

MEMORANDUM

June 27, 2014

TO: Planning, Housing, and Economic Development (PHED) Committee

FROM: ^{GO} Glenn Orlin, Deputy Council Administrator

SUBJECT: White Oak Science Gateway Master Plan—fiscal and economic impact; lane use/transportation balance; transportation elements

Councilmembers: Please bring your copy of the Draft Master Plan (December 2013 Updated Version) and the proposed Subdivision Staging Policy (SSP) amendment to this worksession.

This memorandum addresses the Executive Branch's fiscal and economic impact analyses and the transportation elements in the Planning Board's Draft Plan. Some purely technical corrections will be made to the final document, but they are not identified in this memorandum. Also included is a review of the Planning Board's recommended revisions to the 2012-2016 Subdivision Staging Policy (SSP). The proposed revisions are on this link (Councilmembers are receiving a hard copy): http://www.montgomeryplanning.org/community/wosg/documents/attachment_2_proposed_SSP_amendmentsfinal.pdf. Staging recommendations in the Plan and the SSP will be addressed in a subsequent worksession, once the PHED Committee has developed its land use recommendations.

I. FISCAL AND ECONOMIC IMPACT

1. Fiscal impact. The Office of Management and Budget's (OMB's) Fiscal Impact Analysis (©1) quantifies the County's capital and operating costs due to the proposed development. OMB identifies a need for about \$567 million in capital projects over the life of the plan. Most of this amount—\$479 million—are for transportation improvements, which include:

- \$20 million for seven at-grade intersection improvements.
- \$158 million for 11 bikeway projects: 4 that would build shared use paths parallel to roads; 4 that would widen roads for bike lanes, and 3 that would widen roads to provide sufficient width for a gained shared roadway (i.e., the curb lane is wide enough to accommodate both motor vehicles and bicycles).
- \$180 million for the portions of the 3 planned BRT routes within the master plan area. (DOT estimates the full cost of these three routes to be \$802 million.) It is plausible that some portion of this funding could come from Federal and State funds, however.
- \$5 million for buses and supporting infrastructure for a bus circulator for the WestFarm/Percontee area.
- \$41 million to widen 3 roads in the WestFarm area to Business District Street standards.
- \$76 million for 4 new or extended business district streets in the WestFarm/Percontee area and to rebuild the Old Columbia Pike bridge over Paint Branch for vehicular traffic.

Therefore, only a small portion of this spending would be for road improvements that add capacity. The main projects that would add road capacity are assumed to be funded with Federal and/or State aid. These include the US 29 interchanges at Stewart Lane and at Tech Road/Industrial Parkway within the master plan boundary, and the US 29 interchanges at Fairland Road/Musgrove Road, at Greencastle Road, and at Blackburn Road further north in Fairland. The cumulative cost estimate for these five interchanges is \$538 million.

The other future capital projects include a new fire station near US 29 and Tech Road (\$16 million, including apparatus), \$18 million for 7 park land acquisitions and improvements, and \$54 million for additions to public schools serving the master plan area. The Fiscal Impact Statement also includes estimates of future operating costs, both one-time and ongoing.

2. Economic impact. The Department of Finance's Economic Impact Analysis (©2-3) estimates that the development called for in the Plan would generate a positive cash flow to the County. Finance's revenue/cost model shows a net inflow of about \$3.3 million annually with the current residential and commercial development, which translates to about \$128 million (including inflation) over the next 30 years (©4). However, the net surplus to the County would increase by over \$1.5 billion over the next three decades with the master-planned development yet to occur.

This latter figure does not take into account the County's capital costs for infrastructure in the planning area, which the Fiscal Impact Statement estimates to be \$567 million in today's dollars (or lower, should Federal and/or State money shoulder some of the burden for the BRT lines). Inflating \$567 million to current dollars and subtracting it from the \$1.5 billion net operating surplus likely would produce a surplus in the \$600-800 million range. This is not surprising, given the large increase in jobs that this plan proposes, and given that employment growth usually translates to more County revenue than the cost to provide services to it.

II. LAND USE/TRANSPORTATION BALANCE AND STAGING

Every master plan should have a balance between its proposed land use and its proposed transportation network and services. For more than two decades this "balance" has been defined as what would be needed to meet the current adequate public facilities (APF) requirements as described in the SSP. Achieving this balance in a plan is not an academic exercise: if a plan is not balanced, then at some point in the future a proposed master-planned development will be unable to proceed because it will have no means to meet the APF requirements.

In the past quarter century there have been only two "out-of-balance" plans adopted. The Potomac Subregion Plan (most recently revised in 2002) stipulates that its two-lane roads would not be widened, except at intersections; the community is willing to put up with intolerable congestion to retain its pastoral ambiance. The Council has rationalized this by recognizing that relatively little through traffic flows on these roads, and so the future congestion would not significantly affect County residents living outside the subregion.

The other "out-of-balance" plan is the Chevy Chase Lake Sector Plan (2013), which forecasts that three intersections will fail Local Area Transportation Review (LATR) at buildout. However, the

failure will be at the margin, mainly because the Council included in the plan certain intersection improvements that would bring the sector plan area much closer to passing LATR at buildout.

To determine whether or not a master plan is in balance, the Council has applied the current SSP transportation tests, but using a long-term time frame. For example, while for subdivision reviews the Transportation Policy Area Review (TPAR) evaluates the traffic from existing and already subdivision-approved development on a transportation network programmed 10 years in the future, for master plans TPAR evaluates the traffic generated by the buildout of planned development on the full master-planned transportation network. The master plan TPAR analysis evaluates the buildout traffic conditions during the weekday evening peak period, since the evening peak typically has somewhat more traffic (and, thus, more congestion) than the morning peak. The master plan LATR analysis also evaluates the traffic generated by the buildout of planned development on a network that assumes certain intersection improvements.

1. In what area should the balance be tested? Under the rules the SSP, TPAR is applied at the policy area level. Metro Station policy areas (MSPAs) are small enclaves within the (for lack of a better term) “regular” policy areas; since the networks are so small within MSPAs, they are included in their respective “regular” policy areas for this analysis. The same is true for the Germantown Town Center policy area, an enclave within the Germantown West policy area.

The SSP amendment proposed by the Planning Board recommends creating a new White Oak policy area out of the current Fairland/White Oak policy area. The White Oak policy area would be coterminous with the boundary of the White Oak Science Gateway (WOSG) Plan: the area bounded by the Beltway, Northwest Branch, US 29, Cherry Hill Road, and Prince George’s County. For the purposes of TPAR, the Planning Board recommends treating the new White Oak policy area as if it were an enclave within Fairland/White Oak, and so the Board measured whether or not the plan was in balance was by evaluating the average peak-period, peak-direction traffic in the entire Fairland/White Oak policy area.

Fairland/White Oak is large enough to be very diverse, combining semi-rural Burtonsville and Spencerville, suburban Colesville, North White Oak, and Fairland, and mostly semi-urban densities in White Oak, Hillandale, and (potentially) the Life Sciences/FDA Village Center. The proposed White Oak policy area has a fundamentally different transportation environment than the remainder of Fairland/White Oak. The new area has and will continue to have more extensive and frequent transit service than the rest of Fairland/White Oak, and, as important, more transit accessibility due to its closer proximity with transit-served communities and business districts elsewhere in the Washington region.

This difference was also recognized by the Council when it adopted the refinement of the County’s General Plan in 1993. This plan updated the Wedges and Corridors Plan of the 1960s by dividing the county into five zones: the Urban Ring, the I-270 Corridor, the Suburban Communities, the Residential Wedge, and the Agricultural Wedge (©5). The Urban Ring has a boundary that includes all of Bethesda/Chevy Chase, Silver Spring/Takoma, Kensington/Wheaton, nearly all of North Bethesda—and about half of the WOSG Plan area: Hillandale and FDA. The White Oak Shopping Center and the multi-family housing behind it, as well as the Life Sciences/FDA Village Center area, are within the Suburban Communities zone. Therefore, what is now the WOSG Plan area is equal part urban and

suburban. The balance of Fairland/White Oak, on the other hand, is mostly with the Suburban Communities zone, and what isn't is in the zone of the even less dense Residential Wedge.

While diversity is desirable for most things in life, homogeneity of the transportation environment is what is sought when creating policy areas. Therefore, Council staff concurs with the Planning Board's recommendation in the SSP amendment to create a new White Oak policy area.

However, the new White Oak policy area would not be an enclave of Fairland/White Oak. It would have its own border with the Kensington/Wheaton and Silver Spring/Takoma policy areas, as well as with Prince George's County. More importantly, unlike MSPAs and Germantown Town Center, it is large enough to have a network that can be tested. At about 4.5 square miles, it would be comparable in size with R&D Village and not much smaller than Germantown East, both "regular" policy areas that tested under TPAR.

Council staff recommendation: Split the current Fairland/White Oak policy area into two new policy areas. One would be White Oak, coterminous with this master plan's boundary. The other would comprise the rest of Fairland/White Oak; "Fairland/Colesville" would be descriptive of this suburban/semi-rural region. Each of these two policy areas should be tested independently under both TPAR and LATR, and each should have its own set of standards, just as would be the case with any other "regular" policy area. (The standards are discussed below.) Thus, to determine land use/transportation balance in this master plan, the geographic areas that should be tested is the new White Oak policy area and the adjacent Fairland/Colesville policy area, not the current Fairland/White Oak policy area as a whole.

2. What TPAR standards should be used? Currently under TPAR a policy area has one of three standards. If it is an "Urban" policy area, one that includes a Metro Station—Silver Spring/Takoma, Bethesda/Chevy Chase, Kensington/Wheaton, North Bethesda, or Derwood¹--then the average PM peak-period, peak-direction speed must be no worse than 40% of free-flow speed. The Damascus Policy Area is the one "Rural" policy area, sitting in the far north of the County and little served by transit; it must have traffic operating at no worse than 50% of free-flow speed on average. All other areas are "Suburban," including the current Fairland/White Oak policy area, must have such traffic at an average no worse than 45% of free-flow speed.

The Final Draft Plan transmitted last September by the Planning Board admittedly was not in balance between land use and transportation. The Council responded in early October that it wanted the Board to recommend a plan that was in balance. This can be achieved either by increasing the proposed transportation facilities and services, reducing the proposed amount of development, explicitly changing the traffic standard to allow more congestion, or some combination of the above.

The Planning Board ultimately recommended changing the standard to 42.5% of free-flow speed, midway between the standards for the Urban and Suburban policy areas noted above. The Board's rationale for this standard is explained in the proposed SSP (see Section TL-4.8):

¹ The Rockville City policy area is also in this category. However, the policy area is included in the SSP only for informational and monitoring purposes, since the County has no planning and zoning authority in the City of Rockville.

In recognition of the potential for significant BRT service in the White Oak Science Gateway Master Plan area, the categorization of the parent Fairland/White Oak policy area as a “Transitional Transit Corridor” area in the application of TPAR is appropriate. With the adoption of the Countywide Transit Corridors Functional Master Plan, it may be appropriate to categorize other policy areas in a similar manner. This determination will be made in the context of the next scheduled comprehensive update of the Subdivision Staging Policy. The test for adequacy should be refined at that time.

A TPAR standard of 42.5% is reasonable standard for those areas that have convenient BRT or light rail service, but no Metrorail service. BRT and light rail—to the degree they operate in their own guideway and are not mixed with general traffic—provide intermediate advantages in travel speed and reliability for the transit rider. However, this standard should only be applied in policy areas where a preponderance of residents and employees are within easy reach of this service. This would certainly be the case for a new White Oak policy area, where there are six BRT stations master-planned on BRT routes with dedicated lanes. This is not the case for Fairland/Colesville though; it only has three stations where there are dedicated lanes, and most of the existing and future development is not within walking distance of a planned BRT station.

Council staff recommendation: Apply the 42.5% standard to a new White Oak policy area, but not to a new Fairland/Colesville policy area, where the 45% standard should be unchanged. The 42.5% standard, midway between the Urban 40% and the Suburban 45%, also mirrors the General Plan’s recognition that White Oak is partly in the Urban Ring and partly in the Suburban Communities.

Because the SSP amendment was advertised only to apply to the Fairland/White Oak area, it would be inappropriate for the Council to make changes in other areas now. However, if the necessary condition for morphing from a Suburban policy area to a Transitional Transit Corridor area is one planned to have most of its development within walking distance of a transitway (BRT or light rail) station, then the only other such area that clearly meets this criterion is R&D Village. There are four planned Corridor Cities Transitway stops within R&D Village, and most of its planned development is within walking distance of one of them.

3. *Should US 29 be counted?* Since the onset of the plan many have argued that forecasted traffic on US 29 be exempted or at least discounted due to the significant traffic passing through the area from Howard County and points north. Today, about 65% traffic entering the WOSG Plan area from the north on US 29 is from outside Montgomery County. However by 2040, once the US 29 corridor is closer to buildout in White Oak and Fairland, only 37% of this southbound traffic is forecast to come from beyond the county. The presence of through traffic is not a reason to exempt or discount US 29.

Nevertheless, an argument can be made to exempt the traffic conditions on US 29 north from New Hampshire Avenue as part of the calculation of balance. With the completion of the grade separated interchanges in the plan, US 29 will be a freeway to and beyond the County line. For about two decades the policy area transportation test—whether it be TPAR or its predecessors, Policy Area Mobility Review and Policy Area Transportation Review—have exempted freeways as part of the calculation of average congestion. While the traffic forecasting models have included the Beltway, I-

270, I-370, and (more recently) the Intercounty Connector² as part of the transportation network, the congestion levels on them have not been included in the averages. This is because while these roads may be *in* a policy area, they are not *of* it. For the most part they do not figure into congestion on the surface streets of a policy area, and they may have only one or two access points within a given policy area. Therefore, following past practice, US 29 north of New Hampshire Avenue would not be counted in the “balance” calculation.

On the other hand, an argument can be made to include this section of US 29 in the “balance” calculation after all, for two reasons. First, in most (but not all) cases the Beltway, I-270, I-370 and the ICC form the boundary of policy areas, so they are mainly not *in* most policy areas. This is not the case with the upper portion of US 29, which runs down the middle of Fairland (although on the edge of the new White Oak policy area). Second, while the other freeways have very few access points in a given policy area, the US 29 freeway from New Hampshire Avenue north will have five access points in White Oak and eight access points in Fairland/Colesville. Because of its central location and bevy of access points, even as a freeway it will be integral to internal circulation within this portion of the corridor.

Council staff recommendation: Count this segment of US 29 in the TPAR calculation. As noted above, what separates US 29 from the other freeways is that its central location and number of access points truly makes it in *and* of the White Oak (and Fairland/Colesville) policy areas.

4. Searching for balance: TPAR. The Final Draft reported that projected average peak-period, per-direction speed as a percentage of free-flow speed in Fairland/White Oak—the geographic area the Planning Board used for its TPAR analysis—would be 38%, which was rounded from the calculated figure of 38.4%. The Final Draft also reported that by exempting US 29 from the average, the percentage was 42%, which was rounded from the calculated figure of 41.9%. Note that both of these figures fall short of the 42.5% standard recommended by the Planning Board.

At the Council’s February public hearing it received testimony that the transportation modeling had assumed “gold standard” bus rapid transit on US 29, New Hampshire Avenue, and Randolph Road: that is, widening each of these highways to provide two exclusive lanes for BRT. This was confirmed by Planning staff. However, the Countywide Transit Corridors Functional Master Plan adopted by the Council last fall calls for *not* adding two lanes on these highways, except for US 29 north of New Hampshire Avenue. Under Council staff’s lead, the Planning staff has re-run the regional transportation model several times to make several revisions to the network, and to test additional transportation facilities, a different non-auto-driver mode share (NADMS), and less land use than is assumed in the Final Draft. The results of that analysis are presented in the sections that follow.³

In the analysis, Council staff recommended that the tested scenarios report the result in six ways: (1) Fairland/White Oak, counting US 29; (2) Fairland/White Oak, exempting US 29⁴; (3) White Oak,

² Certainly the ICC is not a free-way, so to speak. Used here the term “freeway” is shorthand for a highway with uninterrupted flow: no streets or driveways of any kind intersecting at grade with the road.

³ Council staff wishes to acknowledge the work of Eric Graye and his modeling team, Yuanjun Li and Yetta McDaniel, as well as Edgar Gonzalez of DOT, who worked with Council staff in this effort. Council staff made all decisions as to which options to evaluate, and all conclusions in this packet are those of Council staff.

⁴ In this context, “exempting US 29” means not including the congestion on US 29 north of New Hampshire Avenue in the calculation of average congestion.

counting US 29; (4) White Oak, exempting US 29; (5) Fairland/Colesville, counting US 29; and (6) Fairland/Coleville, exempting US 29. As noted above, Council staff recommends that “balance” be found separately for White Oak and Fairland/Colesville, that US 29 be counted in both calculations, and that the standards be 42.5% and 45%, respectively. Therefore, while all six ways of performing this calculation are presented here, closest attention should be paid to #3 and #5.

In performing this review, Planning staff recognized that, for the exemption option, it had mistakenly exempted all of US 29, including the section from New Hampshire Avenue to the southern boundary at Northwest Branch. Not exempting this southern section changes the result of that calculation from the Final Draft’s 42% (or 41.9%) to 39.1%.

a. Runs to revise the transportation network. The first task was to review the entire buildout network to assure consistency with adopted master plans outside of the master plan area and with the Planning Board’s recommendations within it. Two attributes of each network link were checked: the number of lanes and the “route type”: whether it was a freeway, an expressway, a major highway, an arterial, a primary residential street or business district street. Both the number of lanes and the route type affect the speed and capacity that is coded. The Planning staff has both an “AM model” and “PM model,” and both were reviewed, event though only the “PM model” is used in the TPAR analysis.

The revisions made for master plan consistency included the following:

1. US 29: reflect BRT re-purposing (“take away” lane in the peak direction)
 - AM Network – remove 1 lane southbound between Stewart Lane and Fenton Street.
 - PM Network – remove 1 lane northbound, between Fenton Street and Stewart Lane.
 - In the off-peak direction, code BRT at a speed consistent with general traffic.

NOTE: Which lane is re-purposed on US 29 between Stewart Lane and Sligo Creek Parkway will have an extraordinary impact not only on traffic operations, but on what will be required to bring the WOSG Plan in balance. This modeling exercise assumed what the Planning Board assumed: that a lane operating in the *peak direction* (southbound in the morning peak, northbound in the evening peak) would be re-purposed for BRT. For traffic operations this is a worst-case scenario, since whatever peak-direction traffic is not diverted to BRT would have only 2 lanes in which to drive rather than 3. The TPAR congestion calculations and the US 29 speed and delay estimates displayed later in this packet reflects this. However, if the BRT lane were taken from the *off-peak direction* instead (i.e., a “contra-flow” lane), the negative impacts on the TPAR calculation would be minimal, as would the effect on the speed and delay in the peak direction. Contraflow lanes have their own issues, of course, including more difficulties for left-turning vehicles and pedestrian crossings. These two options (and others) will be evaluated as part of the US 29 BRT study that the Maryland Department of Transportation is about to undertake.

2. New Hampshire Avenue (MD 650)
 - Between Lockwood Drive and Colesville Park & Ride: reflect BRT “mixed traffic” operations. Keep the number of general use travel lanes the same (i.e., 6 lanes, 3 in each direction), but code BRT with a speed consistent with general traffic.

- Between Lockwood Drive and University Boulevard: reflect 1 added reversible BRT lane. For BRT operating in the off-peak direction: code both the AM northbound speed and the PM southbound speed consistent with general traffic.
 - Between University Boulevard and DC Line: BRT re-purposing (“take away” lane in the peak direction): AM Network – remove 1 lane southbound; PM Network – remove 1 lane northbound.
3. Randolph Road: reflect BRT “mixed traffic” operation. Code BRT with a speed consistent with general traffic.
 4. University Boulevard (MD 193): assume the added BRT lane operates westbound in the AM peak and eastbound in the PM peak. Therefore:
Between Georgia Avenue and Lorain Avenue, and between Williamsburg Drive and Piney Branch Road: reduce BRT speed to be consistent with general traffic eastbound in the AM peak and westbound in the PM peak. Between Lorain Avenue and Williamsburg Avenue reflect “mixed traffic” operation, code BRT with a speed consistent with general traffic in both directions; between Piney Branch Road and Campus Drive, reduce the general purpose lanes from 6 to 4.
 5. US 29 between New Hampshire Avenue and Howard County: code as a freeway, not an expressway. At buildout US 29 is planned to be entirely grade-separated from intersecting roads.

NOTE: This is the other change that has a significant impact on the TPAR calculations. In the model, an expressway—a highway with no private driveways but widely spaced traffic signals—in the White Oak area has a capacity of 1,200 vehicles/hour/lane and a speed of 50 mph. A freeway, on the other hand, has a capacity of 1,800 vehicles/hour/lane (50% higher) and a speed of 60 mph (20% higher). So recognizing this portion of US 29 as a freeway at buildout will significantly improve the TPAR value.

6. Old Columbia Pike between Randolph and Spencerville Roads: code as a primary residential street, not an arterial.
7. Serpentine Way: include in the network as a 2-lane primary residential street.
8. Greencastle Road: code as a 4-lane arterial in Prince George’s County.
9. Calverton Boulevard: code as a 4-lane arterial in Prince George’s County.

In addition, Council staff is recommending the following revisions to increase transportation capacity in the plan (more on these in section III, below):

1. Old Columbia Pike: re-connect across Paint Branch and re-construct it as a 4-lane arterial between Cherry Hill Road and Stewart Lane.
2. Old Columbia Pike: extend southwest from Stewart Lane as a 4-lane arterial, running near the northwest and southwest edges of the White Oak Shopping Center property, connecting to Lockwood Drive near its intersection with New Hampshire Avenue.
3. Industrial Parkway/Industrial Parkway Extended/Tech Road: reclassify as an arterial between US 29 and FDA Boulevard.
4. FDA Boulevard: reclassify as an arterial between Industrial Parkway Extended and Cherry Hill Road.
5. Prosperity Drive: reclassify as an arterial between Old Columbia Pike and Cherry Hill Road.

The results of incorporating these changes to the plan are:

Average peak-period, peak-direction speed as a percentage of average free-flow speed	Standard	Final Draft	Final Draft + Network Changes
(1) Fairland/White Oak, counting US 29	42.5%*	38.4%	41.7%
(2) Fairland/White Oak, exempting US 29	42.5%*	39.2%	40.2%
(3) White Oak, counting US 29	42.5%	33.3%	39.2%
(4) White Oak, exempting US 29	42.5%	34.6%	30.3%
(5) Fairland/Colesville, counting US 29	45.0%	39.6%	42.3%
(6) Fairland/Coleville, exempting US 29	45.0%	41.3%	43.6%

* Proposed by the Planning Board. The current standard is 45.0%.

Under none of these ways of looking at balance do the network changes reach the standard, but they do bring them closer to balance.

For the segment of US 29 between White Oak and Four Corners, Sabra Wang (the Planning staff's consultant) has calculated the travel time and vehicle speed of traffic under five scenarios (©6):

- Existing conditions
- The future land use and network in the adopted Fairland and White Oak Master Plans (1997)
- The future land use and network in the WOSG Final Draft (2013)
- The future land use in the WOSG Final Draft, with the revised network noted above (2014)
- The future land use in the WOSG Final Draft, with the revised network but contra-flow BRT (2014)

What this analysis suggests is:

- Under every future scenario auto travel time will increase from existing conditions.
- The future land use under the 1997 Plans, which did not include BRT, will produce two-to-three times as much delay in the peak direction (southbound in the morning peak, northbound in the evening peak).
- The future land use under the proposed plan but with a repurposed “with-flow” BRT lane (i.e., in the peak direction), will produce delays for autos of about an hour-and-a-quarter in the peak direction. In reality this would not happen: some traffic would divert to other, more circuitous routes, or to the shoulder of the peak periods, thus expanding congestion conditions even more broadly in time and space.
- The same condition with a “contra-flow” BRT lane will produce delays much closer to that of the 1997 Plans.

