T&E COMMITTEE #1
July 15, 2010

MEMORANDUM

July 14, 2010

TO: Transportation, Infrastructure, Energy and Environment Committee

FROM: Glenn Orlin, Deputy Council Staff Director

SUBJECT: Purple Line Functional Plan

Councilmembers: Please bring your copy of the Draft Plan to this worksession.

1. Background. The Planning Board transmitted its Draft Purple Line Functional Plan in April. Functional plans, unlike master and sector plans, do not address land use, but merely describe one or more public functions serving an area. In this case, the Plan is needed to identify: the future location of the Purple Line's alignment and stations; the type of transit mode; the width and alignment of its parallel trail and major points of connection to it; and the minimum right-of-way required to be reserved for the above. Land use will be addressed in subsequent master and sector plans, three of which are scheduled in the next couple of years: Takoma/Langley Crossroads, Chevy Chase Lake, and Long Branch. It is also important to understand that functional plans do not go to the level of detail of project planning studies.

On February 2, 2009 the Council and Executive sent a joint letter to the Secretary of the Maryland Department of Transportation with their detailed recommendations for the Purple Line's Locally Preferred Alternative (©1-4). These recommendations were unanimous, and much of the Draft Plan reflects the letter. The Plan, however, can be different in that it reflects what ultimately should be built, compared to what should be built as part of the initial project for which the State will soon be seeking Federal aid.

2. Fiscal impact. The fiscal impact statement prepared by the Executive Branch is on ©5-7. The capital costs are estimated at $1,647,277,000, although roughly half of this amount will be in Prince George's County. The impact statement includes such County costs as the purchase of the Georgetown Branch right-of-way ($10 million in 1988, now valued at $30 million), and ancillary projects, such as the Bethesda South Entrance ($60 million), the Silver Spring Green Trail ($6.3 million), and the County's share of the Takoma/Langley Transit Center ($2.5 million). It mentions an easement through the Silver Spring Library site ($945,000), and the finding that the cost of the Silver Spring Library is $5,532,000 more expensive due to the need to accommodate the Purple Line and a station within its site.

The statement lists the County's cost of the Capital Crescent Trail adjacent to the Purple Line at $25 million, which was the Maryland Transit Administration's (MTA's) estimate until July 13, when it announced that its estimate had risen to $65 million. The difference owes mainly to attributing some of the joint light rail/trail costs to the trail, which it had not done previously. This estimate is based on a 10'-wide trail with 2' shoulders, not the (minimum) 12'-wide trail with 2' shoulders requested by the Executive and Council. So the final cost will likely be higher than $65 million.

The statement notes two operating budget impacts: $200,000 for vehicle and equipment costs needed by the Department of Fire and Rescue Services for emergency response along the light rail/trail alignment, and $3,245,000 for 21 officers assigned to the Department of Police. Council staff challenges the need for *any* more County Police workyears associated with the Purple Line. Transit police would be a cost to MTA, not the County. Policing the trail, if anything, should be easier with the permanent trail and with the light rail providing "eyes" on it.

3. Executive comments. The Executive has transmitted 11 recommendations (©8-9). All should be addressed in MTA's preliminary engineering and design studies, but most of them are too specific for a functional plan. **However, Council staff concurs with his recommendation to accommodate kiss-and-ride at the Connecticut Avenue station (see #6 on ©9), and that this recommendation is appropriate for discussion in a functional plan.** His recommendation to identify more trail access points (#1 on ©8) is addressed later in the packet.

4. MCPS comments. The Superintendent recently forwarded concerns about the location of the trail and Talbot Avenue behind Rosemary Hills ES, and about access from Wayne Avenue to Silver Spring International MS/Sligo Creek ES (©10-14). MTA staff has been coordinating steadily with MCPS staff on these issues, and will brief the Committee regarding its response to their concerns.

5. Double-track light rail and trail. Most of the testimony at the July 29 public hearing was from residents living near the right-of-way in Bethesda and Chevy Chase and from current users of the Georgetown Branch Interim Trail who oppose sharing the right-of-way with the light rail line. They decry the loss of most of the tree canopy and the relative solitude afforded by the current trail experience, and they believe that the light rail and trail uses are fundamentally incompatible with each other in a right-of-way as narrow as 66'.

