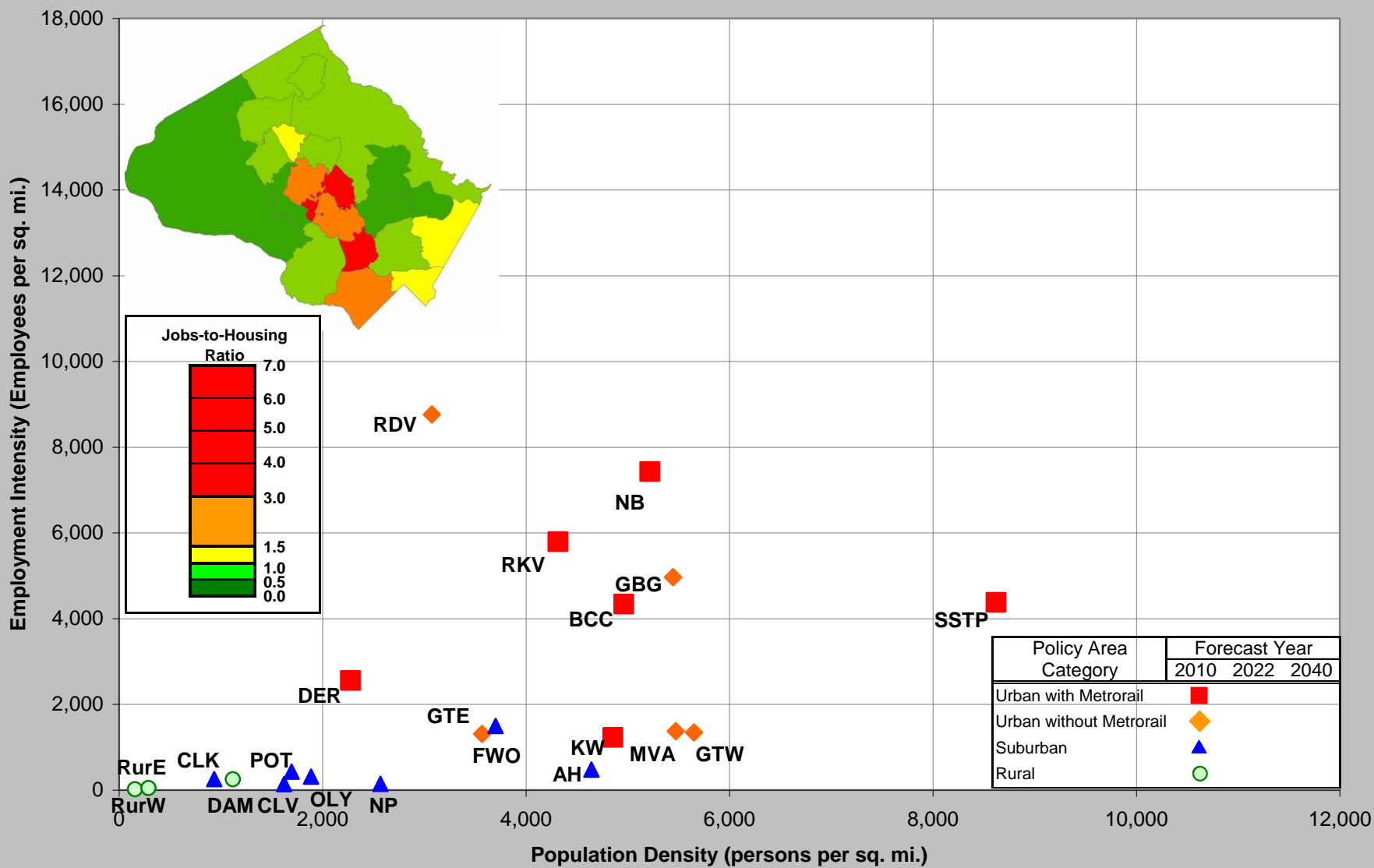


Jobs-to-Housing Ratio Information: (1 of 4)

- **Question: Can Jobs-to-Housing Ratios help categorize Policy Areas?**
- **Series of map-display and graphs were prepared for 2010, 2020, and 2040 Forecasts**
- **Overlay the maps onto the preceding graphs of employment versus population densities**
- **Shows that use of the Jobs-to-Housing ratios reinforces the characterization of which area may be more or less urban**
- **However, by itself the ratios do not appear to be as good a measure as the trends in densities of employment and population**