Paul Silberman, Sabra Wang's Director of Transportation Planning, will present this analysis at the worksession.

b. Non-auto-driver mode share (NADMS). The first sensitivity test was to determine the effect of requiring a higher NADMS than what the Final Draft recommends. The Final Draft recommends a 25% NADMS for new development at the Hillandale and the White Oak Shopping Center nodes, and 30% NADMS for new development at the Life Sciences/FDA Village node. The plan is silent about the NADMS for the existing residential and commercial development, including WestFarm.

Council staff believes a somewhat more stringent standard could be achieved by the time of buildout: 30% for all development, existing and new. This is close to the 28% NADMS required of existing and new development at buildout in the Great Seneca Science Corridor (GSSC) Master Plan. The GSSC Plan is similar to the WOSG area in that BRT service will be within a reasonable walking distance of most residents and employees. However, the WOSG area has the further advantage in that it would be served by two BRT routes, not one, and that it is much closer to the region's core and thus more accessible to housing and jobs elsewhere in the region. The 2010 census shows that 14% of employees working in the White Oak area have a commute by means other than driving, while the County's Census Update Survey shows that 20% of residents of Fairland commuting to work are not driving. Therefore, the cumulative NADMS percentage today is in the upper teens.

The results of layering a 30% NADMS requirement on top of the network changes are shown below:

Average peak-period, peak-direction speed as a percentage of average free-flow speed	Standard	Final Draft	Final Draft + Network Changes	Final Draft + Network Changes + 30% NADMS
(1) Fairland/White Oak, counting US 29	42.5%*	38.4%	41.7%	41.9%
(2) Fairland/White Oak, exempting US 29	42.5%*	39.2%	40.2%	40.5%
(3) White Oak, counting US 29	42.5%	33.3%	39.2%	40.3%
(4) White Oak, exempting US 29	42.5%	34.6%	30.3%	30.2%
(5) Fairland/Colesville, counting US 29	45.0%	39.6%	42.3%	42.6%
(6) Fairland/Coleville, exempting US 29	45.0%	41.3%	43.6%	44.2%

* Proposed by the Planning Board. The current standard is 45.0%.

c. Reducing proposed land use density. The next sensitivity test examined reducing the incremental development called for in the plan by 25%. The proposed plan calls for about 42,600 more jobs and 8,570 more housing units than exists today, so this test assumed about 10,650 fewer jobs and about 2,140 fewer housing units. As a sensitivity test, it is meant simply to understand the order of magnitude change to the results, so 25% of the increase was reduced proportionately by subarea; there was no effort to fine-tune where the reductions would occur. Also, the attempt here is to isolate the affect of the reduced density, so the higher NADMS goal of 30% was not included in this run. The results are shown below:

Average peak-period, peak-direction speed as a percentage of average free-flow speed	Standard	Final Draft	Final Draft + Network Changes	Final Draft + Network Changes - 25% of Growth
(1) Fairland/White Oak, counting US 29	42.5%*	38.4%	41.7%	43.9%
(2) Fairland/White Oak, exempting US 29	42.5%*	39.2%	40.2%	41.1%
(3) White Oak, counting US 29	42.5%	33.3%	39.2%	41.2%
(4) White Oak, exempting US 29	42.5%	34.6%	30.3%	29.9%
(5) Fairland/Colesville, counting US 29	45.0%	39.6%	42.3%	44.5%
(6) Fairland/Coleville, exempting US 29	45.0%	41.3%	43.6%	45.1%

* Proposed by the Planning Board. The current standard is 45.0%.

d. *Comparison with the 1997 Fairland and White Oak Master Plans.* When the Planning Board forwarded its drafts of the Fairland and White Oak Master Plans in 1996, each contained the same language:

This Plan recognizes that the concept from the 1981 [Eastern Montgomery County Master] Plan of establishing “transit serviceability” by increasing land use densities to support transit is no longer appropriate. This Plan does not attempt to balance the recommended land uses and transportation infrastructure. It is recognized that a land use and transportation network balance as defined in the current Annual Growth Policy [now, Subdivision Staging Policy] cannot be achieved without implementing either large transportation system changes not envisioned by this Plan or by accepting greater congestion than the current standards allow.

However, Council staff found that by recognizing the effect of building all the US 29 grade-separated interchanges in these plans (the same interchanges as those still proposed in the WOSG Plan), and assuming raising the mode share objective from 9% to 13.5%, that the plans would be in balance at buildout. The Council agreed, and they found both plans to be in balance. Of course, by now the NADMS has risen above the 13.5% assumption made in 1996-7.

Executive Branch staff has asked that the land use proposed in the 1997 Fairland and White Oak Master Plans for what is now the White Oak Science Gateway be tested with the transportation network revised described in section (a), above. The purpose was to provide context for the land use changes now being recommended. The results are shown below:

Average peak-period, peak-direction speed as a percentage of average free-flow speed	Standard	Final Draft	Final Draft + Network Changes	1997 Plans + Network Changes
(1) Fairland/White Oak, counting US 29	42.5%*	38.4%	41.7%	43.3%
(2) Fairland/White Oak, exempting US 29	42.5%*	39.2%	40.2%	41.9%
(3) White Oak, counting US 29	42.5%	33.3%	39.2%	42.9%
(4) White Oak, exempting US 29	42.5%	34.6%	30.3%	35.1%
(5) Fairland/Colesville, counting US 29	45.0%	39.6%	42.3%	43.8%
(6) Fairland/Colesville, exempting US 29	45.0%	41.3%	43.6%	45.4%

* Proposed by the Planning Board. The current standard is 45.0%.

A table noting the TPAR values for each scenario is on ©7. An appendix will be published shortly that will contain the TPAR charts for each scenario.

e. *Conclusions.* The right geography within which to determine land use/transportation balance for the White Oak area is White Oak itself, not Fairland/White Oak as a whole. Unfortunately, it appears that the current TPAR standard of 45% is unattainable in White Oak, assuming a “with-flow” BRT concept for US 29 between White Oak and Silver Spring. This assumes that the “with-flow” BRT option developed by the Planning Board will be the selected option from MDOT’s upcoming project planning study. Land use/transportation balance should be calculated based on this more conservative assumption. Although the “contra-flow” option would likely result in much more acceptable traffic flow, its negatives—no median, circuitous left-turning, more difficult pedestrian crossings—might or might not outweigh its benefits. Should the “contra-flow” option ultimately be selected, then the land use in this plan should be revisited.

However, the looser 42.5% standard proposed by the Planning Board (but applied only to White Oak—not to all of Fairland/White Oak) is attainable. The above analysis shows that the revised network and a 30% NADMS for existing and new development would bring the average congested speed to 40.3% of free-flow speed. Reducing the increase in housing by 25%—2,140 dwelling units and 10,650 jobs—would improve this percentage by another 2.0%, to 42.3%. A further modest increase in the NADMS or a further small reduction in housing (which has a larger impact on peak-direction travel in White Oak than jobs), should be enough to reach 42.5%.

Similarly, maintaining the current standard of 45.0% for Fairland/Colesville is also achievable with the same measures. The corrected network with a 30% NADMS (for White Oak) will standard would bring the average congested speed to 42.6%. Reducing the increase in housing by 25% (again, in White Oak) would improve this percentage by another 2.2%, to 44.8%. So, again, a further modest increase in the NADMS or a further small reduction in housing (again, in White Oak), should be enough to reach 45.0%.

5. *What LATR roadway standard should be used?* The LATR roadway standards in the SSP, like the Policy Area Test standards, generally vary with the type and extent of transit service: the better the transit service, the less stringent roadway congestion standard. For MSPAs the standard is 1,800 Critical Lane Volume (CLV), 13% over capacity⁵. For the policy areas inside the Beltway, the standard is 1,600 CLV. On the other end of the spectrum, the standard in rural areas is 1,350 CLV. All other policy areas fall within this range, depending upon the quality of the transit service provided.

There are two questions to be answered regarding LATR. First, what should be the standard used to determine land use/transportation balance at buildout? Second, since the SSP is proposed for revision now, what should be the standard put into place now? The PHED Committee will address the second question when it takes up staging at the July 16 worksession.

The current LATR standard for Fairland/White Oak is 1,475 CLV. The Planning Board recommends setting the standard for the new White Oak policy area at 1,600 CLV, for much the same reason as it advocates a looser road congestion standard under TPAR. However, unlike for TPAR, the Board recommends retaining the current 1,475 CLV standard for the rest of Fairland/White Oak, the area what Council staff has referred to here as Fairland/Colesville.

For LATR, the best corollaries are North Bethesda and Kensington/Wheaton, both of which are in the first tier of policy areas north of the Beltway, and which are to varying degrees within the General Plan's "Urban Ring" with Bethesda/Chevy Chase and Silver Spring/Takoma. The current standard in North Bethesda is 1,550 CLV (not including the Grosvenor, White Flint, and Twinbrook MSPAs), and the current standard in Kensington/Wheaton is 1,600 CLV (not including the Wheaton CBD and Glenmont MSPAs).

Council staff recommendation: For the purpose of determining land use/transportation balance at buildout, use 1,600 CLV (1.0 volume/capacity) standard for White Oak and retain the 1,475 CLV standard for Fairland/Colesville. Furthermore, when the Planning Board and Council take up the next full update of the SSP in two years, it should look to revise the North Bethesda policy area standard to 1,600 CLV (1.00 v/c) as well. Then this entire tier of policy areas would have consistent

⁵ Using the Highway Capacity Manual (HCM) measure, the standard is a volume-to-capacity ratio of 1.13.

standards. It would also mitigate to some degree the cost and impacts of the intersection improvements that will be necessary to handle the large increase in traffic that will be heading in and out of White Flint.

III. TRANSPORTATION ELEMENTS

For the most part the Final Draft recommends the same transportation improvements as the 1997 Fairland and White Oak Master Plans, most significantly the grade-separated interchanges on US 29 at Stewart Lane and Industrial Parkway/Tech Road, and—beyond the master plan area—the interchanges at Fairland Road/Musgrove Road, Greencastle Road, and Blackburn Road. The Final Draft considers these key to serving most of the proposed development, and they are all essential in achieving land use/transportation balance, even at a more congestion-tolerant standard.

1. Old Columbia Pike: Cherry Hill Road to Stewart Lane. Old Columbia Pike—the original Columbia Pike, before the divided highway that is now US 29 was built in the middle of the last century—is a two-lane road in this section, with the exception of the Paint Branch crossing, which was closed to motor vehicle traffic more than three decades ago due to the bridge’s poor structural condition. The 1981 Eastern Montgomery County Plan called for the bridge to be repaired, and for the roadway between East Randolph Road and Stewart Lane to be reconstructed with the option for future widening to 4 lanes by establishing a minimum right-of-way of 80’.⁶

The 1997 Fairland and White Oak Plans each called for keeping the bridge closed to motor vehicles, stating that opening the bridge would change the character of the road, would require a large expenditure of funds, would not significantly relieve congestion on US 29, and, in White Oak, would not be needed for access once the Stewart Lane interchange were built. The White Oak Plan classified its segment as a 2-lane business district street, while the Fairland Plan classified its segment as a 2-lane primary residential street south of Industrial Parkway, but with 4 lanes between Industrial Parkway and Cherry Hill Road. Both plans, however, retained the recommendation for an 80’ right-of-way.

The Final Draft, like the 1981 Plan, calls for reopening the bridge to motor vehicle traffic, noting that while “Reopening the bridge to vehicular traffic will have impacts for residents on Old Columbia Pike, but this Plan considers improvements to local connectivity and circulation to be of overriding importance.” [p. 56]. It would retain the 2-lane recommendation from the 1997 plans, as well as the classifications: a business district street south of Paint Branch and a primary residential street north of it to Industrial Parkway. The Final Draft retains the recommendation for an 80’-wide master planned right-of-way south of Paint Branch, but it recommends an 84’-wide right-of-way north of it. The correspondence and testimony from the residential areas on either side of Paint Branch oppose the reconnection (see an example on ©8-9).

Providing adequate transportation in White Oak is most challenging because of the natural and institutional barriers that block the ability to provide more connectivity: Northwest Branch, Paint Branch, and the secured FDA complex. The Old Columbia Pike crossing of Paint Branch, which is a 100’-wide right-of-way within Paint Branch Park (according to tax maps) is the only opportunity for a

⁶ The 1981 has conflicting information about the classification of this road. The text (pp. 178-9) says it should be reconstructed to primary residential street standards, but the plan map (p. 167) and the table (p. 173) identifies it as a business street.

new connection. A major deficiency in this plan is the lack of a north-south alternative to US 29. With US 29 ultimately to be upgraded to a freeway, the only route for most local north-south trips in this area—to school, to church, to local shopping, etc.—will be via the US 29 freeway. The purpose of the alternative is not primarily to relieve congestion on US 29 caused by regional traffic, but to serve shorter trips that begin and end in the planning area. For safety reasons, local trip-making should be segregated from regional traffic.

If the bridge were rebuilt it would operate as connection between two distinct communities, and so it would act neither as a primary residential street nor a business district street, but as an arterial. Furthermore, a 4-lane arterial could fit within the same 80'-wide master-planned right-of-way as the proposed 2-lane business district street and less than the 84' right-of-way of the proposed primary residential street. The table bellows shows the elements for the proposed primary residential street right-of-way (the proposed business district street dimensions are not dissimilar) and for a 4-lane arterial:

Cross Section Element	Primary Street (Standard 2003.09)	4-lane Arterial (Standard 2004.08)
Maintenance offset	2'	2'
Sidewalk	6'	5'
Buffer	10'	6.5'
Parking lane	8'	-
Bike lane/shoulder	6'	5.5'
Travel lane	10'	10'
Travel lane (inside)	-	11'
Travel lane (inside)	-	11'
Travel lane	10'	10'
Bike lane/shoulder	6'	5.5'
Parking lane	8'	-
Buffer	10'	6.5'
Sidewalk	6'	5'
Maintenance offset	2'	2'
TOTAL	84'	80'

In both cases there are bike lanes and sidewalks of sufficient width (they each must be at least of 5' wide). The buffers between the sidewalk and curb would be less with the arterial option, but 6.5' is more than sufficient for grass and plantings. The primary difference is that under the arterial option there would be no explicitly allocated parking lanes. In several site visits to both sides of Old Columbia Pike Council staff has seen very limited on-street parking activity. But if the desire is to continue to allow on-street parking, it could still be allowed most of the time – just not during weekday rush hours.

The impact of this type of 4-lane arterial is not inconsistent with the area through which it passes. The lanes would be narrower than most—at 10-11' they are consistent with the goals of Bill 33-13, currently before the Council, which attempts to reduce road widths in active pedestrian environments. Furthermore, while there are residential subdivisions that back up to Old Columbia Pike and multi-family apartments that face it, there is no single-family home that fronts on it nor has a driveway to it.

The forecasts also suggest that the concern that Old Columbia Pike would be clogged with traffic is unwarranted. The TPAR analysis for the Final Draft's option—with the 2-lane connection—shows that peak-period, peak-direction traffic on this section of Old Columbia Pike would be about 55% of

free-flow speed, or Level of Service D. However, as a 4-lane road it would operate at about 85% of free-flow speed, the edge of Levels of Service B and C.

Council staff agrees with the Planning Board that the purpose of this connection and improvement would be to improve local circulation, if local is considered to be internal trips within this planning area. Without the new interchanges at Tech Road/Industrial Parkway and at Stewart Lane, however, this route could become saturated with traffic headed to the Life Sciences/FDA Village or to the White Oak Shopping Center area from outside the planning area. Therefore, the connection and its widening to 4 lanes should only occur after the two interchanges are constructed.

Council staff recommendation: Include in the plan the reconnection of Old Columbia Pike over Paint Branch and its reconstruction as a 4-lane arterial (Road Construction Code Standard 2004.08) between Industrial Parkway and Stewart Lane in an 80'-wide master-planned right-of-way. This improvement must not be opened to traffic until the US 29 interchanges at Stewart Lane and at Tech Road/Industrial Parkway are open to traffic.

2. *Old Columbia Pike: Stewart Lane to Lockwood Drive.* From Stewart Lane south, Old Columbia Pike transitions into the parking lot of the White Oak Shopping Center. As the shopping center redevelops, Old Columbia Pike could be extended as a 4-lane arterial along the northwest and southwest edges of the site, connecting back to Lockwood Drive near its intersection with New Hampshire Avenue. This would create additional access in this quadrant and relieve some of the traffic that would otherwise be on Lockwood Drive and Stewart Lane through the multi-family residential area east of the shopping center. It should have the same right-of-way and cross section as the segment north of Stewart Lane.

Council staff recommendation: Include in the plan a 4-lane arterial extension of Old Columbia Pike south of Stewart Lane following near the northwest and southwest edges of the White Oak Shopping Center property, terminating at Lockwood Drive near New Hampshire Avenue. The road should have an 80'-wide minimum right-of-way and Standard 2004.08 as its recommended cross-section.

3. *Road classifications in WestFarm and Life Sciences/FDA Village.* The Final Draft recommends reclassifying Industrial Parkway, Tech Road, Broadbirch Road, and Plum Orchard Drive from industrial roads to business district streets, and that Industrial Parkway be extended from its dead-end to FDA Boulevard. None of these changes would add capacity; they have been proposed to recognize that this area would be transitioning from an industrial zone to a more traditional business district, with more accommodation needed for pedestrians and cyclists. FDA Boulevard (then called the FDA Access Road) was recommended as a 2-lane industrial street in the 1997 Fairland Plan; this plan calls for it to be a 4-lane business district street.

The connection of Industrial Parkway and Tech Road to US 29, and its connection to FDA Boulevard out to Cherry Hill Road, provides what is tantamount to an arterial connection, and it should be classified as such. Prosperity Drive—the continuation of Old Columbia Pike between Industrial Parkway and Cherry Hill Road—should also carry an arterial designation, and be widened to 4 lanes, consistent with recommendation in section III.1, above.

Council staff recommendation: Concur with the Planning Board, except that Industrial Parkway/Tech Road/FDA Boulevard should be classified as arterials and that Prosperity Drive should ultimately be widened to 4 lanes and be classified as an arterial.

4. Intersection improvements. The Final Draft lists a series of intersections that will fail the 1,600 CLV (1.00 v/c) standard with the proposed development in the plan. Sabra Wang has updated this analysis assuming the revised network described in section II.4.a of this packet. The results are shown on ©10. Assuming a 1,600 CLV standard for White Oak, and assuming the intersection improvements (i.e., adding turning and through lanes) noted on ©10, there would still be two intersections within the planning area projected to fail: New Hampshire Avenue/Powder Mill Road, which would be 20% over capacity in the morning peak and 11% over the evening peak; and Cherry Hill Road/Broadbirch Drive/Calverton Boulevard, which would be 8% over capacity in the evening peak.

Sabra Wang also examined several intersections outside the planning area. No improvement is needed at Old Columbia Pike/Fairland Road to meet the 1,450 CLV standard, but a traffic signal, a southbound left-turn lane, and a westbound right-turn lane is recommended at the Old Columbia Pike/Musgrove Road intersection. Three intersections in Prince George's County would fail if they were within the County. Finally, and not surprisingly, the Four Corners intersections would operate far worse than capacity: 24-38% worse.

Council staff recommendation: Include the specific intersection improvements on ©10 that are in Montgomery County in the plan, with the note that their need be revisited as part of the biennial monitoring.

Assuming a 30% NADMS and adding less density than the Final Draft recommends, these overages would be diminished somewhat. Depending on the degree of the change and where, it is possible that lesser improvements would be needed.

5. BRT improvements. The Countywide Transit Corridors Functional Master Plan approved last fall already includes BRT routes on US 29, New Hampshire Avenue, and Randolph Road. The Final Draft recognizes these facilities⁷ and, further, recommends extension of the Randolph Road BRT east of US 29 along Cherry Hill Road. It also shows a potential supplemental BRT route into Life Science/FDA Village and a couple of potential extensions into Prince George's County.

The proposed development nodes at the White Oak Shopping Center and Hillandale will be well served by BRT, with stops at their doorstep. As it currently stands, however, the same cannot be said for the Life Science/FDA Village, the center of which will be at least a half-mile from the nearest stop at US 29/Tech Road. Running a shuttle to this stop will not be sufficient, since it would require one more transfer than would otherwise be necessary. A more effective solution would be to extend a spur of the BRT routes into the middle of this area.

Council staff recommendation: Create a BRT spur off of the mainline US 29 BRT route into Life Science/FDA Village via Tech Road/Industrial Parkway. Extend the Randolph Road BRT from current planned terminus at US 29/Randolph Road into Life Science/FDA Village, also

⁷ The Final Draft references the Planning Board's draft of the CTCFMP; the final resolution should amend this language to refer to the Council-approved plan.

via Tech Road/Industrial Parkway. In both cases BRT should run in mixed traffic on Industrial Parkway, with no dedicated lanes, no added transit lanes, and no widening beyond the otherwise planned right-of-way. A station common to both routes should be planned for Life Science/FDA Village. Creating the spur does not mean that all—or even most—BRT service on US 29 would be diverted into Life Science/FDA Village. But the frequency of service needs to be sufficient enough to attract its new residents to the service and entice employees to access this node, especially from the south.

6. Bikeway improvements. The Final Draft recommends these new bikeways:

- A shared use path on FDA Boulevard
- Bike lanes on Prosperity Drive, Powder Mill Road, Plum Orchard Drive, Industrial Parkway, and new road B-5 between Plum Orchard Drive and FDA Boulevard
- A dual bikeway—both a shared-use path and a signed share roadway—on Broadbirch Drive.

Furthermore, the Board recommends establishing two more Road Code Urban Areas which would double as Bicycle Pedestrian Priority Areas: the Hillandale node and the combination of the White Oak Center and Life Sciences/FDA Village Center (see Map 15, p. 67).

Council staff recommendation: Concur with the Final Draft.