However, the Council and Executive unanimously endorsed the joint use, as did the Governor when he made it part of the Locally Preferred Alternative last summer. They did so because they recognized that the Georgetown Branch right-of-way was the only route that could afford rapid and reliable east-west transit service connecting the radial Metro lines and inner suburban business districts and neighborhoods, thus providing an off-road transit "network" for the first time. They knew that the stations located in commercial areas could be the focus of smart growth. They understood that the pastoral nature of this segment of the trail would largely disappear, but it would be replaced with a wider, hard-surface trail with a more urban design that would also be grade separated over Connecticut Avenue and under Jones Mill Road. The trail would help deliver transit riders to and from stations; the light rail would provide the aforementioned "eyes" on the trail, affording much better security for its users.

During its review of the Purple Line 18 months ago the Council requested MTA to evaluate the prospects of single-tracking the light rail line between Bethesda and Connecticut Avenue as a means of retaining more of the tree cover in the right-of-way. (The Georgetown Branch light rail concept from 1990 had been a single-track line with double-track passing sections in about 30% of the line between Bethesda and Silver Spring.) MTA staff responded in the spring of 2009 that a single-track section would result in the Purple Line not achieving its planned 6-minute peak-period headway, which is needed to meet the forecast demand by 2030, much less the growth in demand assumed to occur after then. They also noted that any delays encountered in the segment between Silver Spring and New Carrollton—where there are scores of at-grade street crossings—would be compounded in the single-track section. They also noted that track maintenance of the single-track section would have to take place in the middle of the night a few days of the year, generating noise and light.

Councilmember Berliner asked for this issue to be evaluated again. MTA's initial analysis examined a potential 5,100'-long single-track segment between the Bethesda and Connecticut Avenue stations; this time, however, the request was to look at the segment between the east end of the Bethesda tunnel and the west end of the Columbia Country Club: about 3,500'. In response, MTA revised its analysis (©15-19) but did not change its conclusion. Even with a shorter single-track section, trains would take a disproportionately long time to pass through it because they would have to encounter two switches—one at each end of the single-track—through which they must slow to 15 mph. In instances when the schedule falls behind the trains cannot go sufficiently faster than 45 mph because the design speed of the line's curvature is 45 mph. The lack of a tail track into the Woodmont East plaza means that a train cannot be stored there to serve as a "tripper" to fill a gap in the schedule. The other arguments against single-tracking are unchanged from last year.

Council staff (grudgingly) agrees with MTA that the 3,500' segment behind East Bethesda and the Town of Chevy Chase cannot be single-tracked without seriously derogating the light rail service.

6. Traction power. Councilmember Berliner also wished to explore other means than overhead catenary to provide traction power, with the objective of allowing less visual intrusion and for the new trees to form a canopy over the light rail line. There are at least two such technologies in operation—battery and underground power rail—as well as two others in development (see ©20-24).

The Draft Plan states a preference for such an alternative technology (page 6, second to last bullet). **Council staff recommends amending the bullet as follows:**

- **[To the extent possible, the] MTA should [consider] <u>use</u> vehicles that would not require overhead wires for a power source, <u>if they have proven to be reliable in a comparable environment elsewhere, and not be prohibitively expensive.</u> Nor <u>should</u> a power source <u>be used</u> that would [prevent] <u>rule out</u> a track bed constructed over a natural porous surface such as grass, particularly in the segment where the trail is parallel to the tracks.**

7. Dale Drive station. The most correspondence received subsequent to the hearing concerned a potential light rail station on Wayne Avenue at Dale Drive in East Silver Spring. One group of residents east of Silver Spring advocate building the station as part of the initial project; their arguments are

summarized in the cover to a petition (©25). Another group oppose the station altogether, even at a future time; their arguments are summarized in the cover to another petition (©26-27).

In February 2009 the Council and Executive settled on a compromise between these two views: the station should not be built as part of the initial construction of the Purple Line, but to build the project in a way that would facilitate adding a stop there in the future. (The understanding is that there would not be a station there until or unless there was a community consensus for it.) The Draft Plan's designating Dale Drive as a "Potential Future Station" is consistent with that approach.

MTA's plans would widen Wayne Avenue in order to place the tracks where they would be with a station so that, if a future decision is made to add the station, the platform and shelter could be installed without interrupting service. The widening would increase Wayne Avenue's curb-to-curb width from 48' to 70-72' at the platform, but most of the widening would be far less. It should be noted that half of the widening is to provide a left turn bay for Wayne Avenue traffic turning onto Dale Drive. The diagrams on ©28-29 display the widening.

