



## 2016 Subdivision Staging Policy

### Appendix - Evaluation of Alternative Policy Area Transportation Adequacy Metrics

A key element of the 2016 Subdivision Staging Policy was the identification of an appropriate policy area-wide transportation adequacy metric that is less focused on auto-centric travel and clearly reflects the travel implications of the introduction of high-quality transit service over time – including light rail transit (LRT) and bus rapid transit (BRT).

In this regard, Planning staff’s consideration of alternative policy area transportation adequacy measures focused on the evaluation of the following three (3) transportation system performance metrics:

- **Transit Accessibility** – Defined as the number of regional jobs accessible within 60 minutes by walk-access transit from households in each policy area.
- **Non-Auto Driver Mode Share (NADMS)** - Defined as the percentage of trips to work by modes other than the single-occupant automobile (i.e., walk, bike, transit and auto passenger) from households in each policy area.
- **Vehicle Miles of Travel (VMT)** - Defined as the average trip length by auto drivers from households within each policy area.

These metrics were derived from the application the of the regional travel demand model. This tool was uses to produced traffic analysis zone (TAZ)-level data aggregated to policy area totals.

The utility of each metric was evaluated in the context of an analysis designed to test:

- **Ability to forecast** in terms of the intuitive “reasonableness” of the results
- **Sensitivity** in terms of responsiveness to land use and transportation changes
- **Relevance to master plan implementation** in terms of measuring the level of achievement of master plan vision

The results of this exercise are summarized and described below.

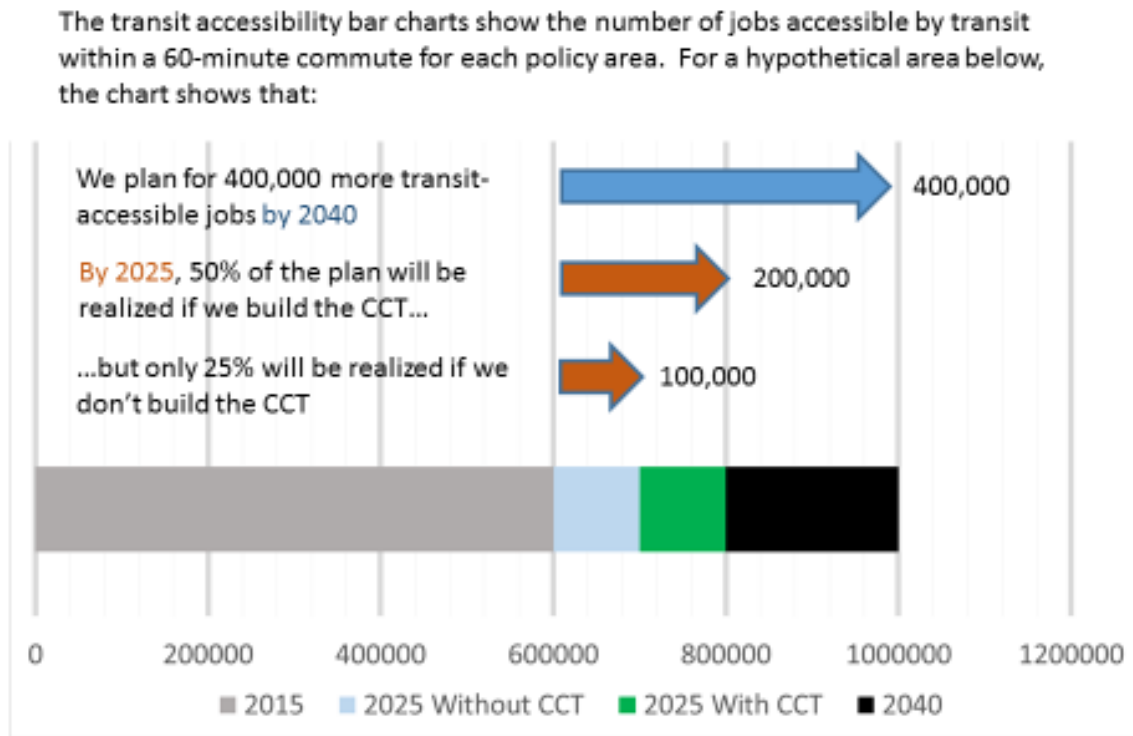
## Transit Accessibility

The performance of transit accessibility was evaluated in the context of the following three (3) land use/transportation scenarios:

- **Scenario I:** Year 2015 network in combination with year 2015 land use (Existing conditions)
- **Scenario II:** Year 2040 Constrained Long Range Plan (CLRP)<sup>1</sup> network in combination with year 2040 land use
- **Scenario III:** Scenario II (as described above) **with the Purple Line and Corridor Cities Transitway (CCT) removed.**

Transit accessibility is logically and highly responsive to changes in high quality transit service **and** changes in land use mix and density. Figure 1 provides a conceptualization of how the results of the transit accessibility analysis are portrayed for a **hypothetical** policy area.