Capital Improvement Projects

Project Type	Description	Cost Estimate
Transit, Road Construction and Improvements	Minor Intersection Improvements (7 intersections)	\$20,000,000
	Road Widening/New Bikeways (11 projects)	\$157,810,550
	MD29, New Hampshire Ave & Randolph Rd Bus Rapid Transit (37%, 19%, 12% in plan area, respectively)	\$179,700,000
	New Transit - Circulator	\$4,675,000
	Roadway Reclassifications	\$41,052,000
	New Roads/Bridges (4 projects)	\$75,726,000
Public Safety	New Fire Station w/ medic unit in the vicinity of Rt. 29 & Tech Rd. (not incl. land)	\$14,191,000
	Apparatus: one engine and one medic unit	\$2,000,000
Park Land Acquisitions and Improvements	Trailhead w/ signage & natural surface trail at eastern edge of Paint Branch Stream	\$20,000
	Neighborhood Green Urban Park, approx. 2 acres	\$4,800,000
	Hillandale Local Park Renovation (land likely obtained by easement)	\$9,000,000
	Local Park with adult rectangular athletic field and other amenities, assume 5 acres	\$1,500,000
	Integrated trail & bikeway system to connect perimeter trails	\$6,000
	Natural Surface Trail connecting Plan area to MLK Rec Park	\$350,000
	Civic Green Urban Park, approx. 1 acre	\$2,400,000
MCPS	Elementary: 733 add'l students x \$32,399 per student (plan reserves site for new ES	\$23,748,467
	Middle: 340 add'l students x \$35,417 per student	\$12,041,780
	High: 438 add'l students x \$40,625 per student	\$17,793,750
Subtotal Capital Improvement Projects:		\$566,814,547

Potential Future Fiscal Impacts

Department	Description	Cost Estimate
① Transportation	Road Widening/New Bikeways (11 projects)	\$174,029
	MD29, New Hampshire Ave & Randolph Rd Bus Rapid Transit (37%, 19%, 12% within plan area, respectively)	\$2,700,800
	New Transit - Circulator	\$1,022,700
	Roadway Reclassifications	\$100,000
	New Roads/Bridges (4 projects)	\$162,096
Police	14 POIII @ 12.32 FTE [\$1,115,391] + Operating Expenses [\$324,051]	\$1,439,442
	One-time vehicle and specialized equipment costs for new officers	\$810,586
Fire & Rescue Services	Staffing for new Fire Station (annually) (5 captains, 10 masters, 15 firefighters)	\$3,740,000
	Station Operating Costs	\$100,000
MCPS	Elementary: 733 add'l students x \$14,372 per student	\$10,534,676
	Middle: 340 add'l students x \$13,786 per student	\$4,687,240
	High: 438 add'l students x \$14,065 per student	\$6,160,470
Subtotal Operating Budget Impacts (One-time costs):		\$810,586
Subtotal Operating Budget Impacts (Ongoing costs):		\$30,821,453

Basis and Assumptions

1. Departments reporting zero or minimal fiscal impacts include: HHS, DPS, LIB, REC, DHCA

Assume 20% farebox recovery for Rapid Transit and 15% for Circulator. For full benefits of portions of rapid transit corridors in the Plan, all three corridors must be built in their entirety. Minor Intersection Improvements includes 50% construction contingency and 10% design & engineering contingency. Road Widening/Bikeways & Roadway Reclassifications include 40% contingency, 15% overhead, 25% Program Development & Support (PDNS) & 5% utilities. New Roads/Bridges includes 40% contingency, 10% overhead (15% for one bridge project) & 25% PDNS.

Neighborhood Green Urban Park and Civic Green Urban Park assume developer donation and clearing of land.

State funding is assumed for two interchange projects located within the Plan area (Stewart Ln and Industrial Rd & Tech Rd) at a combined cost of \$225.25 million.

White Oak Master Plan Area
Montgomery County, Maryland

S-1: Summary of County Impacts from the White Oak Master Plan Area

Fiscal Impacts to Montgomery County	Existing Development Impacts (Annual Estimate)¹	Percent of Total	New Development Impacts (Thirty Year Cumulative Estimate)²	Percent of Total
Real property tax revenues	\$14,451,855	34%	\$1,031,706,911	36%
Personal property tax revenues	\$811,507	2%	\$27,285,997	1%
Special service area tax revenues				
Real property	\$4,992,407	12%	\$365,798,841	13%
Personal property	\$280,336	1%	\$9,521,834	0%
Income tax revenues				
Personal	\$0		\$395,209,580	
Personal from employees	\$0		\$661,091,200	
Sub-total	\$15,641,394	37%	\$1,056,300,780	37%
Transfer tax revenues	\$474,209	1%	\$41,639,120	1%
Recordation tax revenues	\$208,652	0%	\$16,079,883	1%
County energy tax revenues ³	\$0	0%	\$191,803,145	7%
Hotel/motel tax revenues	\$975,034	2%	\$65,569,246	2%
Additional county revenues ³	\$4,391,634	10%	\$75,295,772	3%
New county revenues	\$42,227,028	100%	\$2,881,001,528	100%
Additional costs to Montgomery County ⁴	(\$38,918,192)		(\$1,357,132,196)	
Net surplus/deficit	\$3,308,836		\$1,523,869,332	

¹Represents the estimated fiscal impacts to Montgomery County from existing development in the White Oak master plan area. Impacts are shown on an annual basis for the 2013-2014 tax year.

²Represents the total impacts over the thirty year period shown in the projections and includes inflation. Impacts exclude existing development impacts.

³Existing development energy tax revenues from existing development are included in additional county revenues line item. Additional county revenues include all other general fund revenues assumed to be impacted from the development excluding property tax, income tax, transfer tax, recordation tax, and hotel tax.

⁴Excludes additional costs from capital expenditures. Costs shown include inflation and represents total cost over the thirty year period shown in the projections.

White Oak Master Plan Area
Montgomery County, Maryland

S-2: Summary of White Oak Master Plan Area Demographics

<u>Demographic Data</u>	New Development Impacts (Full Build-Out/Excludes Existing)¹	
Households	8,570	
Population	21,526	
School students	1,545	
Full time equivalent employees	31,048	
Percent of employees assumed to reside in the County	46%	
Employee residents	14,282	
<u>Comparison of Employment Impacts (M&S & Park & Planning)</u>	<u>Marshall & Swift Estimate²</u>	<u>Park & Planning Estimate³</u>
Permanent Employment Impacts	(New Development Impacts)	(New & Existing Development Impacts)
Direct	31,048	70,312
Indirect	23,149	-
Total	54,197	-
Annual Wage Impacts²	<u>Marshall & Swift Estimate²</u>	
Direct	\$2,113,680,532	-
Indirect	\$1,337,265,343	-
Total	\$3,450,945,875	-

(3)

¹Represents the estimated growth to Montgomery County from new development in the White Oak master plan area. Demographic growth impacts are shown at full build-out of the proposed development.

²Marshall and Swift estimate of jobs and wages as calculated using IMPLAN software by MIG, Inc. Represents full-time equivalent positions created as a result of the new development. Excludes impacts from existing development.

³Represents estimated jobs based on job factors per gross square foot provided by Montgomery County Planning Department, Center for Research and Information Systems. Office assumes down-county factor. According to Park and Planning, these assumptions do not distinguish between full-time and part-time jobs, but are meant to represent the number of jobs able to be located in a given space. Total estimate represents existing and new development impacts.

White Oak Master Plan Area
Montgomery County, Maryland

S-1: Summary of County Impacts from the White Oak Master Plan Area

Fiscal Impacts to Montgomery County	Existing Development Impacts (Thirty Year Cumulative Estimate)¹	Percent of Total	New Development Impacts (Thirty Year Cumulative Estimate)²	Percent of Total	Total Impacts (New & Existing)
Real property tax revenues	\$612,461,512	34%	\$1,031,706,911	36%	\$1,644,168,423
Personal property tax revenues	\$25,156,717	1%	\$27,285,997	1%	\$52,442,714
Special service area tax revenues:					
Real property	\$211,575,430	12%	\$365,798,841	13%	\$577,374,271
Personal property	\$8,690,412	0%	\$9,521,834	0%	\$18,212,246
Income tax revenues:					
Personal	\$0		\$395,209,580		\$0
Personal from employees	\$0		\$661,091,200		\$0
Sub-total	\$662,873,549	37%	\$1,056,300,780	37%	\$1,719,174,329
Transfer tax revenues	\$20,096,713	1%	\$41,639,120	1%	\$61,735,833
Recordation tax revenues	\$8,842,554	0%	\$16,079,883	1%	\$24,922,437
County energy tax revenues ³	\$0	0%	\$191,803,145	7%	\$191,803,145
Hotel/motel tax revenues	\$41,321,396	2%	\$65,569,246	2%	\$106,890,642
Additional county revenues ³	\$186,114,985	10%	\$75,295,772	3%	\$261,410,757
New county revenues	\$1,777,133,268	100%	\$2,881,001,528	100%	\$4,658,134,796
Additional costs to Montgomery County ⁴	(\$1,649,331,198)		(\$1,357,132,196)		(\$3,006,463,394)
Net surplus/deficit	\$127,802,070		\$1,523,869,332		\$1,651,671,402

¹Represents the estimated fiscal impacts to Montgomery County from existing development in the White Oak master plan area. Represents the total impacts over the thirty year period shown in the projections and includes inflation.

²Represents the total impacts over the thirty year period shown in the projections and includes inflation. Impacts exclude existing development impacts.

³Existing development energy tax revenues from existing development are included in additional county revenues line item. Additional county revenues include all other general fund revenues assumed to be impacted from the development excluding property tax, income tax, transfer tax, recordation tax, and hotel tax.

⁴Excludes additional costs from capital expenditures. Costs shown include inflation and represents total cost over the thirty year period shown in the projections.

7

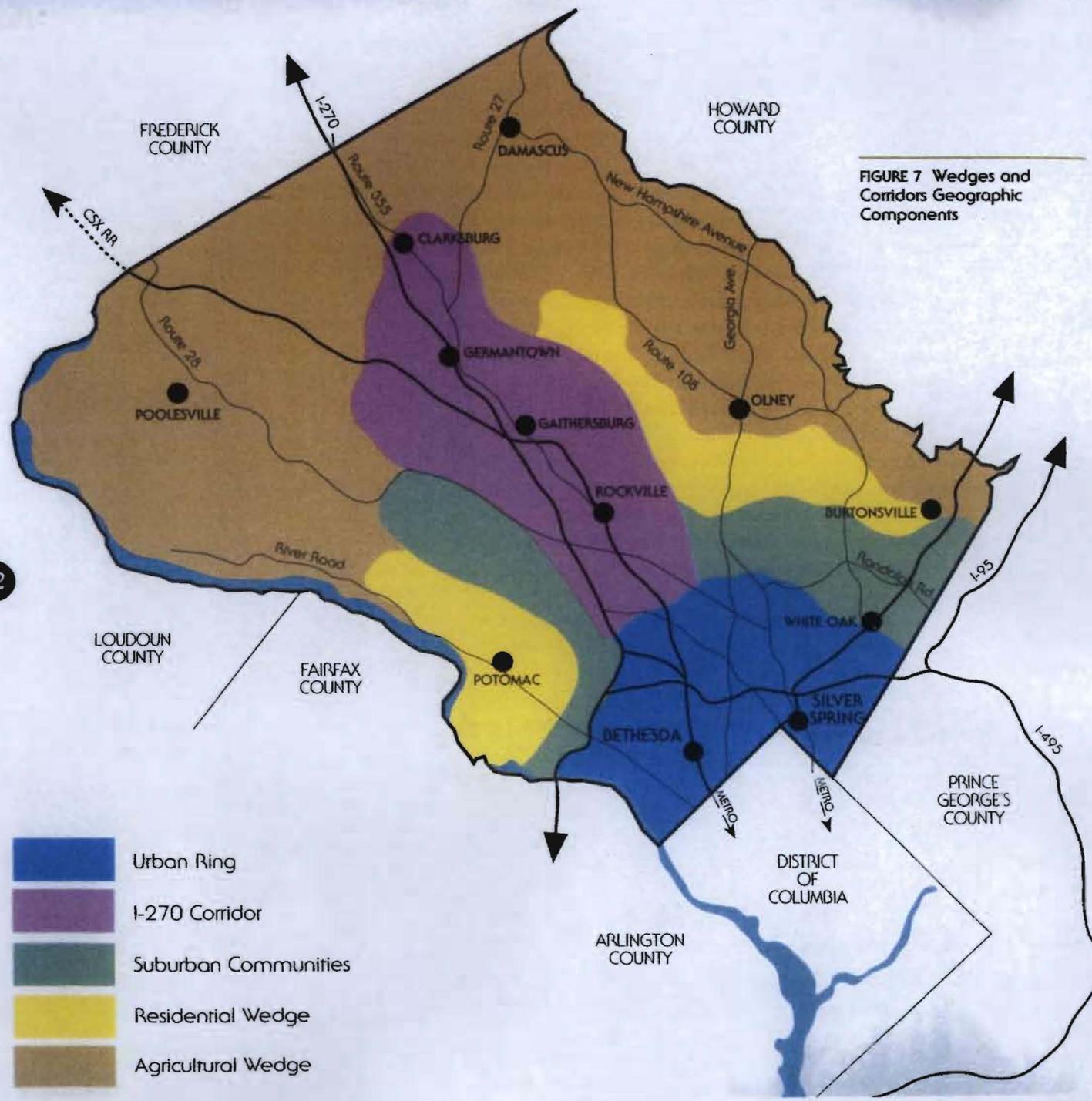


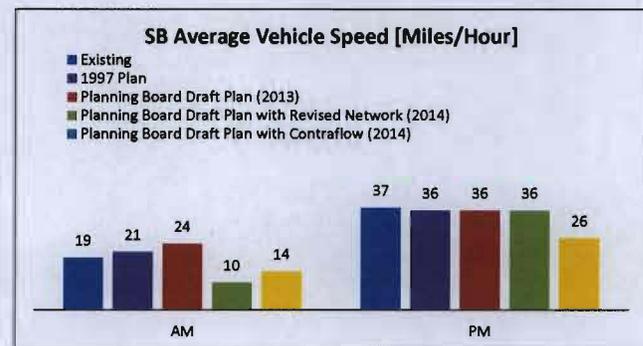
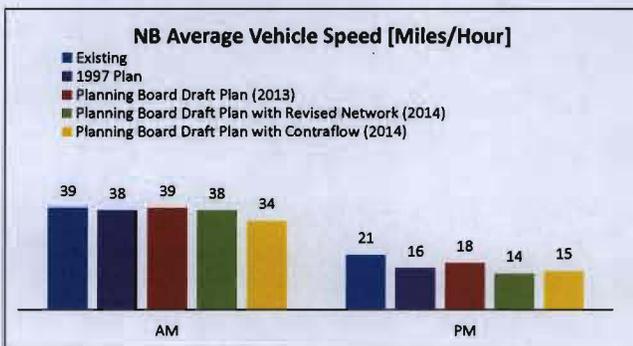
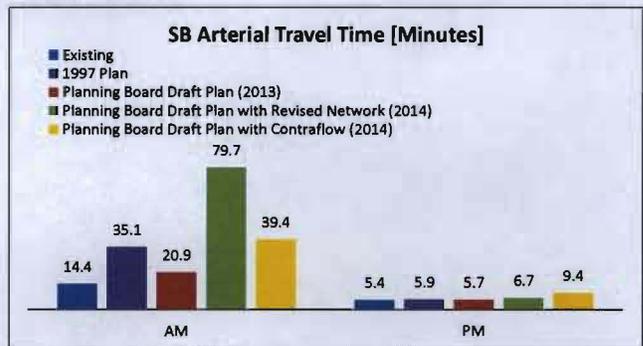
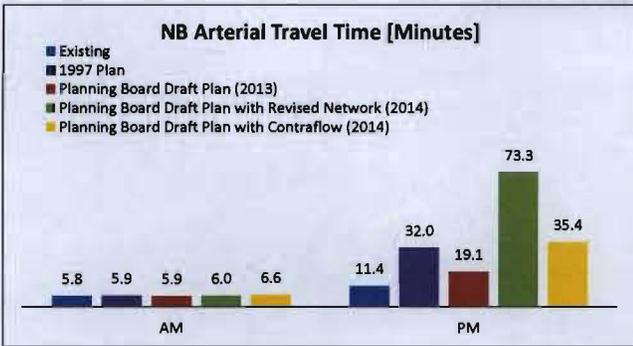
FIGURE 7 Wedges and Corridors Geographic Components

5

22

- Urban Ring
- I-270 Corridor
- Suburban Communities
- Residential Wedge
- Agricultural Wedge

US 29 Arterial Mobility Traffic Simulation Analysis Between Stewart Lane and MD 193



6

White Oak Science Gateway S. Plan
TPAR Test - Speed Ratios

	A	B	C	D	E	F
	Area of TPAR Analysis	Planning Board Draft Plan (With correction to appropriately reflect US 29 traffic discount north of MD 650.)	"Network Test" Reflect BRT lane reourposing on US 29 & MD 650. Assume freeway capacity on US 29 north of MD 650. Add widening of Old Col. Pike and extend to W. Oak S. Ctr. Assume Planning Board NADMS recommendations (25%/30%).	"NADMS Test" "Network Test" changes and assume 30% NADMS for Activity Centers.	"Land Use Sensitivity Test " "Network Test" changes and assume 25% reduction in proposed new development.	"1997 Master Plan Test" "Network Test" changes in combination with adopted master plan land use.
1						
2						
3						
4	F W Oak - US 29 in	38.4	41.7	41.9	43.9	43.3
5						
6	F W Oak - Discount US 29	39.2	40.2	40.5	41.1	41.9
7						
8	W O S G - US 29 in	33.3	39.2	40.3	41.2	42.9
9						
10	W O S G - Discount US 29	34.6	30.3	30.2	29.9	35.1
11						
12	Fairland/Colesville - US 29 in	39.6	42.3	42.6	44.5	43.8
13						
14	Fairland/Colesville - Discount US 29	41.3	43.6	44.2	45.1	45.4
15						
16						
17						
18						
19						

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1637 Carriage House Terrace
Silver Spring, Maryland 20904

February 7, 2014

The Honorable Craig Rice
Montgomery County Council
100 Maryland Avenue
Rockville, Maryland 20852

Re: White Oak Science Gateway Master Plan
Transportation Recommendations to Re-Open Old Columbia Pike Bridge

Dear Councilmember Rice,

I am a resident of a Condominium Community (The Tiers of Silver Spring) which is located off Old Columbia Pike. I refer to the White Oak Science Gateway Master Plan's transportation recommendation to rebuild and re-open Old Columbia Pike Bridge aka Historic Paint Branch Gorge Bridge.

The White Oak Science Gateway Master Plan's illustrative analysis refers only to connecting White Oak North & South internally (re-open Columbia bridge). There is no reference or rendering of the existing 1000 + housing units comprised of **three subdivisions and one apartment building south of the bridge**; Gatestone (Townhomes), Tiers of Silver Spring (Condominiums), The Oaks (Condominiums / Townhomes), (White Oak Towers Apartments) and **three subdivisions north of the bridge**; **Paint Branch Park** (Condominium/Townhomes), Columbia Towers (Condominiums), Stonehedge (Condominiums/Townhomes).

Currently, there is no immediate access to public transportation on Old Columbia Pike , south or north of the bridge. Residents south of the bridge must walk .55 miles to access public transportation. The north bound roadway beginning at Stewart Lane is used as a truck stop by commercial vehicles and parking for residents. Walking to and from public transportation at night can be troublesome due to the wooded area adjacent to the Dow Jones building. The area is used as a congregating place to smoke and drink. There is an abundance of litter, alcoholic beverage containers and smoking paraphernalia within the wooded area.

The plan states the purpose of re-opening the bridge is to improve **local traffic** circulation due to limited physical and environmental constraints. It is my understanding that re-opening the bridge will bring an estimated 500 additional vehicles during peak hours. Old Columbia Pike runs parallel to US 29. If the bridge is re-opened, traffic from New Hampshire Avenue and US 29 will eventually shift. The two lane Old Columbia Pike will become gridlocked and create physical and environmental constraints for pedestrians and vehicles entering and exiting the roadway.

Traffic has long been a problem for Old Columbia Pike and US 29, which is reflected in the history of Historic Paint Branch Gorge Bridge. The 1997 White Oak Plan recommended that the bridge not be rebuilt. The plan further recommended the bridge portion of Old Columbia Pike be reserved for

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pedestrian and bicycle use. Forecast indicated that opening the bridge to vehicular traffic would not relieve the congestion on US 29, and the new interchange on Stewart Lane would benefit residents east of US 29.

Re-opening the Historic Paint Branch Gorge Bridge is not sustainably sound and will not benefit the Old Columbia Pike community.

Sincerely,

June C. Henderson
(240) 485-4876

2040 Proposed Land Use and Master Plan Transportation Improvements (2014 Planning Board Draft Revised Network)

AM (PM)

Intersection	Critical Lane Volume			HCM			Notes
	CLV	Level of Service	V/C Ratio	Delay (sec)	Level of Service	V/C Ratio	
Cherry Hill Rd at Broadbirch Dr/Calverton Blvd	1351 (1523)	D (E)	0.84 (0.95)	26.2 (60.5)	C (E)	0.98 (1.08)	Added EBL and EBT lane (Broadbirch Dr) Changed WBR to WBTR lane (Calverton Blvd) Added NBL turn lane (Cherry Hill Rd) Added SBR lane (Cherry Hill Rd)
MD 650 at Mahan Rd/Schindler Dr	1065 (1371)	B (D)	0.67 (0.86)	13.3 (38.9)	B (D)	0.62 (0.86)	
Old Columbia Pike at Fairland Rd	1275 (1450)	C (D)	0.80 (0.91)	25.3 (55.2)	C (E)	0.91 (0.99)	
MD 650 at Powder Mill Rd	1513 (1495)	E (E)	0.95 (0.93)	68.0 (62.0)	E (E)	0.93 (0.84)	Added EBL turn lane (Holly Hall) Added WBR turn lane (Powder Mill) Added SBL turn lane (MD 650)
Old Columbia Pike at Musgrove Rd	1050 (1275)	B (C)	0.66 (0.80)	23.4 (26.8)	C (C)	0.75 (0.77)	Added Signal Added SBL turn lane Added WBR lane
MD 650 at Lockwood Dr	1181 (1316)	C (D)	0.74 (0.82)	42.3 (43.1)	D (D)	0.66 (0.76)	Added EBL turn lane.
Powder Mill Rd at Riggs Rd ¹	1009 (1289)	B (C)	0.63 (0.81)	24.0 (39.8)	C (D)	0.66 (0.84)	Added 2nd EBL turn lane
Powder Mill Rd at Cherry Hill Rd ¹	1547 (1579)	E (E)	0.97 (0.99)	67.6 (71.2)	E (E)	1.01 (1.04)	Added 2nd and 3rd SBL turn lanes Added 2nd WBL turn lane Restripe for WB free right turn lane Added NB free right turn lane
Fairland Rd at Briggs Chaney Rd ¹	1650 (1490)	F (E)	1.03 (0.93)	67.7 (62.8)	E (E)	1.15 (1.18)	dynamic lane use - AM EB LT + R
Powder Mill Rd at Beltsville Rd ¹	1233 (1197)	C (C)	0.77 (0.75)	57.0 (46.6)	E (D)	0.95 (0.87)	Added second EBL turn lane
US 29 at MD 193 (north)	2435 (2229)	F (F)	1.52 (1.39)	168.9 (132.0)	F (F)	1.37 (1.24)	
US 29 at MD 193 (south)	2405 (2350)	F (F)	1.50 (1.47)	144.9 (175.3)	F (F)	1.30 (1.38)	

White Oak Plan area thresholds are set at CLV of 1600 and v/c of 1.00. Values that exceed these thresholds are bolded.

Fairland Plan area thresholds are set at CLV of 1475 and v/c of 0.92. Values that exceed these thresholds are bolded.