The arguments now being made on both sides of this issue are a reprise of the arguments heard in late 2008/early 2009 when the Council reviewed the Purple Line's Draft Environmental Impact Statement. From Council staff's perspective, both sides are overestimating the positive and negative impacts. MTA's estimate of boardings for this station has always seemed to be too high, considering the largely single-family residential neighborhood within which it sits. Most of the residents within walking distance of a Dale Drive station would only need to walk a bit more to board at Fenton Street or Manchester Place.

On the other hand, the cost and land impacts of placing a station here would also be small. The most exaggerated argument is the one maintaining that a Dale Drive station would be a precursor to rezoning the neighborhood to a higher density than the current R-60 in order to create transit-oriented development. In the decades since Metro has been built and in operation, the County has *never* re-zoned established single-family residential areas around a station for high density.

The example that proves the rule is the Forest Glen Metro Station. When the Metro system was first laid out, the Red Line up Georgia Avenue planned stops in Silver Spring, Wheaton, and Glenmont, but there was a desire by County officials to build a station at Forest Glen. The vicinity of the Forest Glen consists mainly of single-family detached residents clustered around some townhouses. The community was divided over having a station at Forest Glen, and the same reasons were heard then as are now heard here: while some desired walking access to Metro, there was a general fear that the large investment in a transit station would lead to significant up-zoning. It is the deepest station in the Metrorail system with elevator-only access, so it was one of the more expensive stations to build, in the tens of millions of dollars—in 1990 dollars. Therefore, if there were ever an incentive for government to want recoup its investment in an expensive station by rezoning to generate more ridership, it was at Forest Glen. But the up-zoning did not occur, and 20 years later there are still no plans to do so.

Council staff recommendation: Concur with the Draft Plan.

8. Width of the trail. The Draft Plan calls for the Capital Crescent Trail to be "a width of at least ten feet within the tunnel [beneath the Apex and Air Rights buildings]" and "a minimum width of ten feet with two-foot soft or natural shoulders in the remaining segments." This is followed by a note:

> The Trail's typical at-grade section is a ten-foot paved path with two-foot soft shoulders on both sides of the paved path. These sections apply to the entirety of the trail from Bethesda to Silver Spring Transit Center. Wider sections could be constructed in response to stated County policy objectives if they are determined to be feasible by a subsequent engineering analysis. [page 11]

This recommendation is less expansive than that in the Council/Executive February 2009 letter, below:

> Expand the pavement width of the Capital Crescent Trail to a minimum of 12 feet, and where existing right-of-way is available (i.e., between the western end of Columbia Country Club to the eastern end of Rock Creek Park) and where the cost and tree loss would not be significant, expand the pavement width up to 16 feet with a wider buffer between the LRT and the trail.

Recognizing the likely heavy use of this trail, the Council's desire was for the trail east of Bethesda to have at least the same width as the existing Capital Crescent Trail west of Bethesda, which is 12' wide. However, while there are many segments alongside the Purple Line where a 12' trail (plus 2' shoulders) is readily achievable, there are others where the extra two feet will ramp up the cost and impacts, especially along the Metropolitan Branch. It is also important to recognize that while this trail connects to the 12'-wide Capital Crescent Trail west of Bethesda, it will connect to the Metropolitan Branch Trail south of Silver Spring, which will only be 8-10' wide (©30).

Council staff recommendation: Concur with the Draft Plan's language. This will allow more flexibility in the design where it is needed.

9. North side or south side? The Georgetown Branch Amendment of 1990 shows the trail along the south side of the right-of-way. However, in developing the Locally Preferred Alternative MTA placed it on the north side in order to reduce impacts and better fit the two uses within the limited right-of-way. The Draft Plan concurs.

The Council has received testimony and considerable correspondence on this issue from both sides (so to speak). Each side desires the trail closer to it, in some cases to be able to access the trail from behind their property, and in more cases to put the light rail line a bit further away. In East Bethesda there are slightly more homes backing up to the north side to the south side. In the Coquelin Run neighborhood the number of homes on the north and south sides are roughly equal. The main difference is in the segment between Pearl Street and East-West Highway, where there are nearly two score homes in the Town of Chevy Chase backing the south side of the right-of-way. However, the Riviera Apartments on the north side have also been adamant about having the trail on its side. Call it a draw, with the deciding factor being MTA's concern to mitigate impacts.