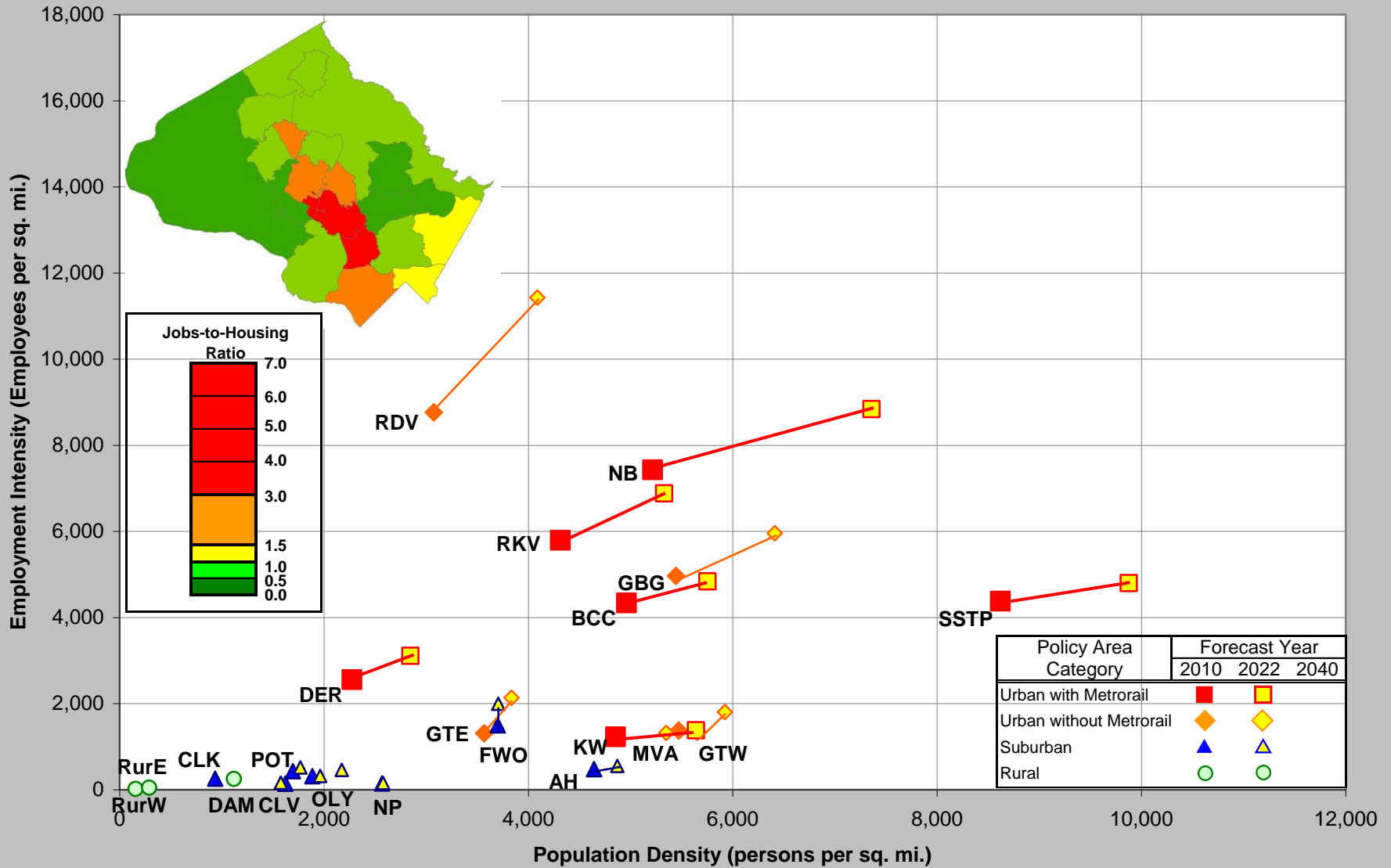
Jobs-to-Housing Ratio Information: (2 of 4)

Population and Employment Density Trends by Policy Area in Mont. Co. for 2012 TPAR