1 - Intersection falls within the Master Plan Study Area and outside of Montgomery County



Shading indicates intersection in plan area

Shading indicates intersection outside of Montgomery County

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PHED COMMITTEE #1&2
July 1, 2014
Addendum

MEMORANDUM

June 29, 2014

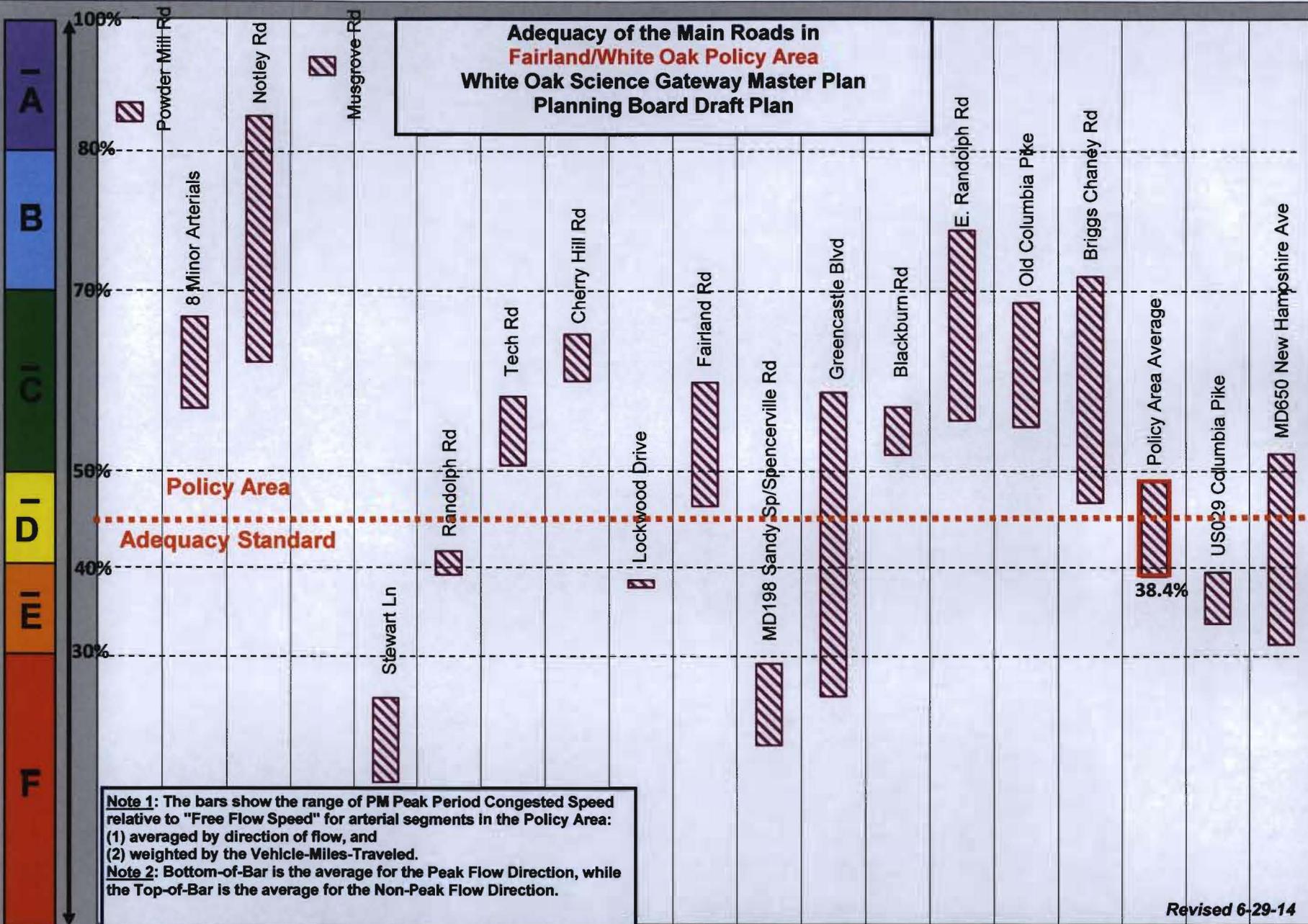
TO: Planning, Housing, and Economic Development (PHED) Committee
FROM: Glenn Orlin, ^{GO}Deputy Council Administrator
SUBJECT: **Addendum**--White Oak Science Gateway Master Plan

Attached are the TPAR charts for each of the 30 scenarios summarized on ©7.

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**Adequacy of the Main Roads in
Fairland/White Oak Policy Area
White Oak Science Gateway Master Plan
Planning Board Draft Plan**



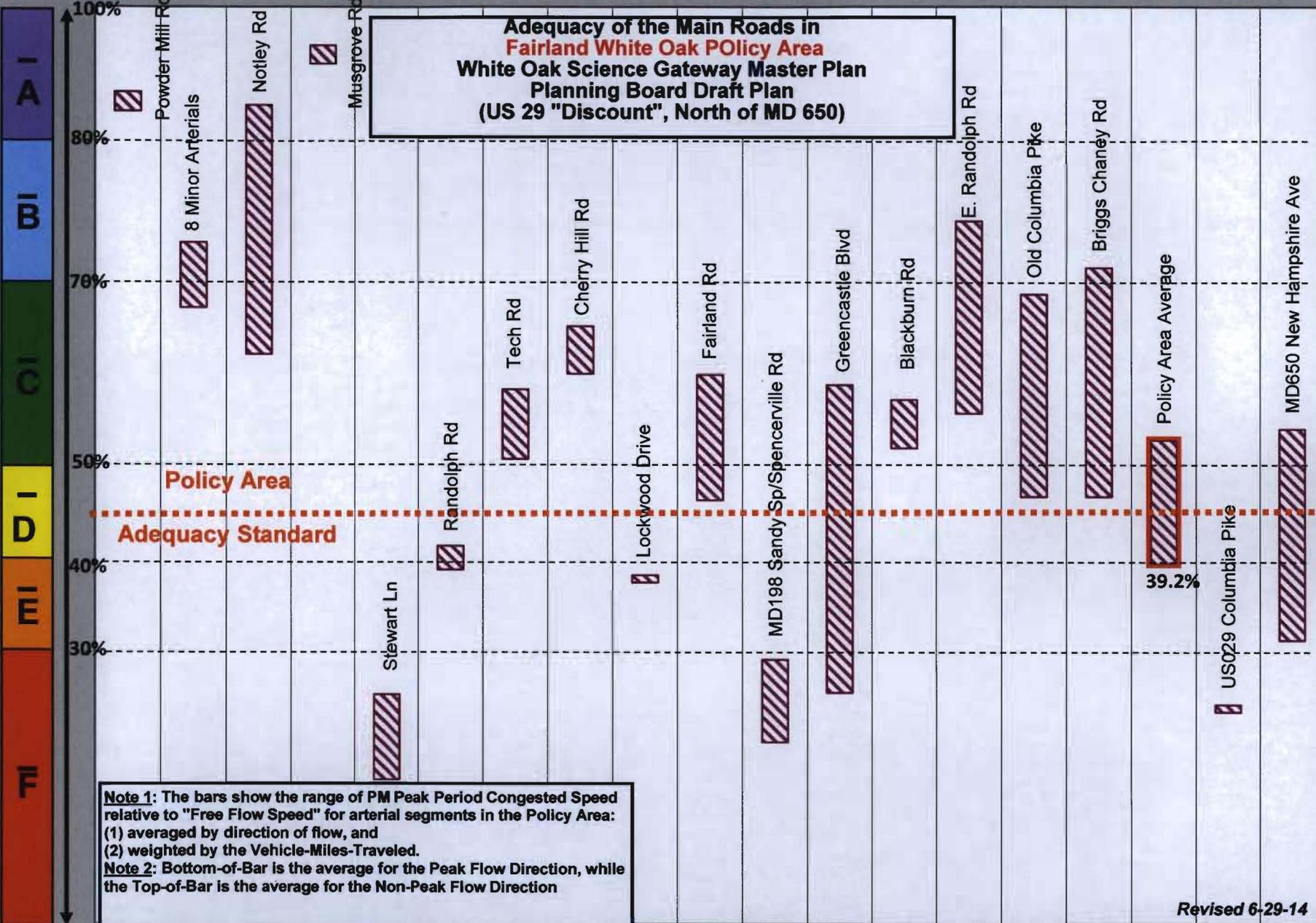
Note 1: The bars show the range of PM Peak Period Congested Speed relative to "Free Flow Speed" for arterial segments in the Policy Area:
 (1) averaged by direction of flow, and
 (2) weighted by the Vehicle-Miles-Traveled.
Note 2: Bottom-of-Bar is the average for the Peak Flow Direction, while the Top-of-Bar is the average for the Non-Peak Flow Direction.

Revised 6-29-14

Arterial Performance within the Fairland White Oak (FWO) Policy Area

(2)

**Adequacy of the Main Roads in
Fairland White Oak Policy Area
White Oak Science Gateway Master Plan
Planning Board Draft Plan
(US 29 "Discount", North of MD 650)**

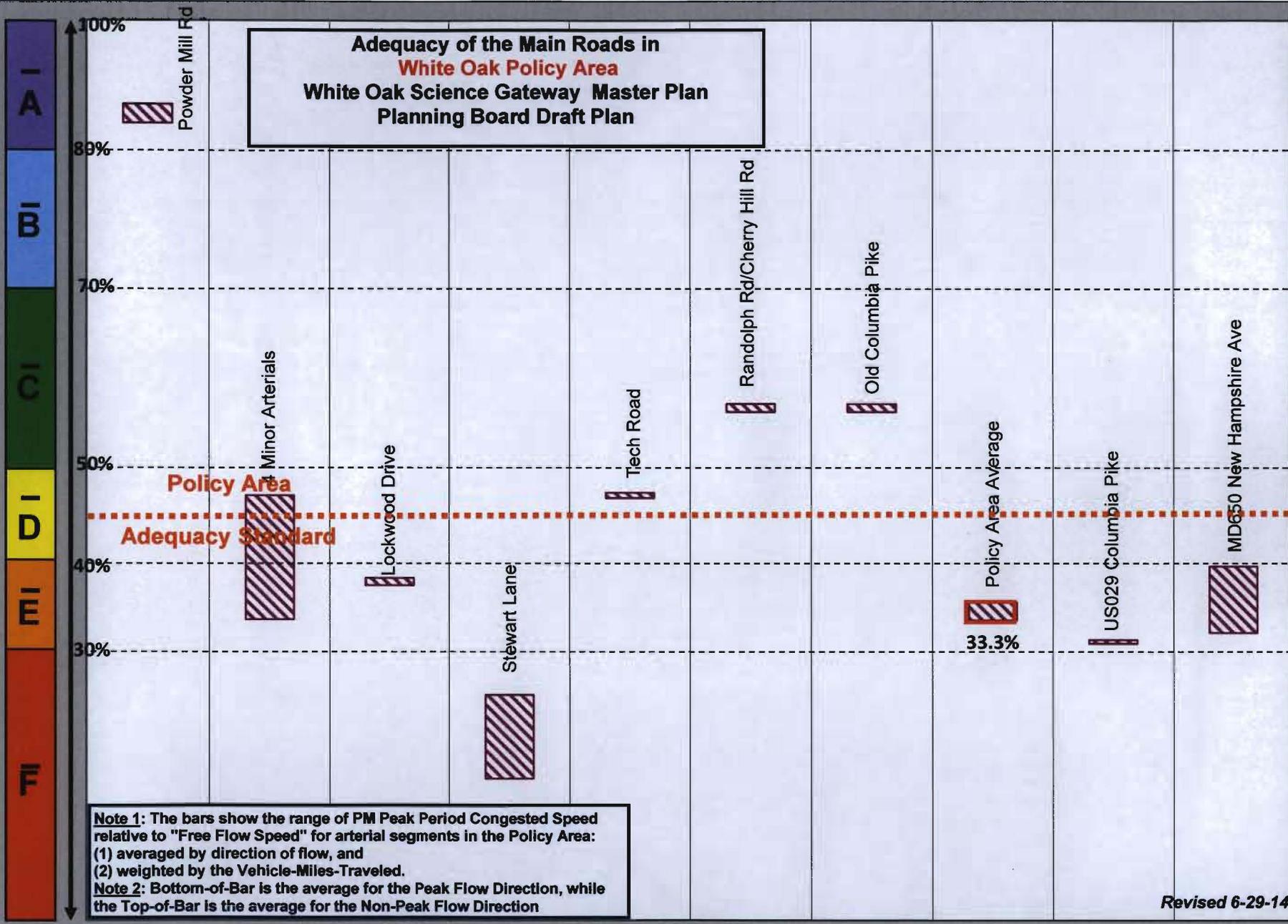


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Arterial Performance within the Fairland White Oak (FWO) Policy Area

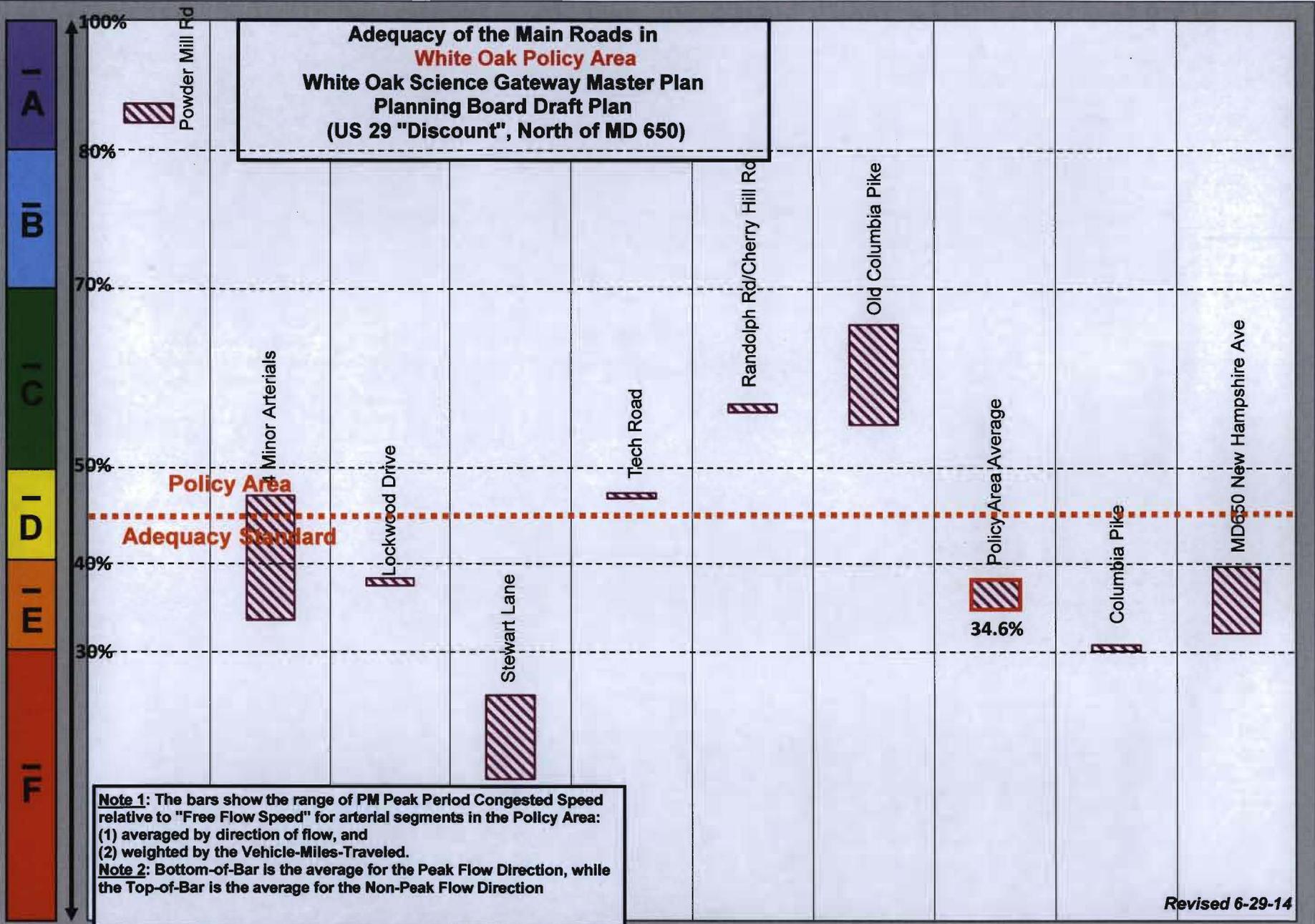
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Arterial Performance within the White Oak Policy Area

Revised 6-29-14

(4)



**Adequacy of the Main Roads in
White Oak Policy Area
White Oak Science Gateway Master Plan
Planning Board Draft Plan
(US 29 "Discount", North of MD 650)**

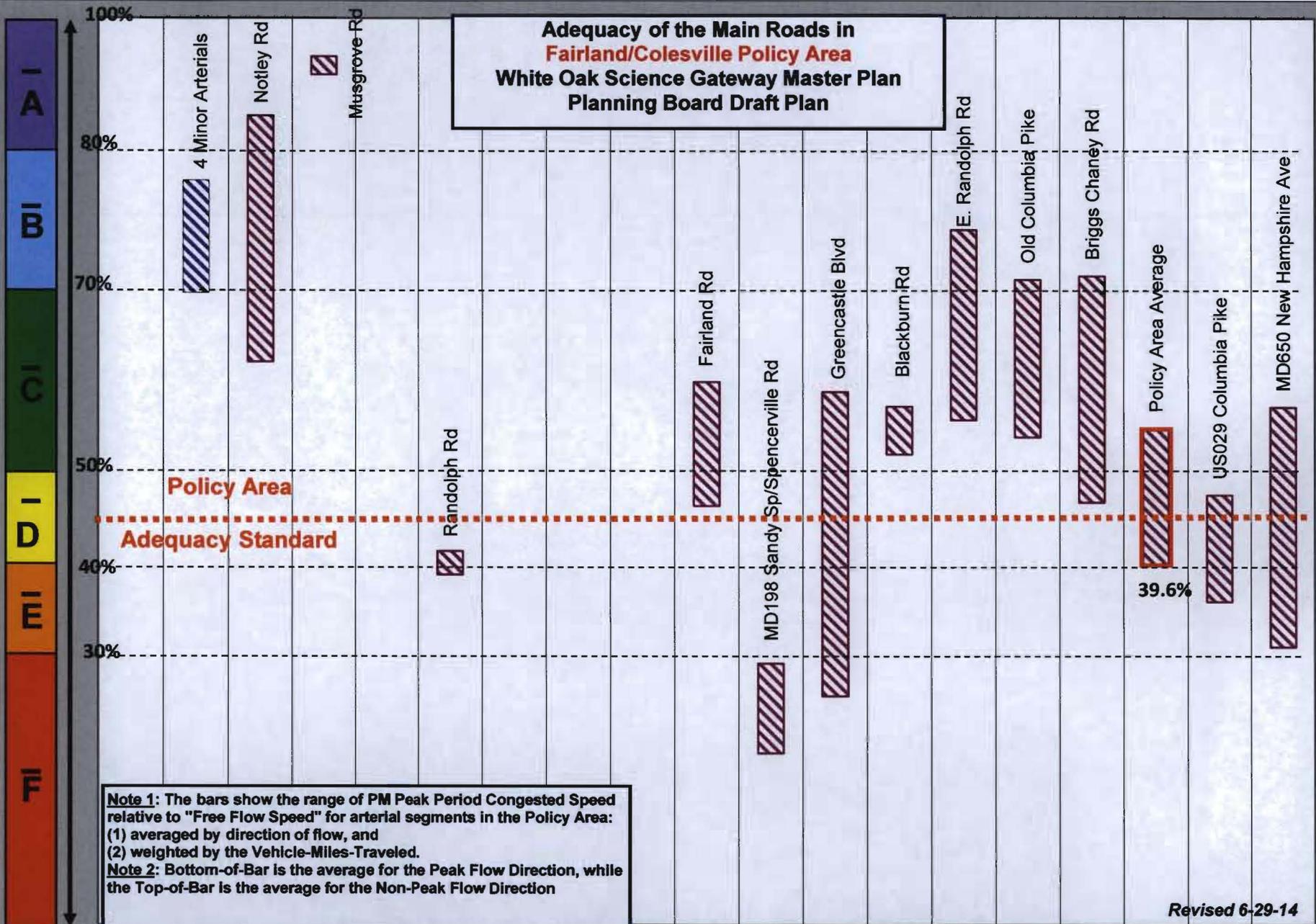
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Arterial Performance within the White Oak Policy Area

5

Adequacy of the Main Roads in Fairland/Colesville Policy Area White Oak Science Gateway Master Plan Planning Board Draft Plan



Note 1: The bars show the range of PM Peak Period Congested Speed relative to "Free Flow Speed" for arterial segments in the Policy Area: (1) averaged by direction of flow, and (2) weighted by the Vehicle-Miles-Traveled.

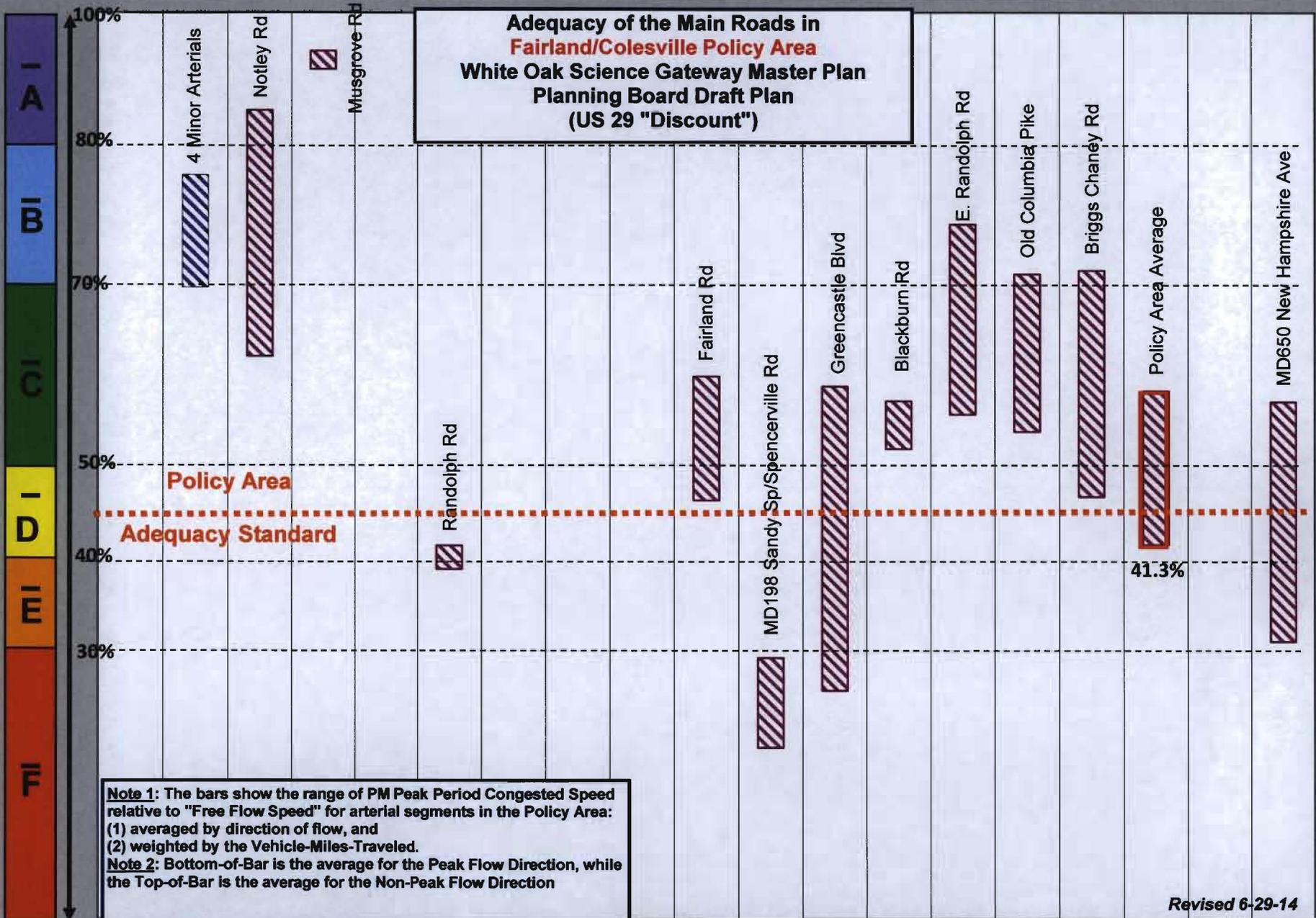
Note 2: Bottom-of-Bar is the average for the Peak Flow Direction, while the Top-of-Bar is the average for the Non-Peak Flow Direction