Based on MTA's earlier plans, the Draft Plan shows the trail shifting from the north to south side west of Jones Mill Road. However, MTA's latest concept is to bring the trail from the north to the south side crossing Rock Creek, in order to afford trail users a view both up and down the Rock Creek valley.

Council staff recommendation: Concur with the Draft Plan, except to continue the trial on the north side across Jones Mill Road to Rock Creek and crossing to the south side at that point.

10. Trial access points. One of the Executive's recommendations is to add more access points to the trail. This was also recommended in the February 2, 2009 letter (see ©2, part 3, second bullet). The Draft Plan identifies on Maps 2-12 a total of 15 points of public access; they are denoted with green "Pedestrian Access" logos. In developing the engineering plans further, however, several more access points have been identified and should be labeled on these maps. Therefore, **Council staff recommends adding 7 more access points:**

- **West end of the Bethesda station**
- **Grubb Road**
- **Kansas Avenue**
- **Michigan Avenue**
- **Lyttonsville Road**
- **Spring Street**
- **Apple Avenue**

The February 2009 letter also raised the potential for using Coquelin Parkway as a point of access. Coquelin Parkway is a right-of-way reserved for a road that will almost certainly never be built. It stretches from the intersection of Jones Bridge Road and Manor Drive south, crossing the Georgetown Branch right-of-way along a tributary to Coquelin Run, and continues south to the east end of Chevy Chase Lake Drive. From that point the right-of-way goes east, following the main stem of Coquelin Run, to Jones Mill Road. An annotation of Map 6 describes the area and possible options (©31), which include:

- *Option A:* A trail (probably 8'-wide) connecting the Manor Road/Jones Bridge Road intersection to the Capital Crescent Trail, which is on the north side of the Purple Line. This area of Chevy Chase has poor access to the trail: it is about 3,300' between the Connecticut Avenue and Jones Mill Road access points. This would provide a mid-point access from north, directly serving North Chevy Chase ES and the neighborhoods surrounding it.
- *Option B:* Option A plus an underpass beneath the Purple Line and Capital Crescent Trail, continuing to the end of Chevy Chase Lake Drive. This would also provide access from the multi-family dwellings at the east end of Chevy Chase Lake Drive and, possibly from the single-family residential neighborhood served by Coquelin Terrace.
- *Option C:* Option B plus an extension east to Jones Mill Road, and then south along Jones Mill Road and east along East-West Highway to the Rock Creek Bike Trail. This would also provide another off-road path connection between the two regional trails.

The options are progressively more beneficial to hikers and bikers, but also progressively more expensive and impactive on the natural environment. None of these options have been vetted by environmental planners, the Parks Department, or the community, so it is not ripe to include any of them in the Purple Line Functional Plan. However, the Chevy Chase Lake Sector Plan is underway, and its geographic scope extends east to Rock Creek, offering the opportunity to explore these alternatives.

Council staff recommends that the Council direct the Planning Board to study Coquelin Parkway trail options—including the "no build" option—as part of the Chevy Chase Lake Sector Plan, and to include its recommendation for that right-of-way in that plan. That plan should also address the ultimate disposition of the Coquelin Run right-of-way: whether it should be a park, developed, or abandoned. The one sure conclusion is that it will not be a road.

11. Station names. The names of the stations in the Draft Plan are merely placeholders; the final names will be chosen closer to the time when the line opens. There are two important criteria for naming a transit station. First and foremost, it must identify the place where the stop is located so that riders know exactly where they are getting off. Secondly, the name should be short enough to appear on maps and pylons, and to be easily understood over the train's public address system.