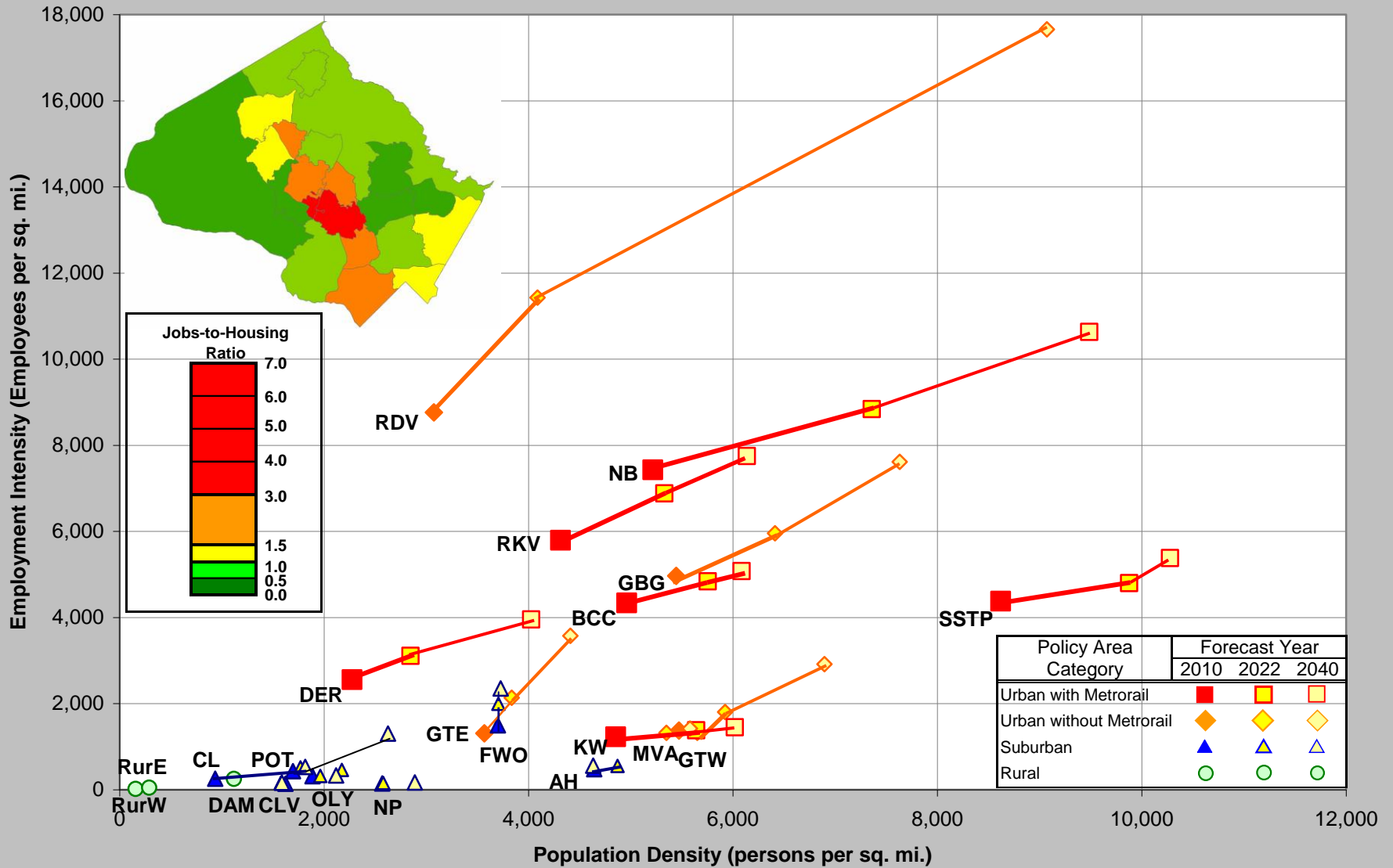
Jobs-to-Housing Ratio Information: (3 of 4)

Population and Employment Density Trends by Policy Area in Mont. Co. for 2012 TPAR



Jobs-to-Housing Ratio Information: (4 of 4)

Population and Employment Density Trends by Policy Area in Mont. Co. for 2012 TPAR



Potential Changes in Transit Standards: (1 of 7)

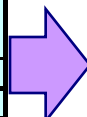
- Related Issue: Should the transit adequacy standards also be refined to match possible changes to the transit categories for classification of Policy Areas?
- Exhibits on the following slide are meant to clarify:
 - Left-side shows current Exhibit 3.6 on p.17
 - Right-side shows potential changed categories and how some Policy Areas would be re-categorized
 - Potential changes in the Transit Standards shown as “ranges”, with one end being the “standard” and the other the “**target**”
 - At Worksession on 5-3-12, Board gave some initial guidance, which are shown in “bold”; non-bold values are suggestions
- Second set of Exhibits: shows the reformatting to account for the Conditional Peak Headway project, or further solutions
- Third set of Exhibits: shows the likely impacts of the Conditional Peak Headway project, and inadequacies that would now result by the contemplated changes in the standards

Potential Changes in Transit Standards: (2 of 7)