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Arterial Performance within the Fairland/Colesville Policy Area

9

**Adequacy of the Main Roads in
Fairland/Colesville Policy Area
White Oak Science Gateway Master Plan
Planning Board Draft Plan
(US 29 "Discount")**



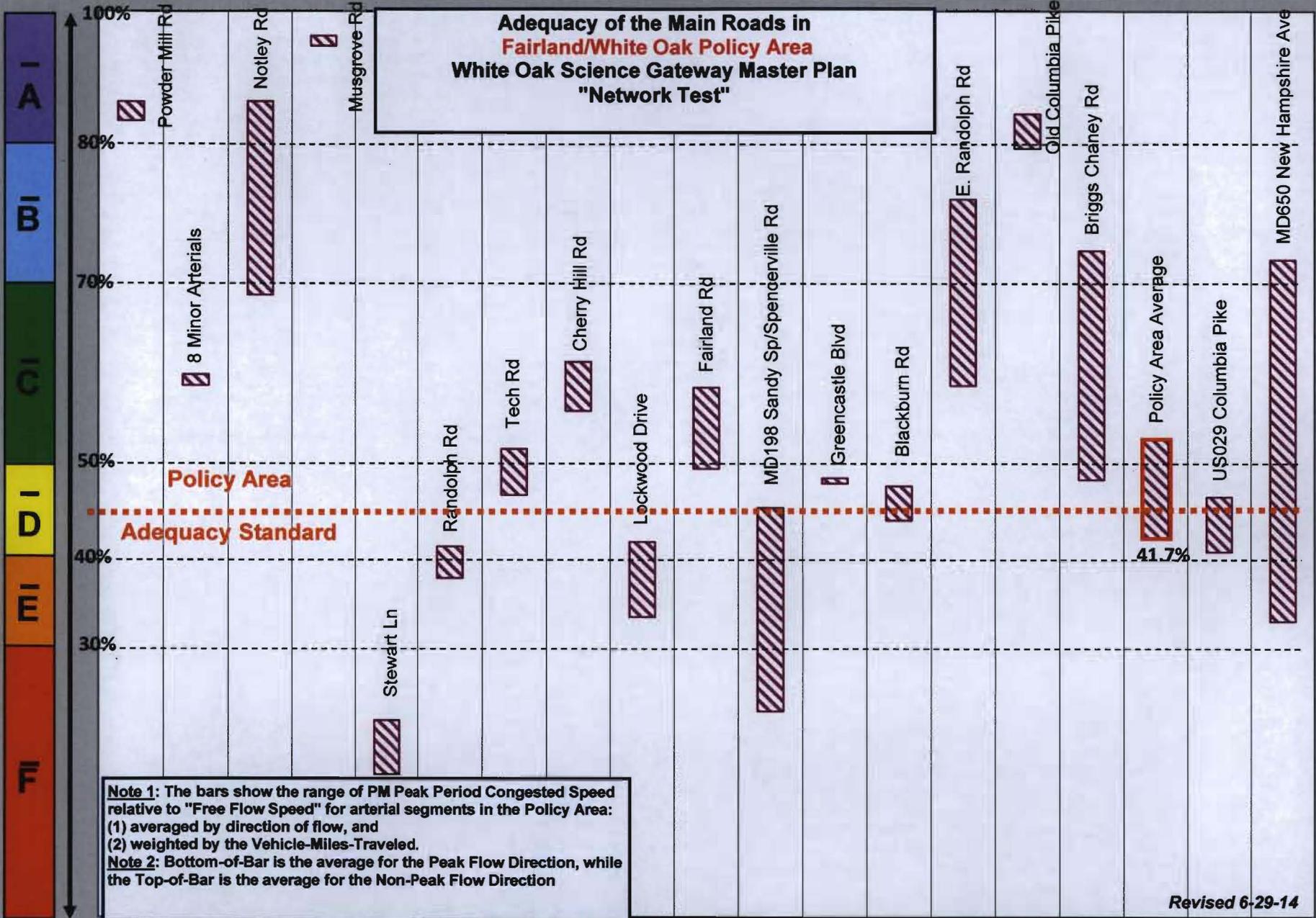
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Arterial Performance within the Fairland/Colesville Policy Area

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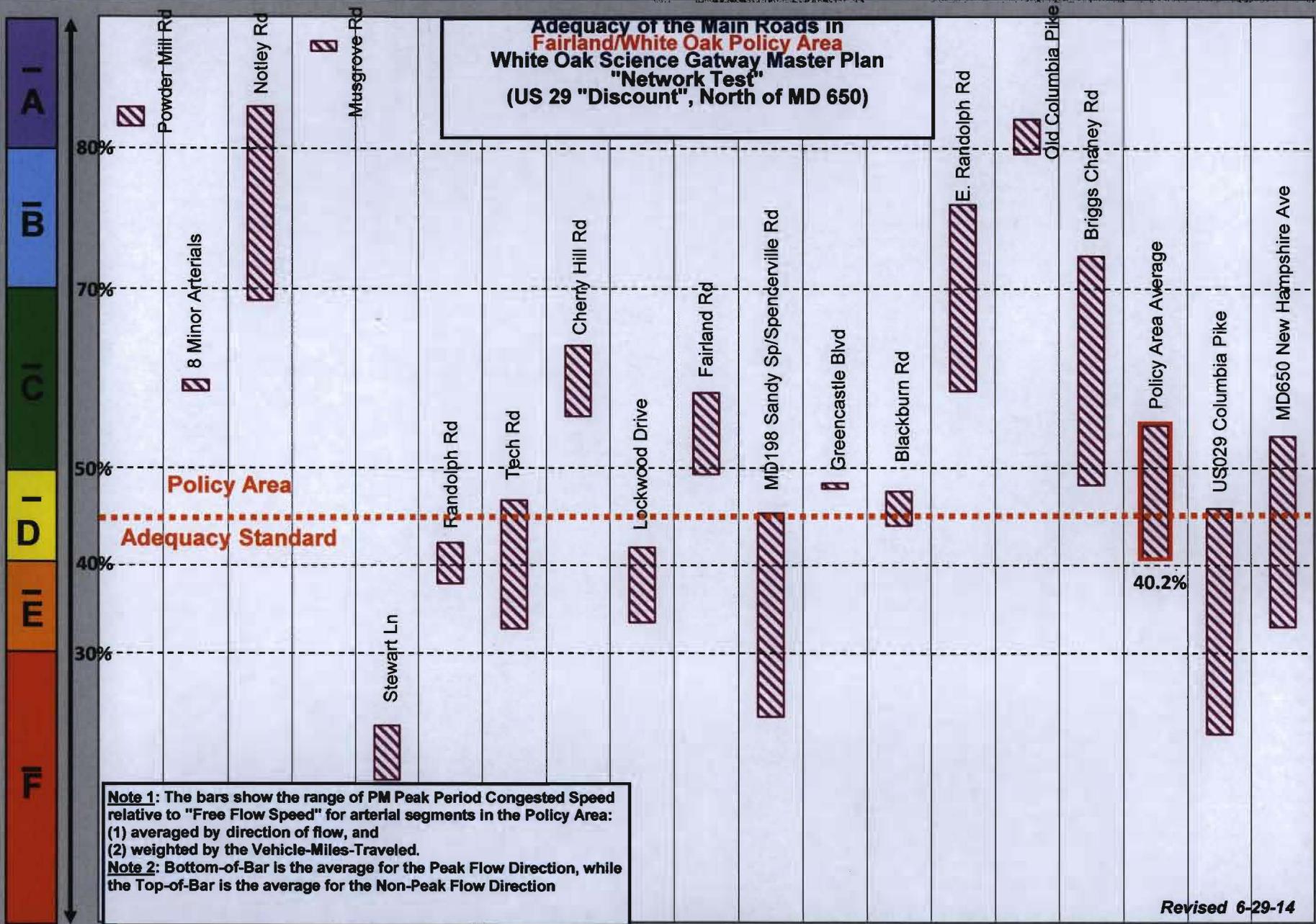
**Adequacy of the Main Roads in
Fairland/White Oak Policy Area
White Oak Science Gateway Master Plan
"Network Test"**



Revised 6-29-14

Arterial Performance within the Fairland/White Oak Policy Area

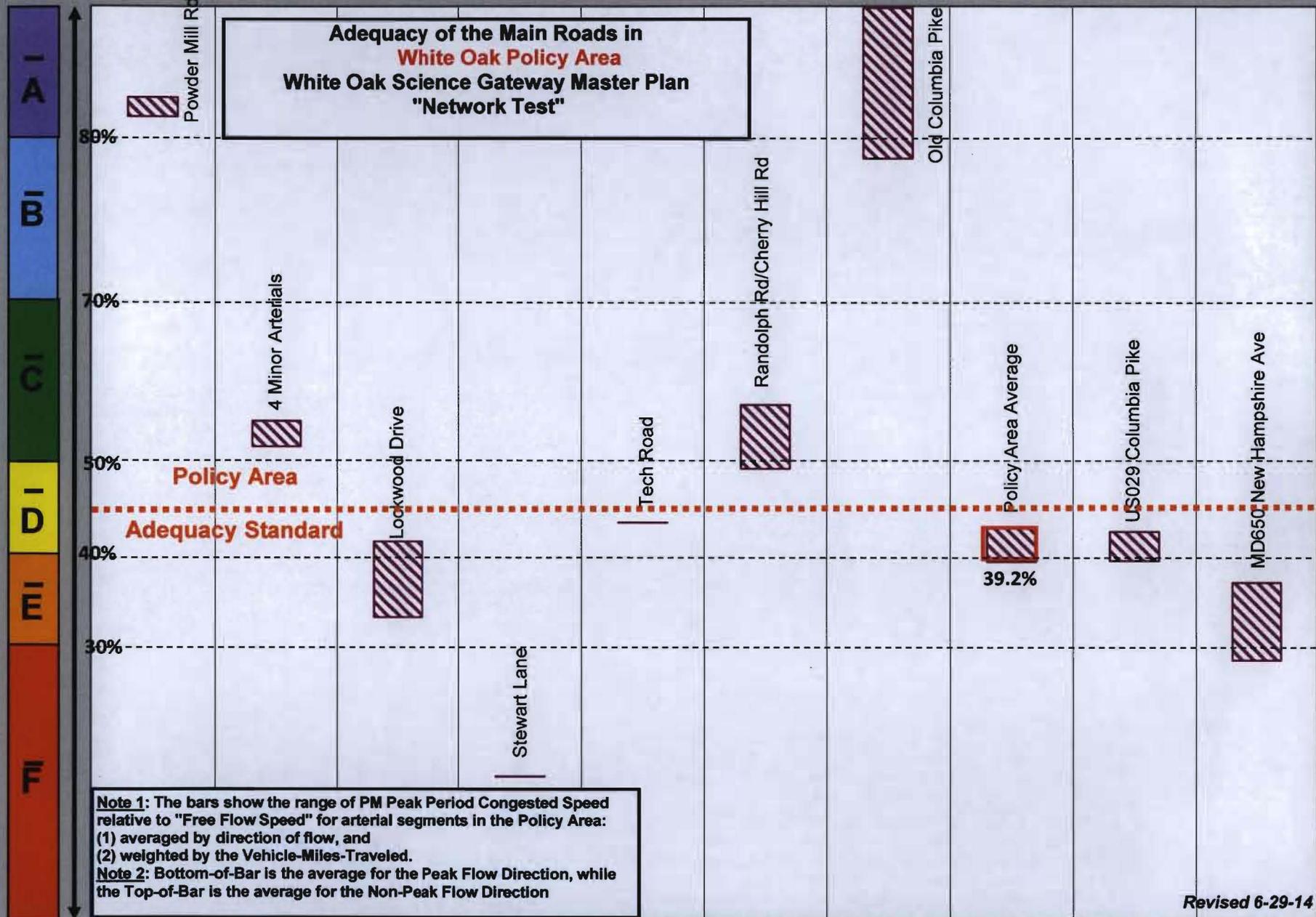
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Arterial Performance within the Fairland White Oak Policy Area

Revised 6-29-14

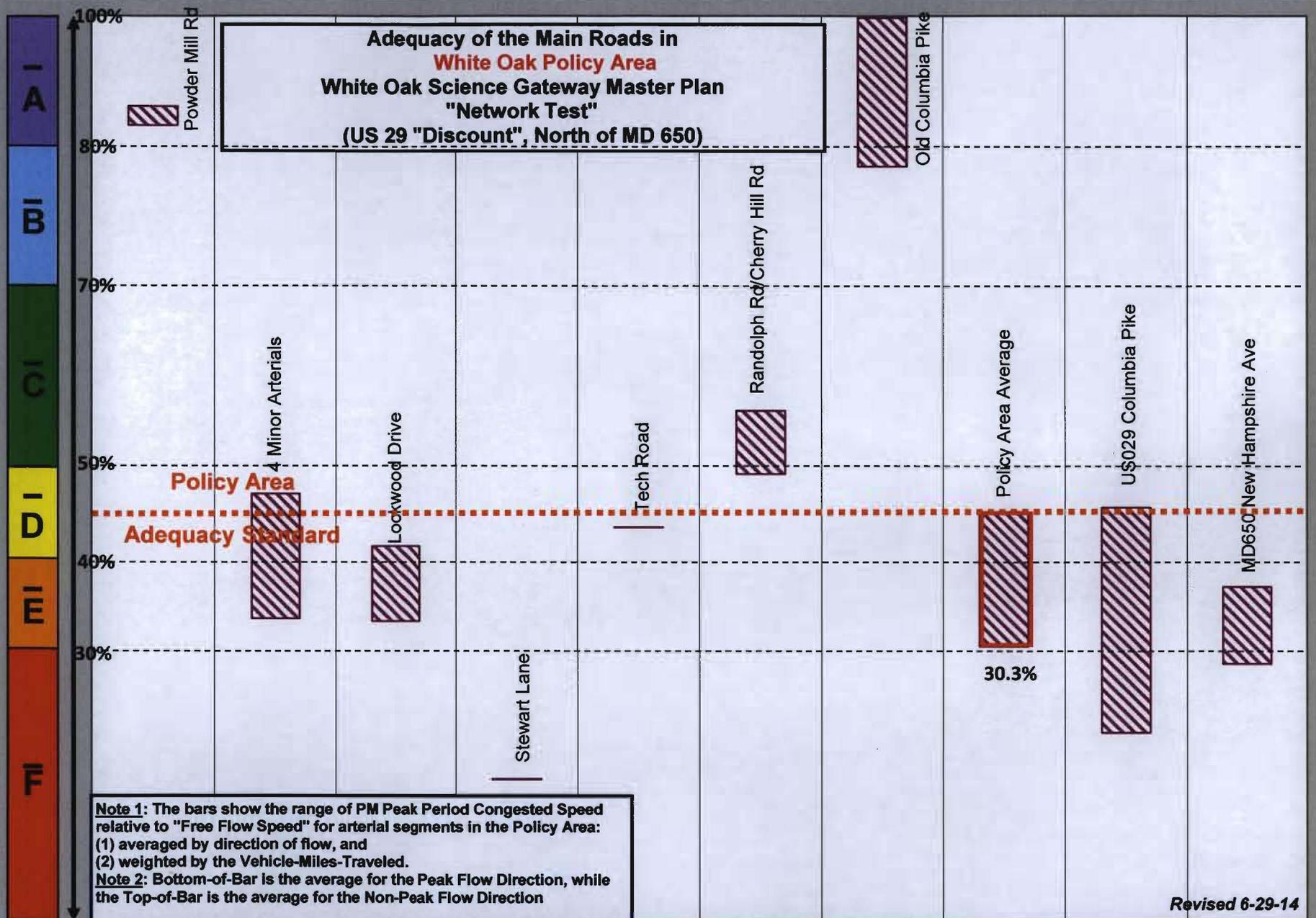
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Arterial Performance within the White Oak Policy Area

91

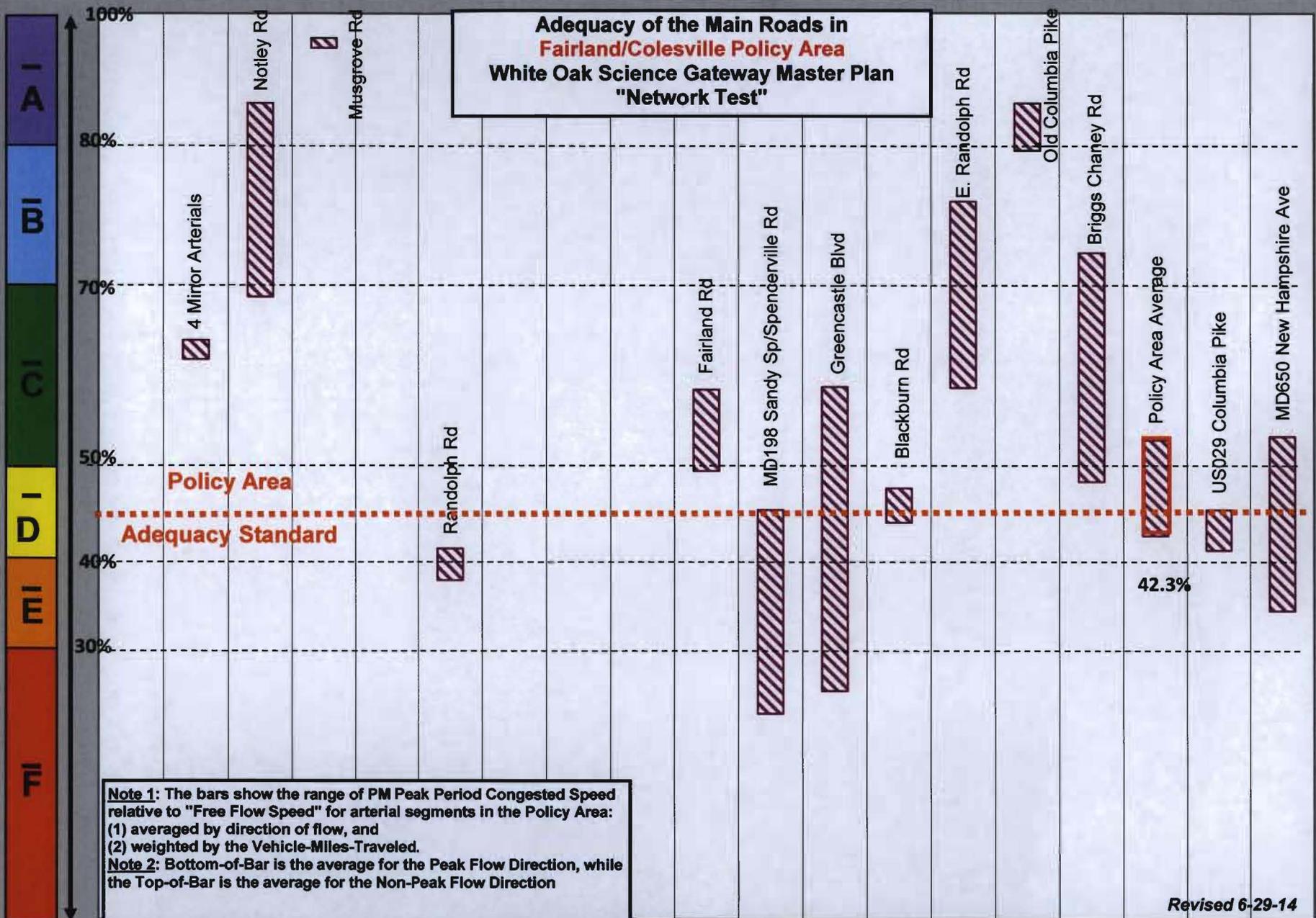


Arterial Performance within the White Oak Policy Area

Revised 6-29-14

(11)

**Adequacy of the Main Roads in
Fairland/Colesville Policy Area
White Oak Science Gateway Master Plan
"Network Test"**



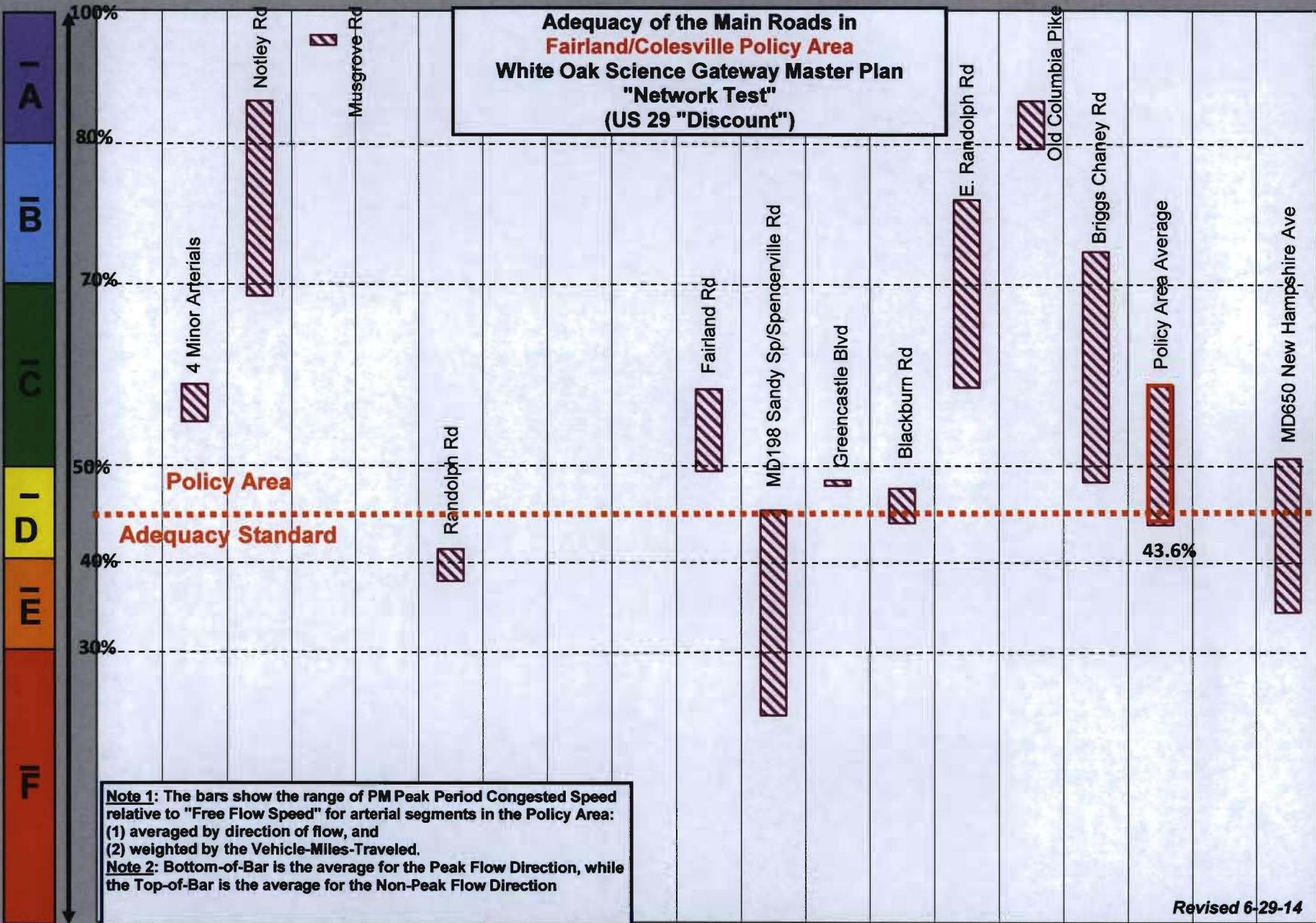
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Revised 6-29-14