**Figure 1: Conceptualization of Transit Accessibility Analysis**



The policy area results of the transit accessibility analysis are summarized below in Figure 2. The horizontal bars depicted in the chart report increments of policy area transit accessibility associated with the land use/transportation scenarios described above. As can be observed, down County “Core” policy areas served by Metrorail exhibit relatively high transit accessibility. Conversely, low-density

<sup>1</sup> It should be noted that planned Bus Rapid Transit (BRT) service in the County is **not** reflected in the CLRP.

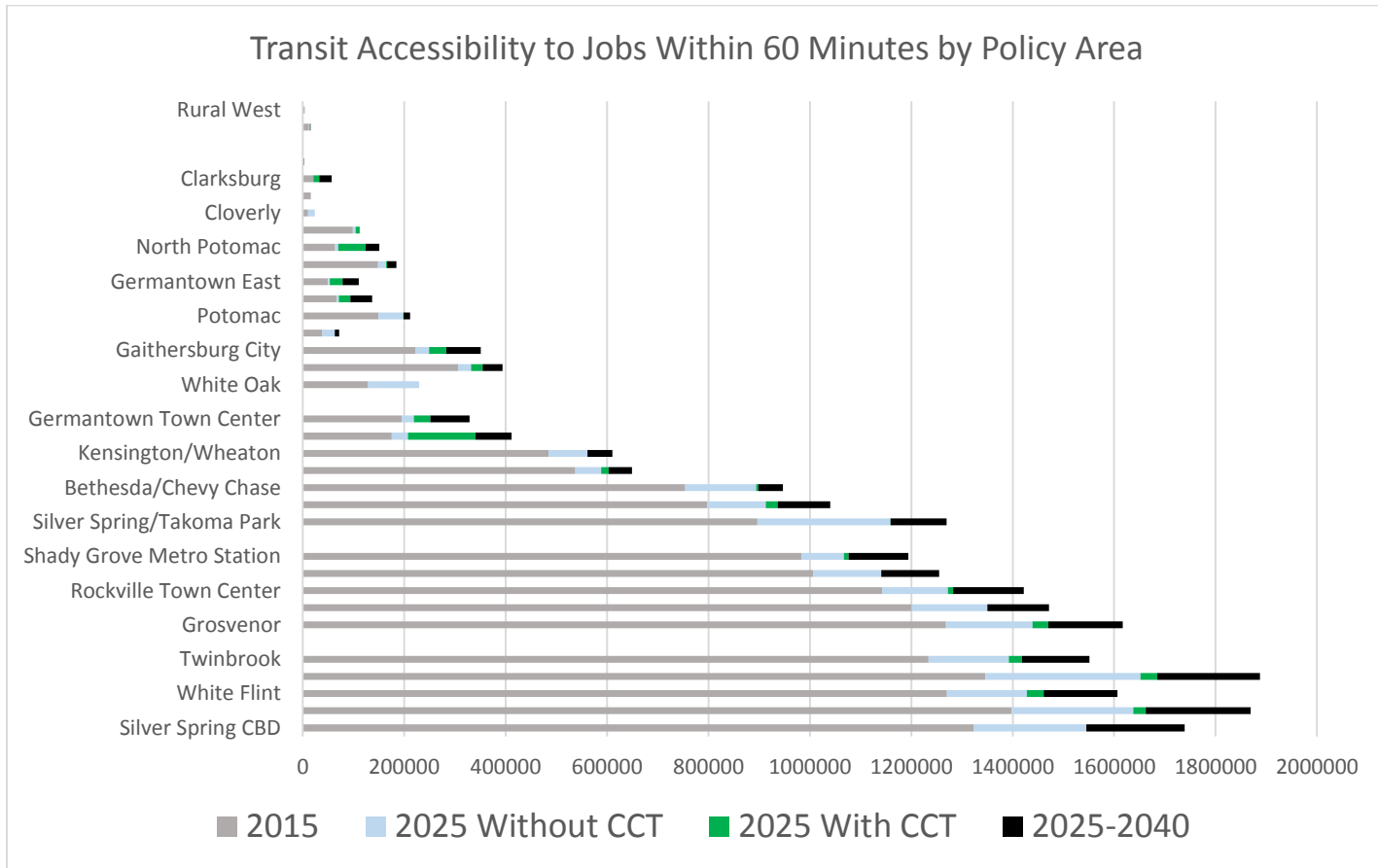
“Wedge” and “Rural” policy areas exhibit relatively modest or negligible transit accessibility. “Corridor” policy areas exhibit transit accessibility results that fall between these two extremes.