Exhibit 3.6, p. 17, Draft 2012 TPAR

Potential Revision to Exhibit 3.6

Transit Adequacy Analysis Results TPAR 2012 (4-5-12)				
	Number of Bus Routes	Coverage (Percent of area within 1 mi. rail; 1/3 mi. of bus)	Peak Headway by Bus in PM Peak Hour (min.)	Span: Duration of Weekday Bus Service (hours)
"Urban" Policy Areas served by Metrorail				
Silver Spring/Takoma Park	35	96%	18.2	18.9
North Bethesda	15	87%	21.3	17.7
Kensington/Wheaton	29	82%	20.7	18.5
Bethesda/Chevy Chase	17	81%	20.4	17.4
Rockville City	16	80%	21.2	17.8
Derwood	7	70%	21.1	18.8
Inadequate versus the Standards shown	xx.x	more than 80%	less than 14.0 ##	more than 17.0
## = 20.0 with Metrorail				
"Suburban" Policy Areas				
R&D Village	5	76%	25.8	15.8
Gaithersburg City	10	75%	20.0	17.6
Fairland/White Oak	14	48%	19.1	18.8
Germantown West	9	48%	21.8	18.6
Montgomery Village/Airpark	9	47%	19.4	18.0
Aspen Hill	11	44%	19.9	19.3
Germantown East	5	39%	21.4	17.8
Cloverly	2	30%	26.5	8.0 *
North Potomac	7	29%	24.3	17.0
Olney	5	26%	25.0	22.3
Potomac	10	23%	21.1	16.4
Clarksburg	2	16%	30.0	14.1
Inadequate versus the Standards shown	xx.x	more than 30%	less than 20.0	more than 14.0
"Rural" Policy Areas				
Rural West	1	8%	30.0	6.3 *
Damascus	1	7%	20.0	15.7
Rural East	1	7%	20.0	15.7
Inadequate versus the Standards shown	xx.x	more than 5%	less than 30.0	more than 4.0



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* Span includes Peak Period Routes because of absence of All Day Routes

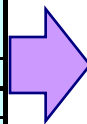
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Potential Changes in Transit Standards: (3 of 7)

Exhibit 3.6, p. 17, Draft 2012 TPAR

2018 = Programmed; 2022 = Conditional

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Inadequate versus the Standards shown	xx.x	more than 5%		less than 30.0		more than 4.0	

* Span includes Peak Period Routes because of absence of All Day Routes

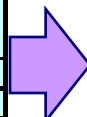
* Span includes Peak Period Routes because of absence of All Day Routes

Potential Changes in Transit Standards: (4 of 7)

Exhibit 3.6, p. 17, Draft 2012 TPAR

2018 = Programmed; 2022 = Conditional

Transit Adequacy Analysis Results TPAR 2012 (4-5-12)				
	Number of Bus Routes	Coverage (Percent of area within 1 mi. rail; 1/3 mi. of bus)	Peak Headway by Bus in PM Peak Hour (min.)	Span: Duration of Weekday Bus Service (hours)
"Urban" Policy Areas served by Metrorail				
Silver Spring/Takoma Park	35	96%	18.2	18.9
North Bethesda	15	87%	21.3	17.7
Kensington/Wheaton	29	82%	20.7	18.5
Bethesda/Chevy Chase	17	81%	20.4	17.4
Rockville City	16	80%	21.2	17.8
Derwood	7	70%	21.1	18.8
Inadequate versus the Standards shown	xx.x	more than 80%	less than 14.0 ##	more than 17.0
## = 20.0 with Metrorail				
"Suburban" Policy Areas				
R&D Village	5	76%	25.8	15.8
Gaithersburg City	10	75%	20.0	17.6
Fairland/White Oak	14	48%	19.1	18.8
Germantown West	9	48%	21.8	18.6
Montgomery Village/Airpark	9	47%	19.4	18.0
Aspen Hill	11	44%	19.9	19.3
Germantown East	5	39%	21.4	17.8
Cloverly	2	30%	26.5	8.0 *
North Potomac	7	29%	24.3	17.0
Olney	5	26%	25.0	22.3
Potomac	10	23%	21.1	16.4
Clarksburg	2	16%	30.0	14.1
Inadequate versus the Standards shown	xx.x	more than 30%	less than 20.0	more than 14.0
"Rural" Policy Areas				
Rural West	1	8%	30.0	6.3 *
Damascus	1	7%	20.0	15.7
Rural East	1	7%	20.0	15.7
Inadequate versus the Standards shown	xx.x	more than 5%	less than 30.0	more than 4.0