Arterial Performance within the Fairland/Colesville Policy Area

12

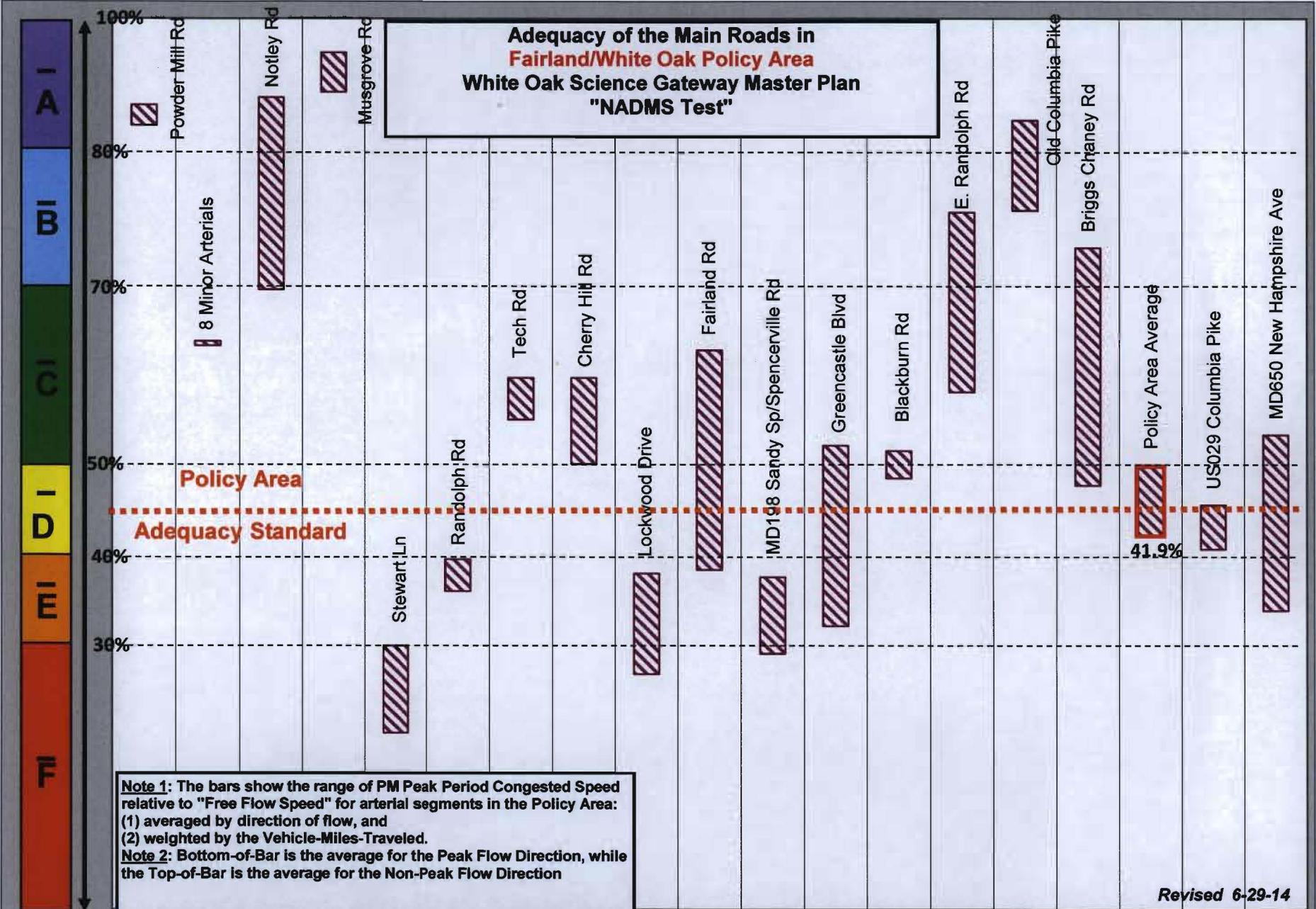
**Adequacy of the Main Roads in
Fairland/Colesville Policy Area
White Oak Science Gateway Master Plan
"Network Test"
(US 29 "Discount")**



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Revised 6-29-14

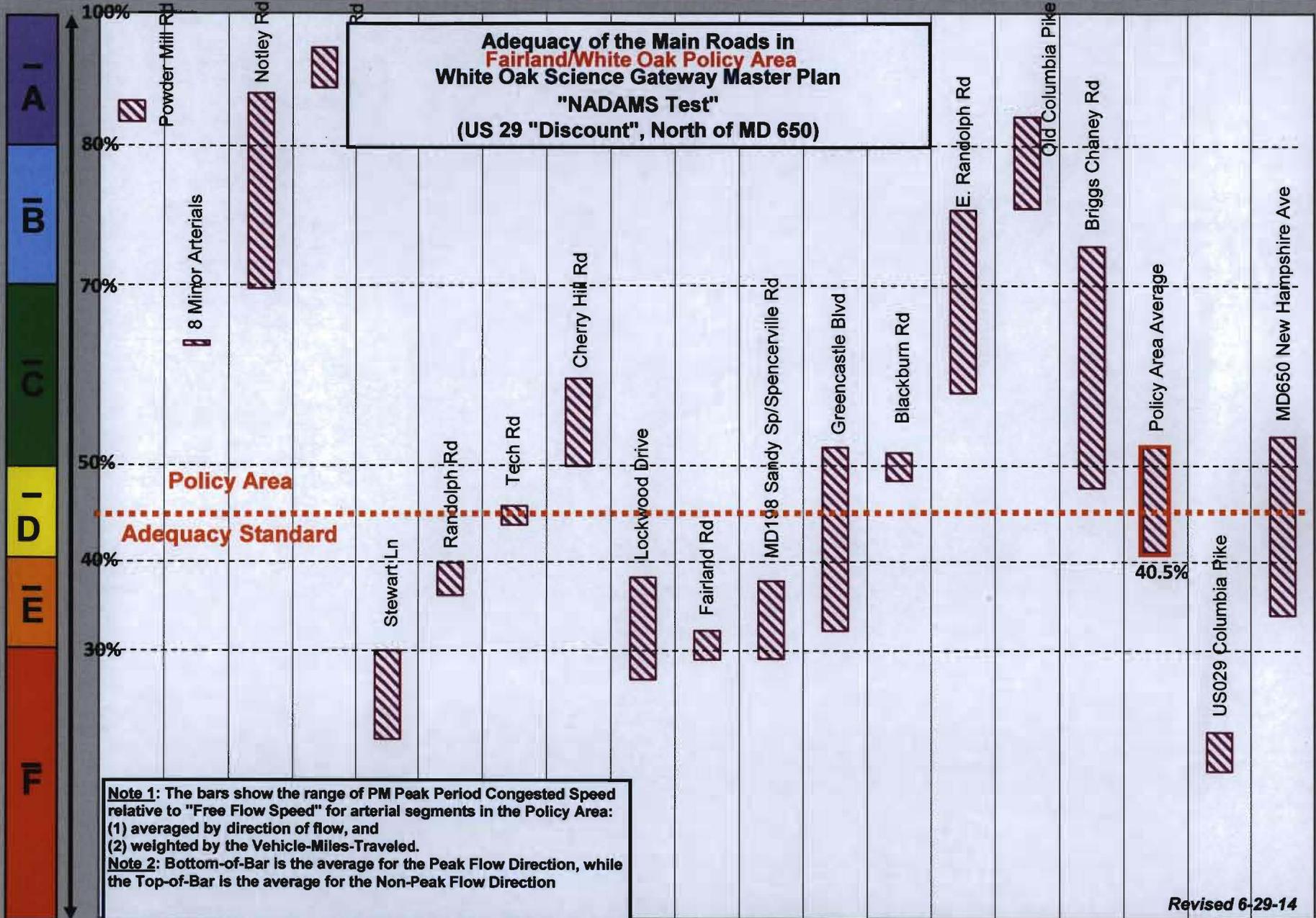
Arterial Performance within the Fairland/Colesville Policy Area



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Arterial Performance within the Fairland/White Oak Policy Area

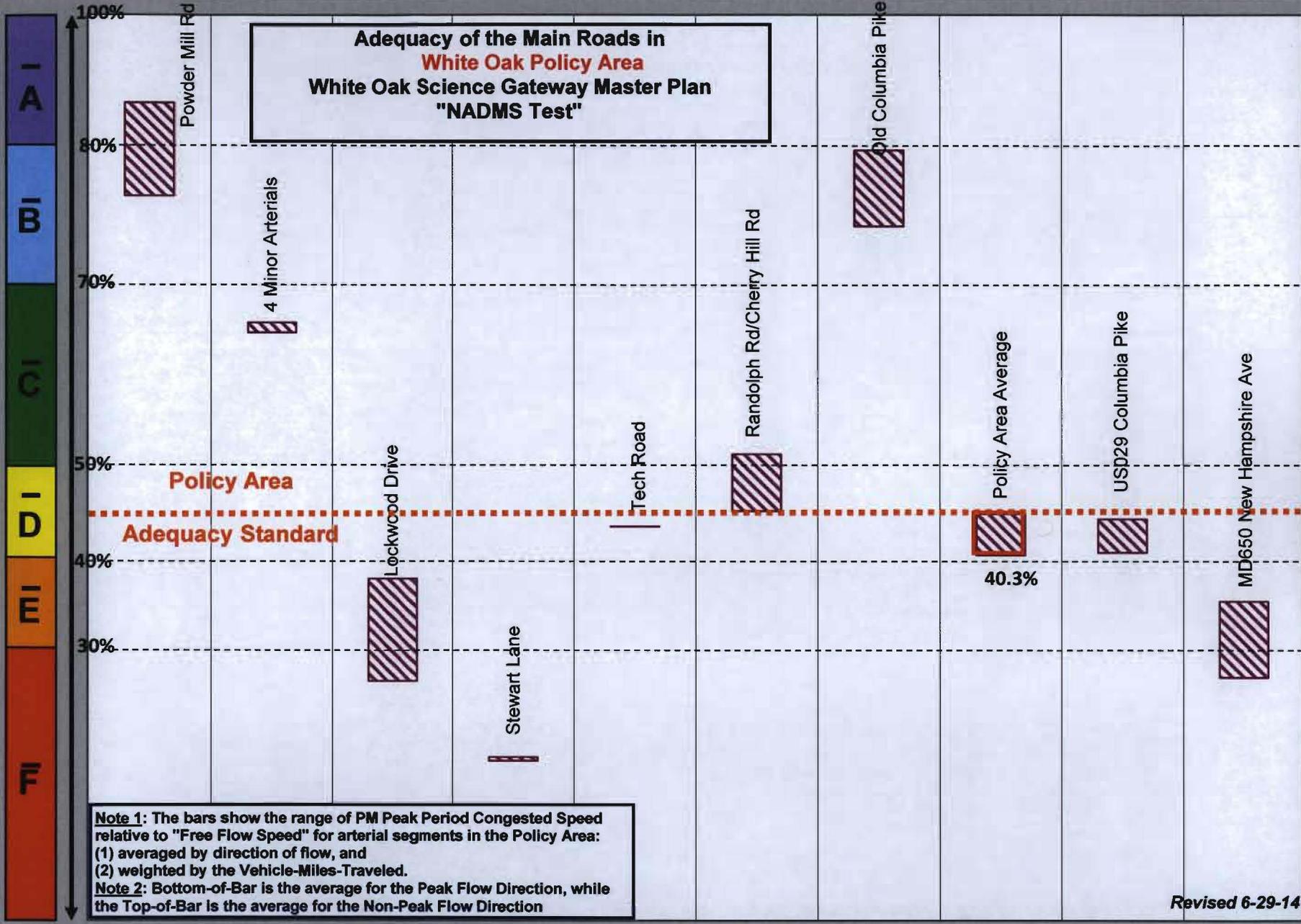
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Arterial Performance within the Fairland White Oak (FWO) Policy Area

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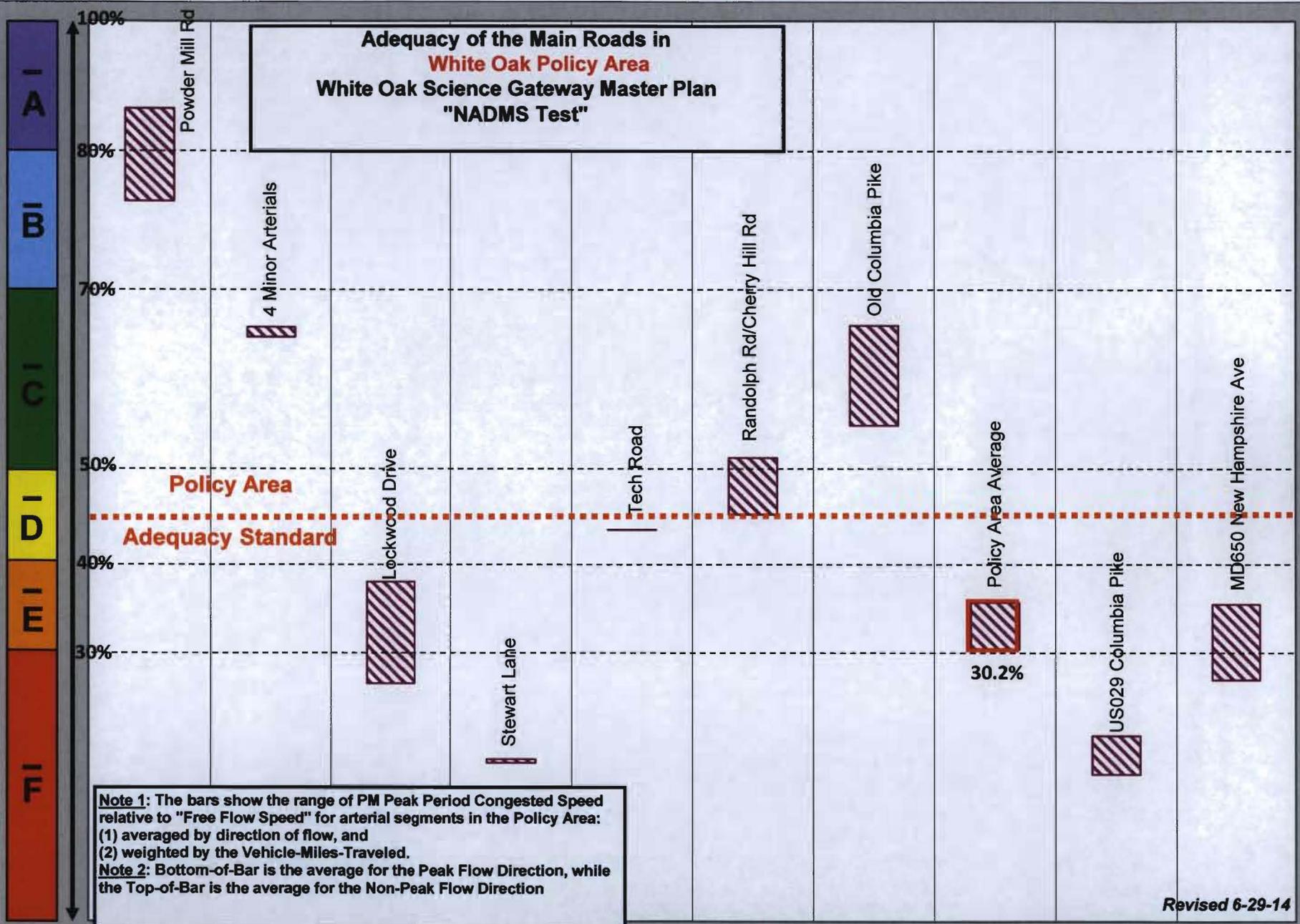


Arterial Performance within the White Oak Policy Area

Revised 6-29-14

91

**Adequacy of the Main Roads in
White Oak Policy Area
White Oak Science Gateway Master Plan
"NADMS Test"**



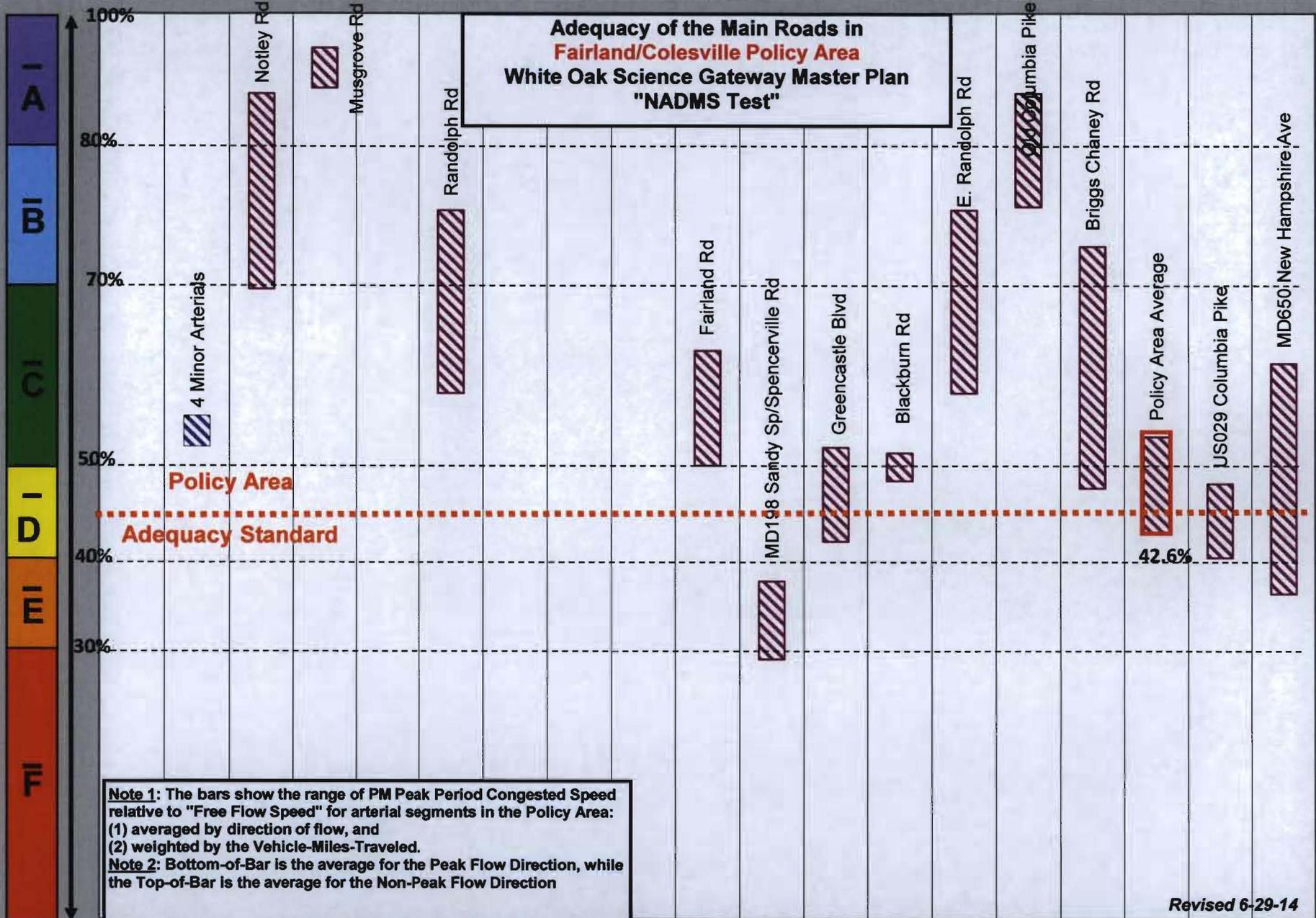
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Arterial Performance within the White Oak Policy Area

(17)

Adequacy of the Main Roads in Fairland/Colesville Policy Area White Oak Science Gateway Master Plan "NADMS Test"



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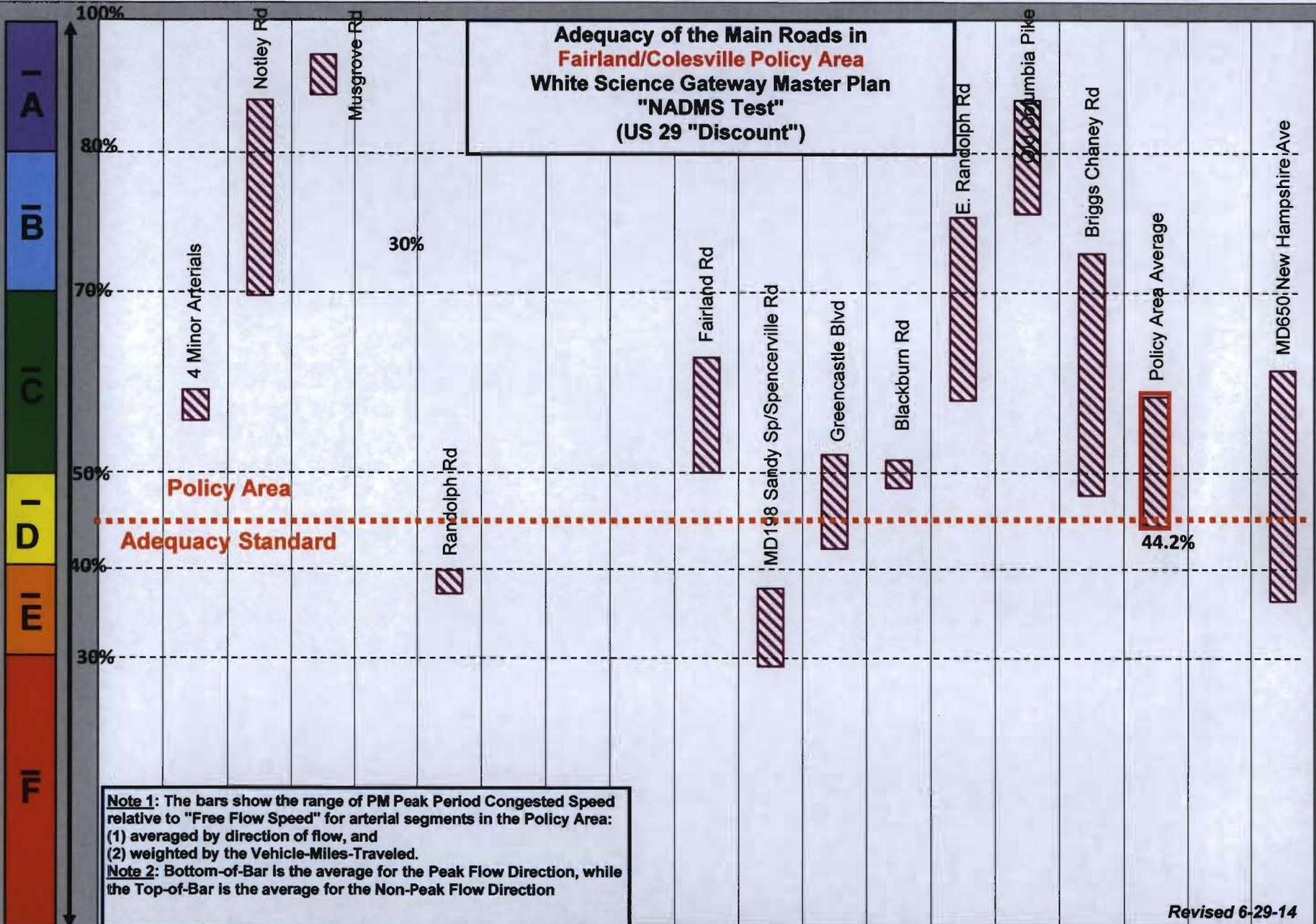
Note 2: Bottom-of-Bar is the average for the Peak Flow Direction, while the Top-of-Bar is the average for the Non-Peak Flow Direction