The selection of a station name is sensitive, and if the station is to be a focal point of the community where it is situated, then that community should have a major role in its naming. To get the ball rolling, below is a list of the stations to be built as part of the Locally Preferred Alternative, and Council staff's suggestions:

Station Names in the Draft Plan	**Suggested Name for Consideration**
Bethesda South	Bethesda Metro
Connecticut Avenue	Chevy Chase Lake
Lyttonsville	Lyttonsville
16th Street	Woodside
Silver Spring Transit Center	Silver Spring Metro
Fenton Street	Silver Spring Town Center
Manchester Place	Manchester Place
Arliss Street	Long Branch
Gilbert Street	New Hampshire Estates

While the station names should reflect the place, the stations themselves should have local character built into the design. Although light rail systems have standard basic design, many have allowed the stations to be festooned with art, historic placards, dedications, and other elements that give each station a unique character, furthering a sense of place. In this way a purely utilitarian structure can become a centerpiece for that neighborhood, much more so than our sanitized Metro stations.

The Action Committee for Transit has proposed naming the 16th Street station the "Harry Sanders Memorial Station at 16th Street" (or, as Council staff would suggest, "... at Woodside"). That moniker could appropriately be placed on a plaque at the station, perhaps even with a display citing the Woodside resident's contributions as a founding father of the Purple Line. Similar commemorations celebrating local historic personages or events should be evident at each of the stations on the line.

Council staff recommendation: Add text to the Plan stating that the posted station names should be brief and describe the specific place, and that each station be designed with art, historic information, and other elements to make it a focal point for its community.

12. Miscellaneous changes. Several stations shown on the Draft Plan's maps do not reflect their exact location in MTA's latest plans:

- *Connecticut Avenue Station.* The Draft Plan shows a station in the middle of Connecticut Avenue. It should be moved just to the east of Connecticut Avenue, where the station platform will be located.

- *Lyttonsville Station.* The Draft Plan shows a station directly under the Lyttonsville Place bridge. It should be moved further east by about 200 feet.

- *16th Street Station.* The Draft Plan shows a station directly under 16th Street. It should be moved further southeast by about 100 feet.

- *Manchester Place.* The Draft Plan shows a station in the middle of Wayne Avenue. It should be moved to just east of Wayne Avenue.

- *Gilbert Street Station.* The Draft Plan shows a station in the middle of University Boulevard at the intersection with Gilbert Street. It should be moved close to the intersection with Piney Branch Road.

Council staff recommends all the above changes.

Under the description of the Silver Spring Green Trail on page 31, there is a sentence stating: "The combined trail and buffer along this segment will be at least 13 feet wide with a minimum eight foot wide trail and a minimum five foot buffer." Subsequent field work with the MTA and County DOT has uncovered locations where designating a minimum for both the trail and the buffer would be too impactive. **Council staff recommends amending the sentence so it reads simply: "The combined trail and buffer along this segment will be at least 13 feet wide."**

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OFFICE OF THE COUNTY EXECUTIVE
ROCKVILLE, MARYLAND 20850

Isiah Leggett
County Executive

February 2, 2009

John D. Porcari, Secretary
Maryland Department of Transportation
7201 Corporate Center Drive
Hanover, Maryland 21076

Dear Secretary Porcari:

We have completed our review of the Maryland Transit Administration's Purple Line Alternatives Analysis/Draft Environmental Impact Statement (AA/DEIS) and are sharing with you our recommendations for the Locally Preferred Alternative.

We all recognize the need to address mobility and accessibility issues in the corridor between Bethesda and New Carrollton. The corridor is experiencing unacceptable levels of roadway congestion, unreliable transit travel times, limited travel mode options and degraded transit accessibility to the larger metropolitan region due to inferior connections to radial Metrorail lines and to other rail and bus services. Furthermore, construction of the Purple Line would provide environmental benefits to an area classified by the Environmental Protection Agency as a serious non-attainment region, while simultaneously providing a stimulus for community revitalization. It is also critical to another shared goal of promoting smart growth.

We have arrived at our recommendations only after discussions with many stakeholder groups and individuals, and after reviewing the testimony from MTA's four public hearings, the thousands of pieces of correspondence we have received, and detailed analysis and recommendations from our Planning Board. We also considered the meeting between you and County Executives Johnson and Leggett. After considerable analysis and discussions, it is evident that light rail is the more viable long-term option given the consistency with the Master Plan, the high level of forecasted ridership, the better travel times, and the ability of light rail to better support transit-oriented development.

As we transmit these recommendations, we would be remiss if we did not take the opportunity to thank Governor O'Malley for his championing this project, not only in his words but in his deeds: in particular, his retaining full funding of preliminary engineering and design of the Purple Line, while many other projects in the Consolidated Transportation Program have had to be eliminated or scaled back significantly.