The 10-year regulatory horizon (from 2015 to 2025) is 40 percent as long as the 25-year planning horizon (from 2015 to 2040). In this context, policy areas that have at least 40 percent of their planned 2015-2040 transit accessibility by 2025 are considered to be “on pace” with respect to reaching a key indicator of future non-auto travel options and are therefore considered “adequate.” The remaining areas are “behind pace” and are considered to have inadequate transit accessibility.

Some key observations drawn from the analysis include:

- The Purple Line has the greatest effect on the Silver Spring/Takoma Park policy area.
- The Purple Line connection to Metrorail has transfer related benefits along the eastern leg of the Red Line between Silver Spring and Glenmont.
- The CCT doubles transit accessibility in the R & D Village policy area.
- The Purple Line and CCT both contribute to changes in accessibility along the western leg of the Red Line between Bethesda and Shady Grove.
- Transit accessibility doubles in the White Oak policy area as more transit-oriented development is implemented within a 60-minute travel shed, without the benefit of planned BRT service in the area.

**Figure 2: Transit Accessibility Evaluation Summary**



The results demonstrate transit accessibility is a highly desirable transportation system performance metric in that it: (1) exhibits sensitivity to both land use and transit system changes; (2) yields intuitively reasonable forecast results and; (3) measures progress towards transit system implementation which is a key transportation system performance element relevant to the realization of master plans.

**Non-Auto Driver Mode Share (NADMS)**

The performance of NADMS was evaluated in the context of the following three (3) land use/transportation scenarios:

- **Scenario I:** Year 2010 network in combination with year 2010 land use (Existing conditions)
- **Scenario II:** Year 2040 Constrained Long Range Plan (CLRP)<sup>2</sup> network in combination with year 2040 land use
- **Scenario III:** Scenario II (as described above) **with the Purple Line and Corridor Cities Transitway (CCT) removed.**

<sup>2</sup> It should be noted that planned Bus Rapid Transit (BRT) service in the County is **not** reflected in the CLRP.

The policy area results of the NADMS analysis are summarized and reported below in Table1. Observation of this information indicates sensitivity to the introduction of Purple Line and the Corridor Cities Transitway (CCT) on NADMS in some areas such as Shady Grove and R & D Village which are relatively dense, mixed-use areas and benefit from a direct transit connection to each other. However, a comparison of the Scenario II and Scenario III results indicates that NADMS generally exhibits a modest response to changes in land use and transportation. Finally, it should be noted that the relevance of this metric with respect to master plan implementation is limited to those areas where NADMS goals are explicitly specified by policy.

**Table 1: Non-auto Driver Mode Share (NADMS) Evaluation Summary**

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%

### Vehicle Miles of Travel (VMT)

The performance of VMT was evaluated in the context of the following three (3) land use/transportation scenarios:

- **Scenario I:** Year 2010 network in combination with year 2015 land use (Existing conditions)

- **Scenario II:** Year 2040 Constrained Long Range Plan (CLRP)<sup>3</sup> network in combination with year 2040 land use
- **Scenario III:** Scenario II (as described above) **with the Purple Line and Corridor Cities Transitway (CCT) removed.**

The policy area results of the VMT analysis are summarized and reported below in Table 2. Observation of the results derived for Scenarios II and III indicates virtually no effect of the Purple Line and CCT on VMT. The magnitude of change between base year 2010 and year 2040 VMT results derived in Central Business District (CBD) areas such as Silver Spring and Bethesda appears counter-intuitive and raises some concerns about the ability of the regional model to adequately reflect latent demand in small areas. These observations suggest that VMT may not be an appropriate metric that is relevant to the evaluation of master plan implementation and policy area transportation adequacy determination.

**Table 2: Vehicle Miles of Travel (VMT) Evaluation Summary**

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

<sup>3</sup> It should be noted that planned Bus Rapid Transit (BRT) service in the County is **not** reflected in the CLRP.