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Arterial Performance within the Fairland/Colesville Policy Area

(15)

Adequacy of the Main Roads in Fairland/Colesville Policy Area White Science Gateway Master Plan "NADMS Test" (US 29 "Discount")



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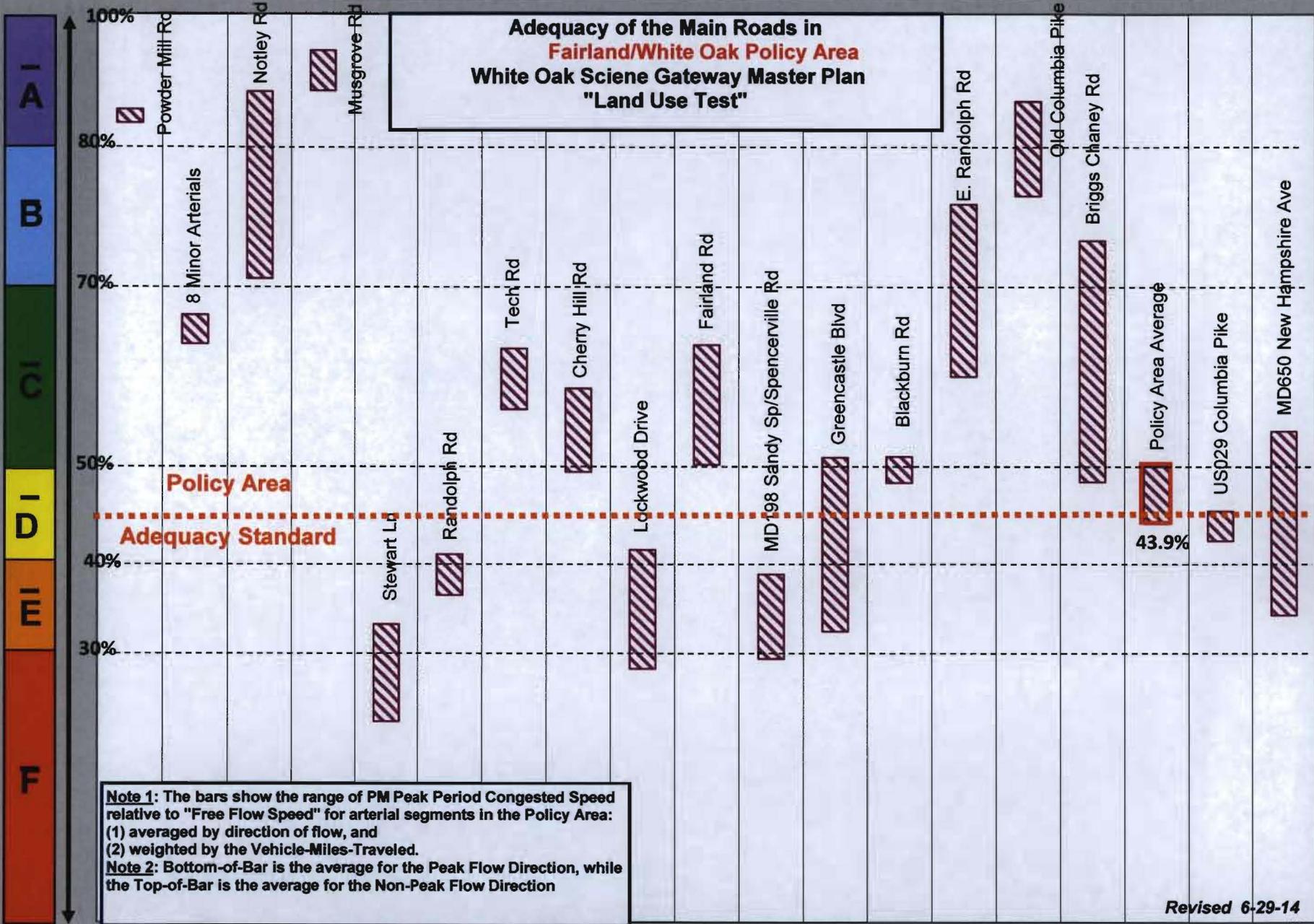
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Arterial Performance within the Fairland/Colesville Policy Area

51

Adequacy of the Main Roads in Fairland/White Oak Policy Area White Oak Scenic Gateway Master Plan "Land Use Test"

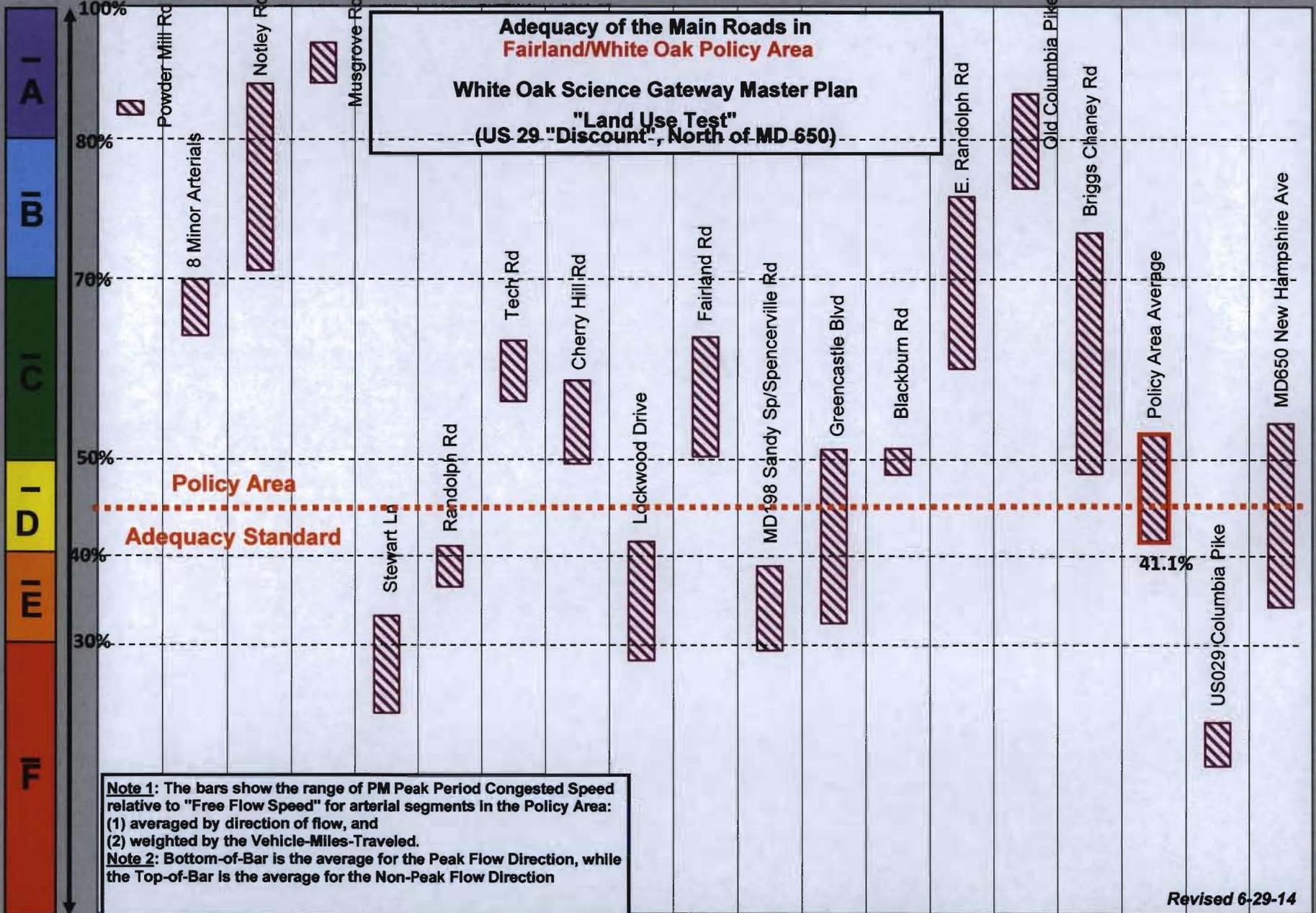


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Arterial Performance within the Fairland/White Oak Policy Area

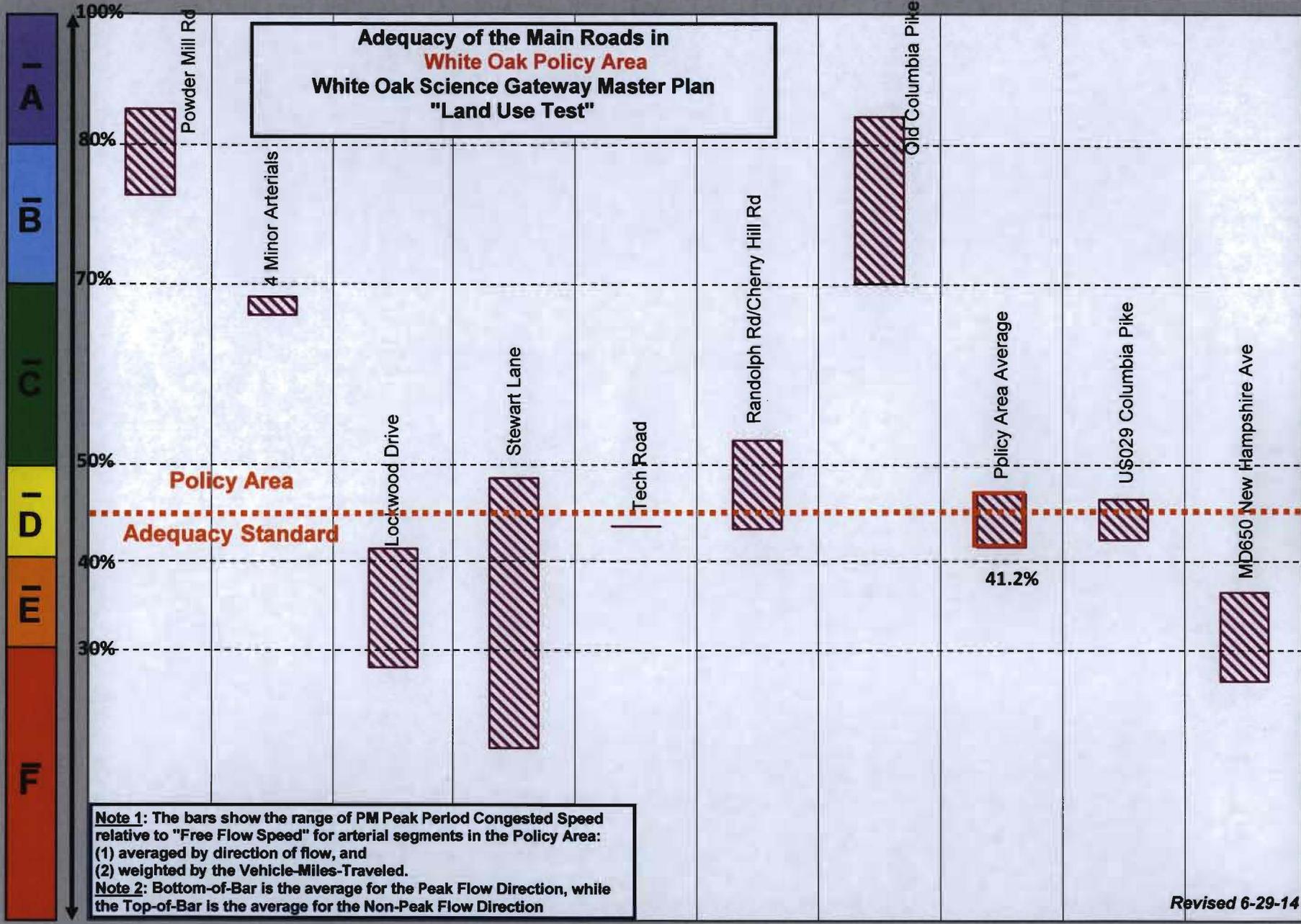
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Arterial Performance within the Fairland/White Oak Policy Area

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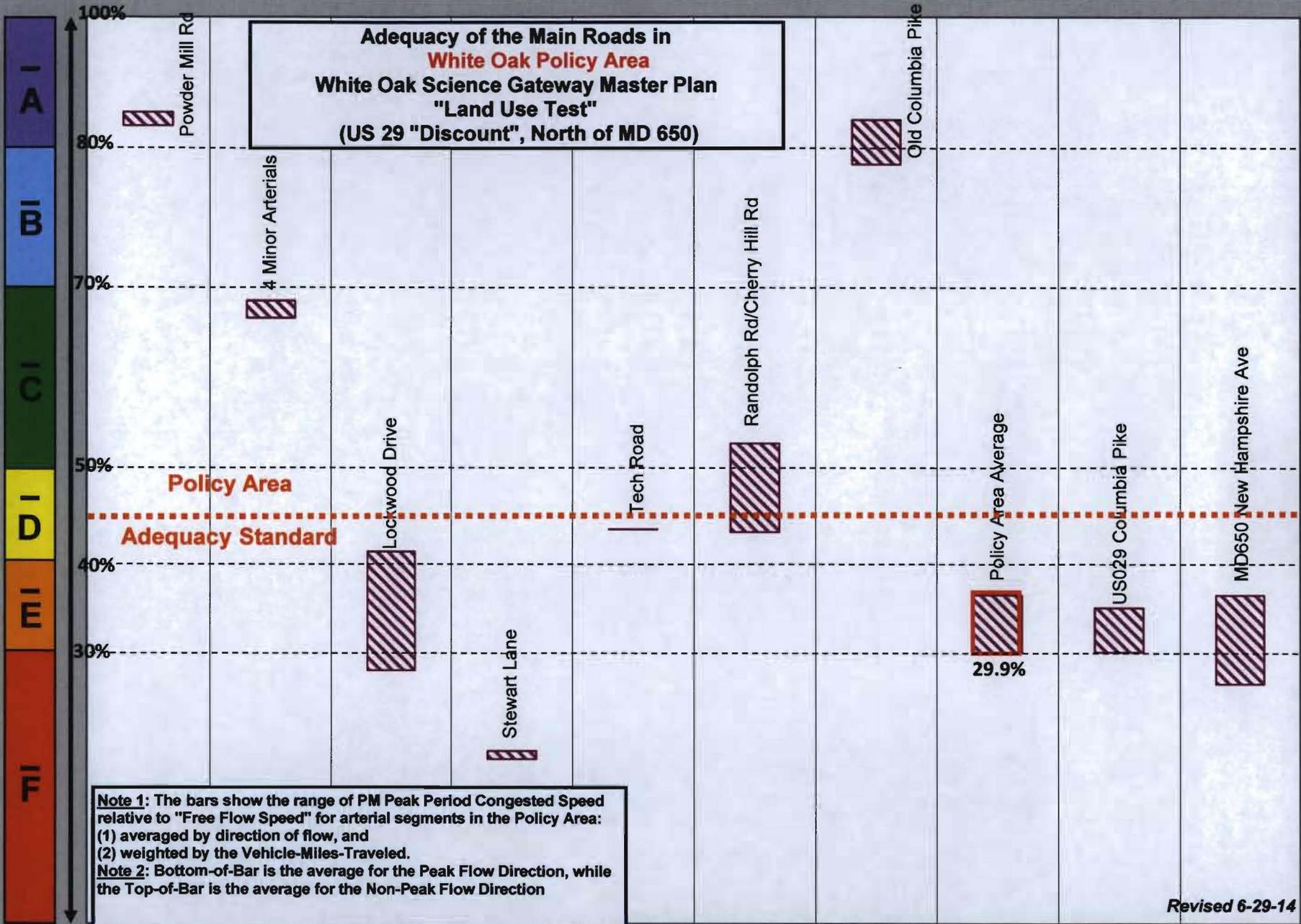
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Arterial Performance within the White Oak Policy Area

Revised 6-29-14

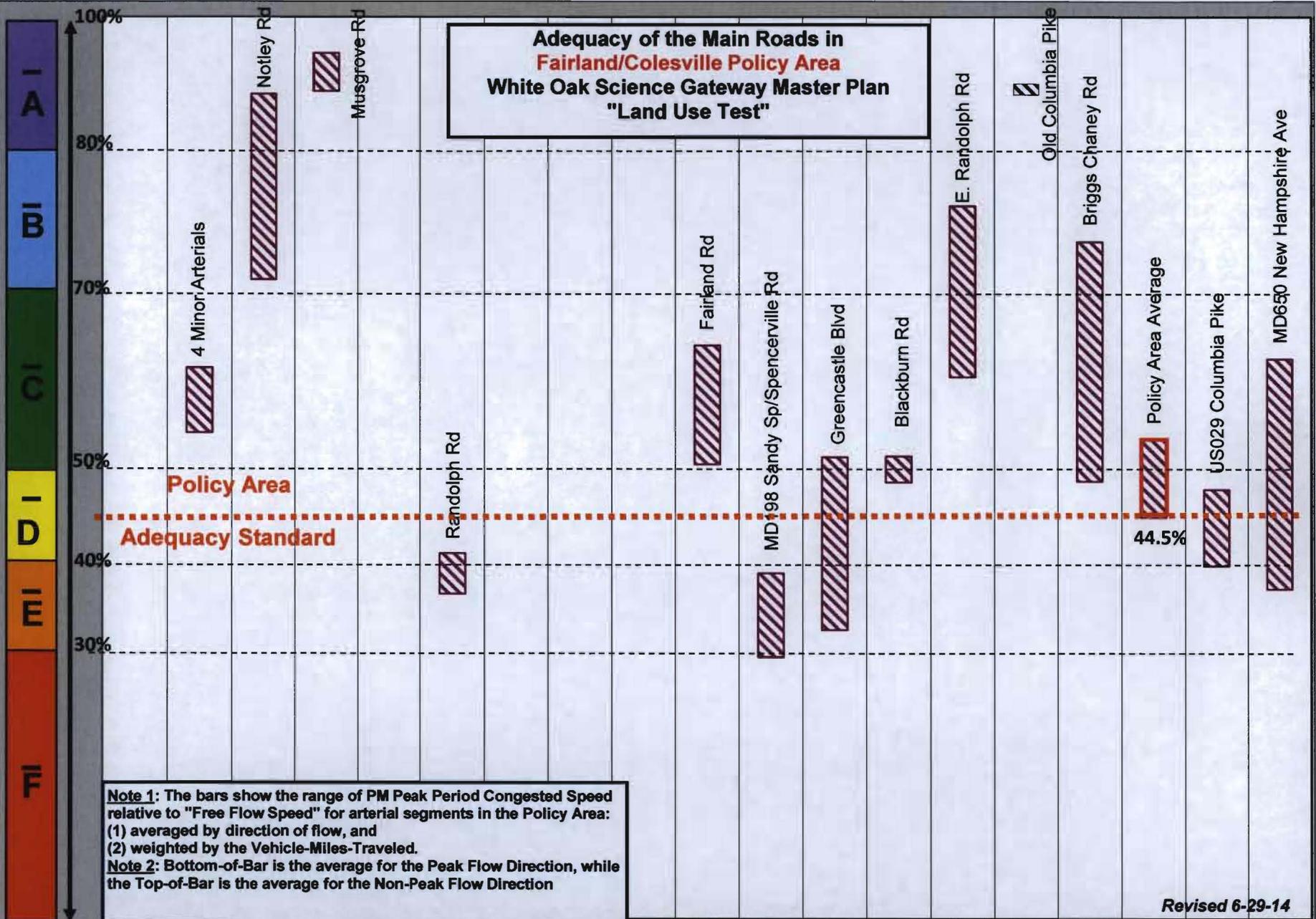
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Arterial Performance within the White Oak Policy Area

Revised 6-29-14

Adequacy of the Main Roads in Fairland/Colesville Policy Area White Oak Science Gateway Master Plan "Land Use Test"



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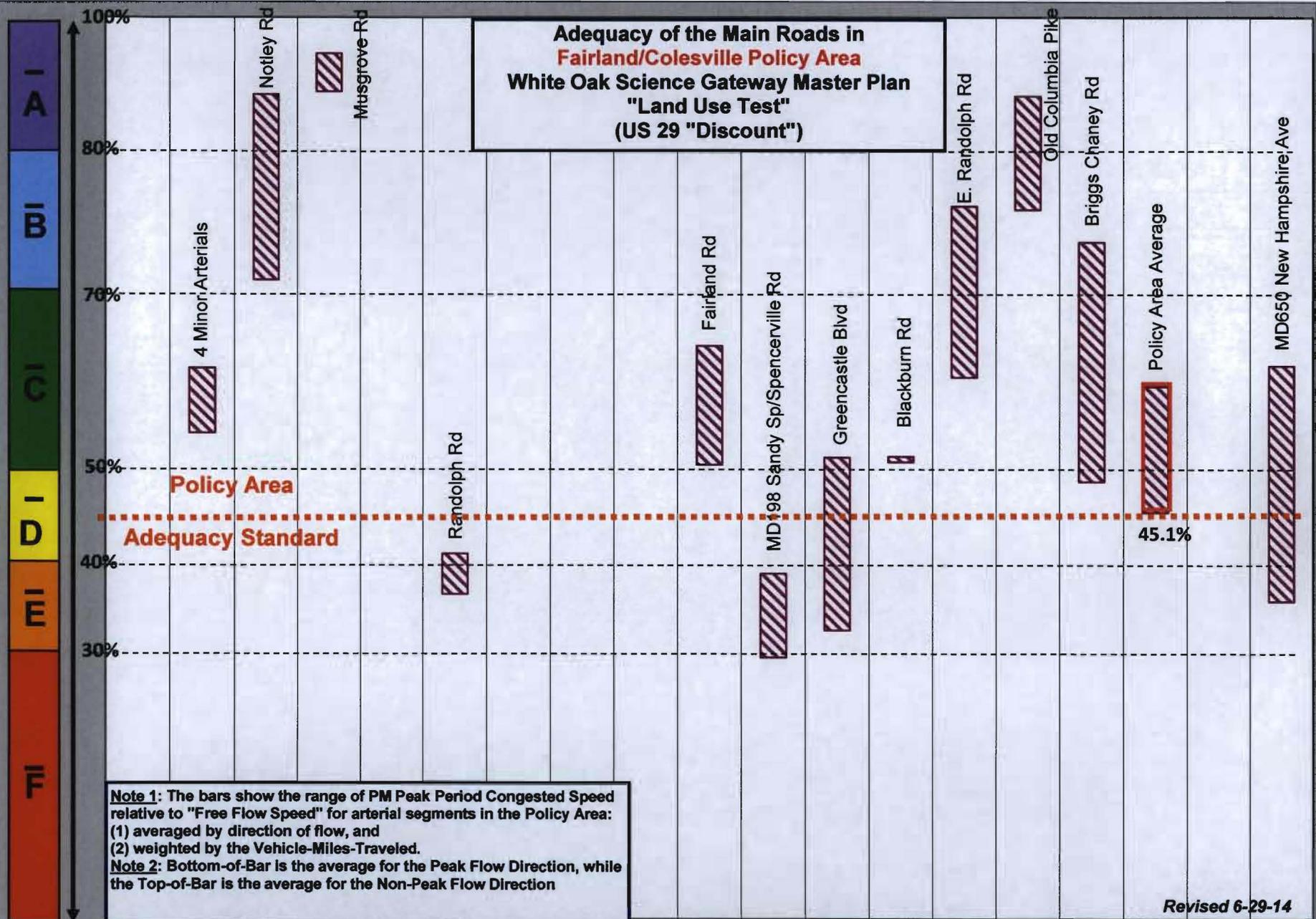
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Revised 6-29-14