We also want to recognize the tremendous job by MTA and its consultant team in bringing the project to this point in its development. We especially want to express our gratitude to Mike Madden, MTA's study manager, who has personally shepherded the Purple Line study through good times and bad over the past decade.

The Montgomery County Executive's and Council's joint recommendations regarding the Locally Preferred Alternative (LPA) are to:

1. Select Light Rail Transit (LRT) as the transit mode for the Purple Line.

2. Select the Medium Investment LRT that uses the master planned Georgetown Branch right of way between Bethesda and Silver Spring, with the modifications noted below:

    - Incorporate the High Investment LRT design for the Capital Crescent Trail through the tunnel under Wisconsin Avenue.
    - Curtail the tail tracks west of the Bethesda stop so that they would extend no further than 100 feet west of the portal of the Apex Building, and less than 100 feet west if possible.
    - Plant grass between and to each side of the tracks where the line is parallel to the Capital Crescent Trail and not on a bridge or in a tunnel.
    - Expand the pavement width of the Capital Crescent Trail to a minimum of 12 feet, and, where existing right-of-way is available (i.e., between the western end of the Columbia Country Club to the east end of Rock Creek Park) and cost and tree loss would not be significant, expand the pavement width to up to 16 feet with a wider buffer between the LRT and the trail.
    - Before selecting the LPA, evaluate the cost, impacts, and operations implications of single-tracking one or more sections of the LRT where it would parallel the Capital Crescent Trail.
    - Before selecting the LPA, bring the evaluation of a tunnel option between the Silver Spring Transit Center (SSTC) and the vicinity of Wayne Avenue/Mansfield Road to the same level of detail as has been already completed for the surface option between these points.
    - If the surface option is ultimately selected for Wayne Avenue, delete the Dale Drive stop from the LPA but design the line in a way that would facilitate adding a stop there in the future.

3. Perform the following analyses during the preliminary engineering phase:

    - Examine the feasibility of using hybrid light rail vehicles (or dual powered vehicles) that do not require wires, poles, and electrical substations.
    - Identify more access points to the Capital Crescent Trail than those currently appearing in the Draft Environmental Impact Statement (e.g., from the Coquelin Parkway right-of-way in Chevy Chase and from the Grubb Road/Terrace Drive intersection in Silver Spring, and others).
    - Investigate design and building techniques to maximize the retention of existing trees in the corridor.
    - If the surface option is selected for downtown and East Silver Spring, give special attention to the LRT vehicle crossing of Georgia Avenue and intersection of Fenton Street/Wayne Avenue to ensure that the LRT, pedestrians, and vehicular traffic will operate in a compatible manner.

- If the surface option is selected for downtown and East Silver Spring, conduct a detailed study to address:
    a. Pedestrian safety and station accessibility;
    b. Forecast ridership at the SSTC and Fenton Street stations;
    c. Transit, vehicle queuing, and parking operations in shared lanes, including options to minimize adverse economic effects on retail businesses along Bonifant Street; and
    d. Wayne Avenue Green Trail design.
- Develop design details for the Capital Crescent Trail that include:
    a. detailed plans for all access points, including the connection to the Rock Creek Trail;
    b. retaining walls and security or privacy fencing;
    c. landscaping (including shade trees);
    d. aesthetic treatments for the bridges crossing Rock Creek (including coordination with the National Park Service);
    e. signing and marking;
    f. bicycle facilities at Purple Line stations; and
    g. a public plaza at the Woodmont East terminus.
- Prepare a phasing plan along University Boulevard in the Takoma/Langley Crossroads area that identifies how LRT implementation will be coordinated with establishment of the wider master planned typical section.
- Provide continuous sidewalks and/or shared use paths on both sides of roadways that carry the Purple Line alignment.
- Include mitigation strategies for the following impacts:
    a. Wetlands and Waters of the US, with impacts and mitigation identified by watershed;
    b. obtains Parks Department approval for proposed mitigation sites in parkland;
    c. noise impacts at wheel squeal locations;
    d. historic resources – including mitigation for the impact for Falkland Apartments); and
    e. Parks Department property impacts, including the Brookville Road Maintenance site.