Transit Adequacy Analysis Results TPAR 2012 (5-10-12)							
	Number of Bus Routes	Coverage (Percent of area within 1 mi. rail; 1/3 mi. of bus)		Peak Headway by Bus in PM Peak Hour (min.)		Span: Duration of Weekday Bus Service (hours)	
		2018	2022	2018	2022	2018	2022
"Urban" served by Metrorail							
Silver Spring/Takoma Park	35	96%		18.2	18.2	18.9	
North Bethesda	15	87%		21.3	19.6	17.7	feasible
Kensington/Wheaton	29	82%		20.7	19.1	18.5	
Bethesda/Chevy Chase	17	81%		20.4	19.6	17.4	feasible
Rockville City	16	80%		21.2	18.0	17.8	feasible
Derwood	7	70%	feasible	21.1	19.0	18.8	
Inadequate versus the Standards shown	xx.x	more than 80%		less than 20 Target 14		more than 17 Target 18	
"Urban" not by Metrorail							
R&D Village	5	76%		25.8	17.0	15.8	feasible
Gaithersburg City	10	75%		20.0	15.6	17.6	
Germantown West	9	48%	??	21.8	16.6	18.6	
Montgomery Village/Airpark	9	47%		19.4	18.0	18.0	
Germantown East	5	39%		21.4	16.8	17.8	
Inadequate versus the Standards shown	xx.x	more than 50% Target 80%		less than 14 Target 10		more than 14 Target 17	
"Suburban" Policy Areas							
Fairland/White Oak	14	48%		19.1	17.7	18.8	
Aspen Hill	11	44%		19.9	14.9	19.3	
Cloverly	2	30%		26.5	16.5	8.0 *	feasible
North Potomac	7	29%	feasible	24.3	15.6	17.0	
Olney	5	26%	feasible	25.0	18.0	22.3	
Potomac	10	23%	feasible	21.1	18.7	16.4	
Clarksburg	2	16%	Policy	30.0	20.0	14.1	
Inadequate versus the Standards shown	xx.x	more than 30%		less than 20.0		more than 14.0	
"Rural" Policy Areas							
Rural West	1	8%		30.0	30.0	6.3 *	
Damascus	1	7%		20.0	20.0	15.7	
Rural East	1	7%		20.0	20.0	15.7	
Inadequate versus the Standards shown	xx.x	more than 5%		less than 30.0		more than 4.0	

* Span includes Peak Period Routes because of absence of All Day Routes

* Span includes Peak Period Routes because of absence of All Day Routes

Impact of New Transit Categories-Standards: (5 of 7)

- If Transit Standards are modified then:
 - 3 Urban Areas with Metrorail have inadequate transit Span; but may be feasible for MCDOT (and WMATA) to make adjustments
 - 5 Urban Areas without Metrorail have inadequate Peak Headways; still need to identify possible solutions with MCDOT
 - 5 Urban Areas without Metrorail have may have inadequate coverage; depends on further guidance from the Board

Impact of New Transit Categories-Standards: (6 of 7)

- Would need to identify new transit solutions:
 - Solutions to the Span inadequacies feasible; some but minor likely impact on costs
 - Inadequate Peak Headway solutions; depending on standard and how close to the target is sought; could be significant in cost, perhaps 20 to 30% of the current Ride-On budget
 - Conditional Peak Headway improvements in the Draft TPAR 2012 are expected to be significant, on order of 10% of Ride-on Budget
 - Most difficult solution to address would be seeking increased coverage in the “Urban Areas without Metrorail” Policy Areas
 - Combined affect may also require a new Ride-On bus garage; a significant cost and timing issue

Impact of New Transit Categories-Standards: (7 of 7)

- **Draft TPAR links Roadway Adequacy Standards to the Transit categories – that needs to be taken into account**
 - **Requires changes to Road Adequacy summaries by Policy Area**
 - **Lessens Roadway inadequacies for 4 of the 5 Policy Areas that could be re-categorized (RDV, GBG, MVA, and GTE)**
 - **Could likely lessen roadway investment needs somewhat in the near to mid-term, but not the long-term**

Identification of Additional Issues for Next TPAR

- Time period for the next TPAR Review:
 - It is recommended to be set for **2014**
- Potential carry-over issues and/or new concerns:
 - Signal that more focus on more Urban Policy Areas with and without Metrorail is needed
 - Ranges for the Standards to give flexibility in near-term to begin addressing solutions to meet those standards
 - Setup and study clear programs to monitor the effects of the initial solutions
 - Study feasibility to accelerate the pace of implementation
 - Need to better understand and account for the effects of:
 - Operational improvements,
 - Ridesharing solutions,
 - Transportation Demand Management solutions, and
 - Bike access and pedestrian circulation solutions