Arterial Performance within the Fairland/Colesville Policy Area

24

**Adequacy of the Main Roads in
Fairland/Colesville Policy Area
White Oak Science Gateway Master Plan
"Land Use Test"
(US 29 "Discount")**

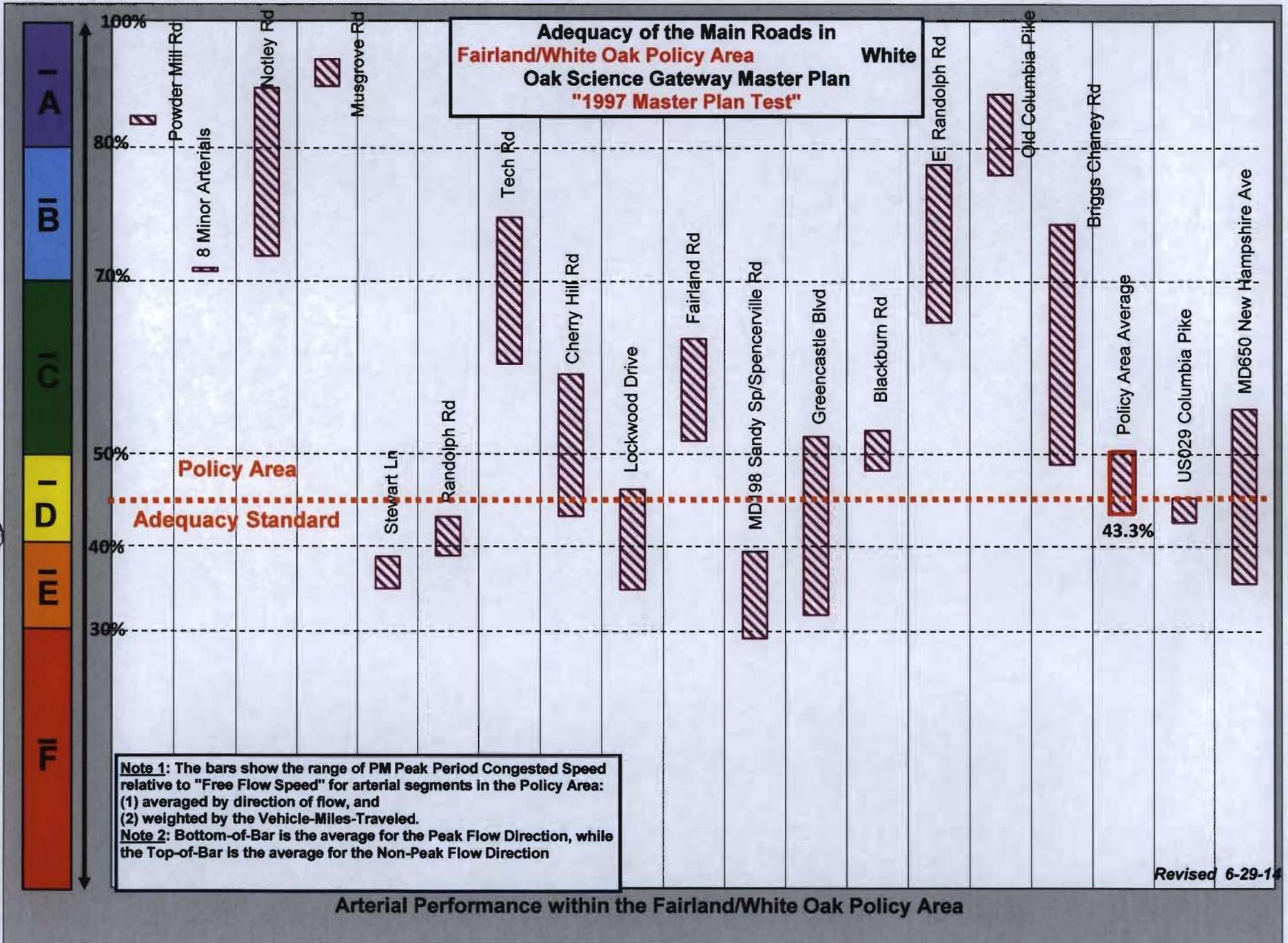


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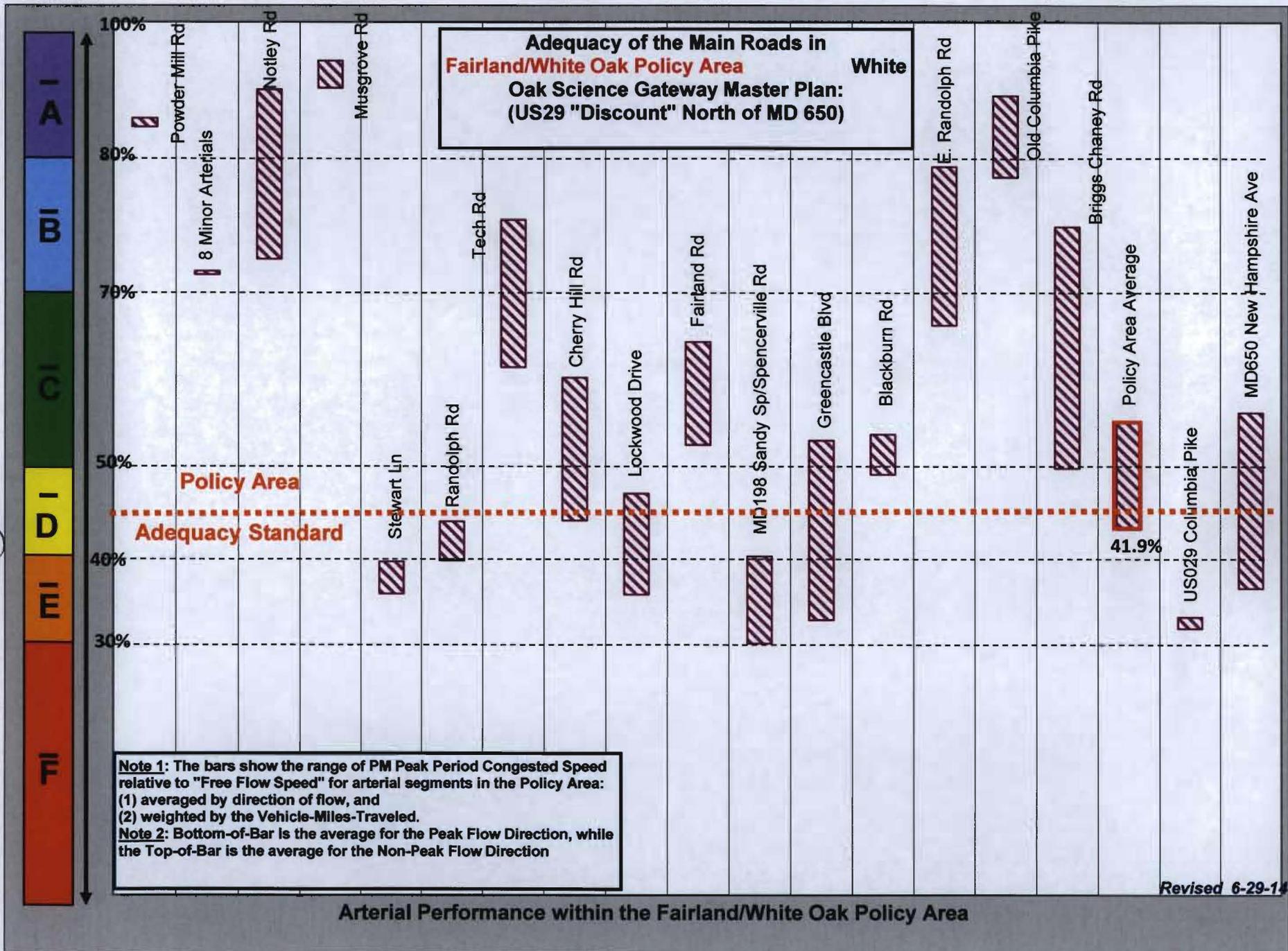
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Arterial Performance within the Fairland/Colesville Policy Area

25

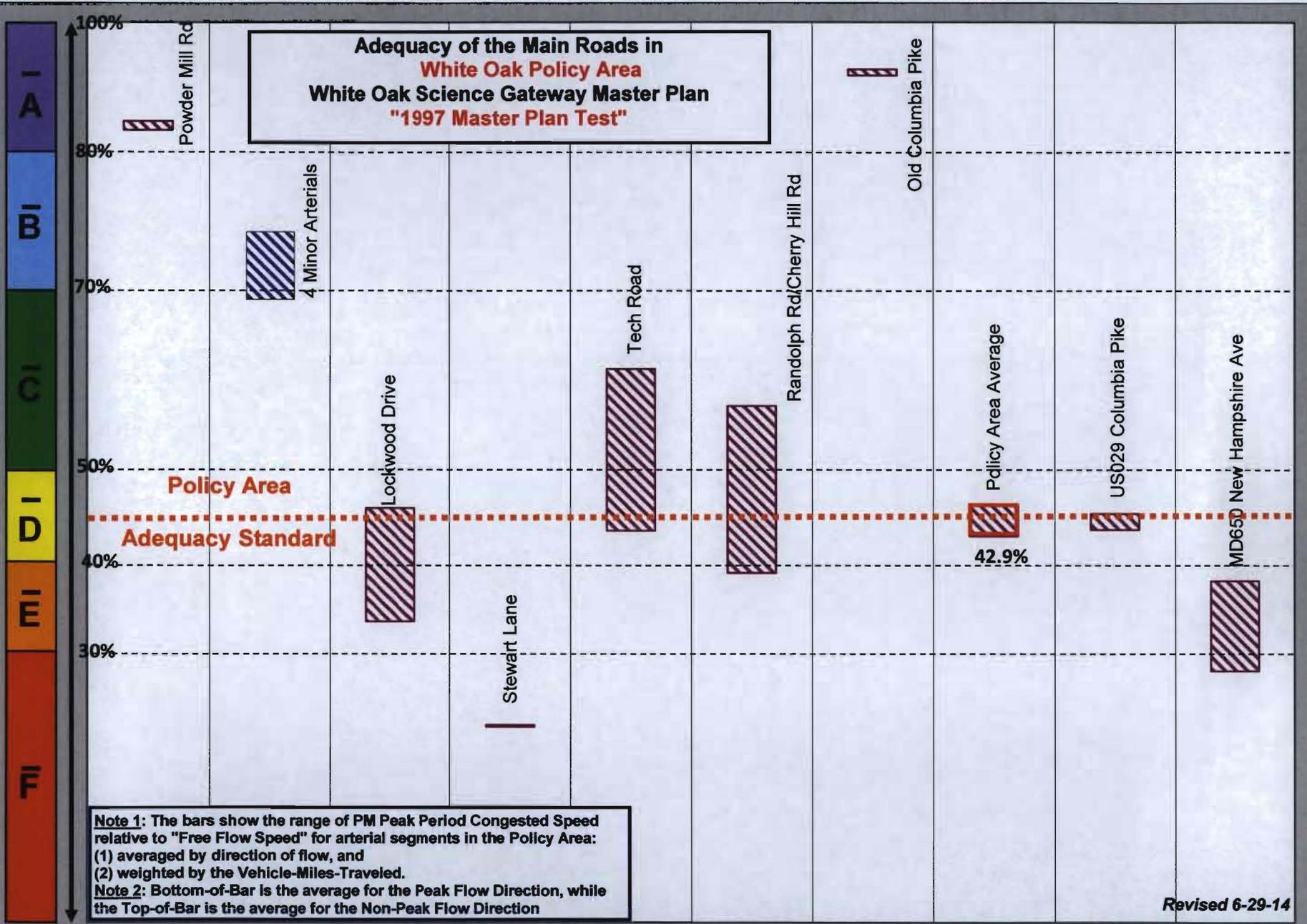


Arterial Performance within the Fairland/White Oak Policy Area



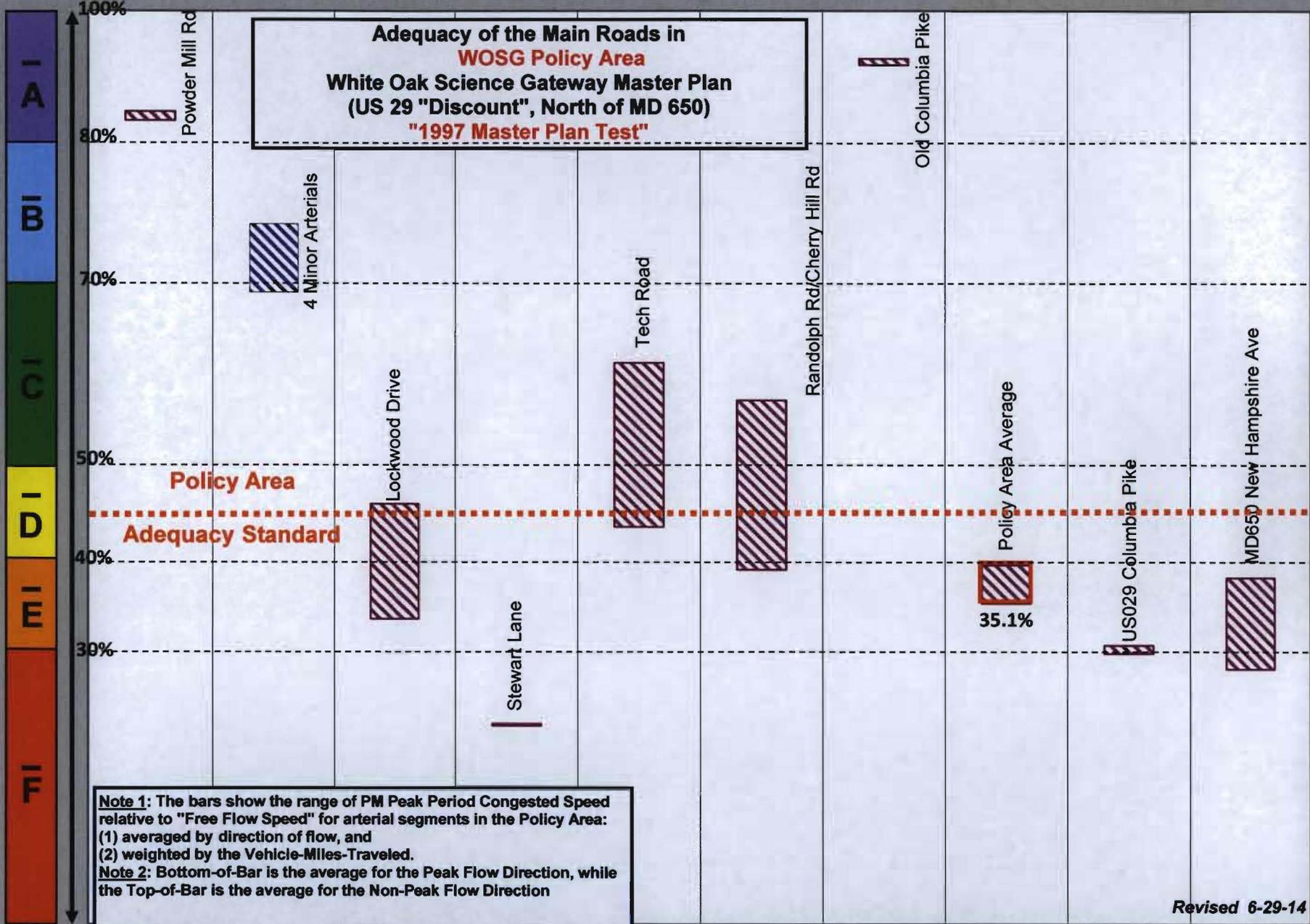
Arterial Performance within the Fairland/White Oak Policy Area

27



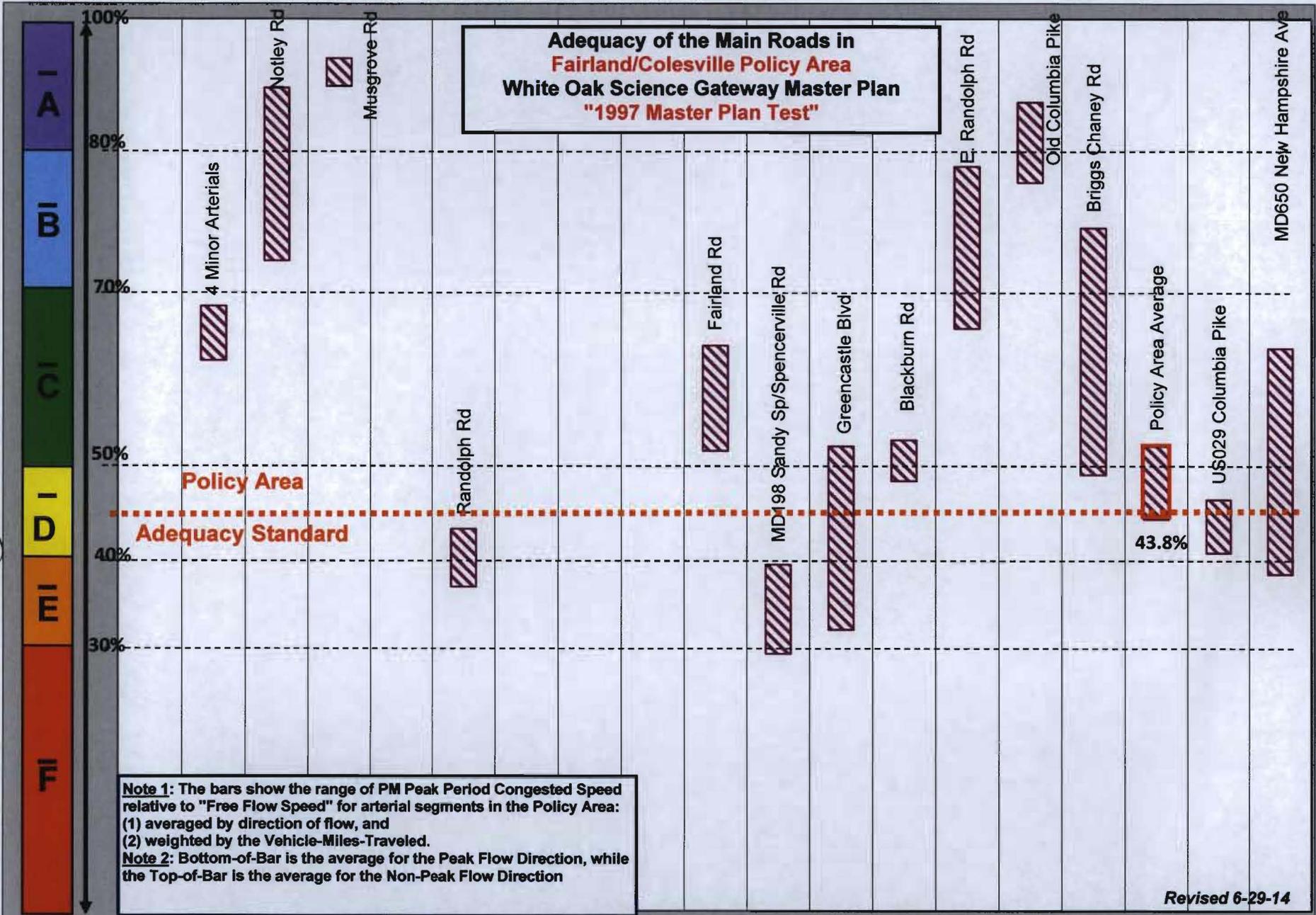
Revised 6-29-14

Arterial Performance within the White Oak Policy Area



Arterial Performance within the White Oak Policy Area

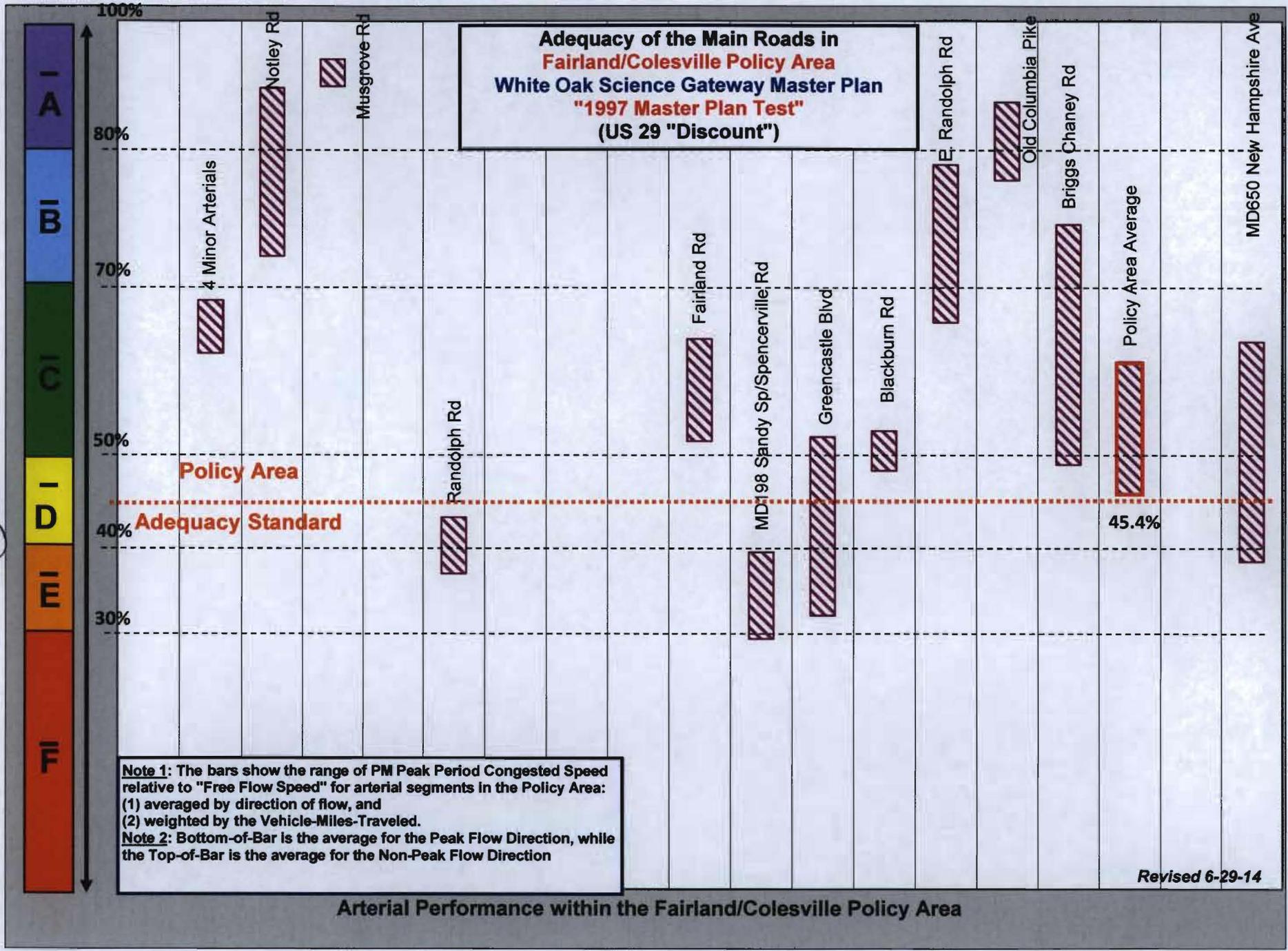
29



Arterial Performance within the Fairland/Colesville Policy Area

Revised 6-29-14

30



Arterial Performance within the Fairland/Colesville Policy Area