We look forward to working with you and our colleagues in Prince George's County to gain Federal funding approval for preliminary engineering and, ultimately, for the design and construction of the entire 16-mile Purple Line. This is a vital project for the state and the region, and we must collectively move forward to bring the Purple Line into service as soon as possible.

Sincerely,

Isiah Leggett
County Executive

Phil Andrews, President
County Council

cc: The Honorable Martin O'Malley, Governor of Maryland
The Honorable Barbara Mikulski, United States Senate
The Honorable Benjamin Cardin, United States Senate
The Honorable Christopher Van Hollen, United States House of Representatives
The Honorable Donna Edwards, United States House of Representatives
The Honorable Steny Hoyer, United States House of Representatives
The Honorable Richard Madaleno, Chair, Montgomery County Senate Delegation
The Honorable Brian Feldman, Chair, Montgomery County House Delegation
The Honorable Jack Johnson, Prince George's County Executive
The Honorable Marilynn Bland, Chair, Prince George's County Council
The Honorable Melony Griffith, Chair, Prince George's County House Delegation
The Honorable C. Anthony Muse, Chair, Prince George's County Senate Delegation
The Honorable Kathy Strom, Mayor, Town of Chevy Chase
The Honorable Bruce Williams, Mayor, City of Takoma Park
Royce Hanson, Chair, Montgomery County Planning Board
Samuel Parker, Jr., Chair, Prince George's County Planning Board

OFFICE OF MANAGEMENT AND BUDGET

Isiah Leggett
County Executive

Joseph F. Beach
Director

MEMORANDUM

June 21, 2010

TO: Gary Erenrich, Department of Transportation

FROM: Joseph F. Beach, Director

SUBJECT: County Capital and Operating Cost Estimates for the Purple Line Functional Plan

Attached are the cost estimates associated with the Planning Board's draft *Purple Line Function Plan.* These costs were provided by the Departments of Transportation, General Services, Police and Fire and Rescue Services. Please note that capital project cost estimates are high-level, order-of-magnitude estimates. Final estimates for capital projects would not be available until completion of design development.

The following departments reported no fiscal impact: Housing and Community Affairs, Recreation, Economic Development, Health and Human Services, and Environmental Protection.

If you have any questions, please contact Amy Wilson, Office of Management and Budget, at 240-777-2775.

JFB: aw

Attachment

c: Diane Schwartz-Jones, Assistant Chief Administrative Officer
Arthur Holmes, Director, Department of Transportation
David Dise, Director, Department of General Services
Gabriel Albornoz, Director, Department of Recreation
Rick Nelson, Director, Department of Housing and Community Affairs
Uma S. Ahluwalia, Director, Department of Health and Human Services
Robert Hoyt, Director, Department of Environmental Protection
Richard Bowers, Chief, Fire and Rescue Services
Tom Manger, Chief, Police
Parker Hamilton, Director, Department of Public Libraries
Gary Stith, Department of General Services
Mike Coveyou, Department of Finance

Office of the Director

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County Capital and Operating Cost Estimates
Assumed to be Incurred as a Result of the
Purple Line Functional Plan

Capital Improvement Projects				
Project	**Description**	**Cost Estimate**	**CIP Status**	**Comments**
Business District Streets				
Purple Line LRT	Bethesda to New Carrollton	$1,517,000,000	Not in CIP	MDOT has funding through Preliminary Engineering in CTP. The State, to the extent feasible, will not require County participation in the State's local share of a federally approved project. Should the County be required to share in the local costs, the State will credit the County for its significant contributions that includes the Georgetown Branch right of way, the design and construction of the Bethesda South Entrance, and pay for the construction of the replacement and improvement of the existing Capital Crescent Trail.
Capital Crescent Trail	Bethesda to Silver Spring.	$25,000,000	Not in CIP	Cost estimate reflects County cost. Additional design features will add to this cost estimate that may include a 12' trail, improved local access, and landscaping buffers.
Georgetown Branch Right of Way (ROW)	Bethesda to Silver Spring	$30,000,000	County purchased in 1988	Estimated current value of ROW.
Bethesda South Entrance	Elm Street at Wisconsin Avenue	$60,000,000	CIP #500929	Project is being designed by MTA under agreement.
Takoma Langley Park Transit Center	University Blvd. and New Hampshire Ave.	$2,500,000	CIP #500715	Cost reflects County's share of project. Project is being designed and constructed by MTA.
Silver Spring Library Easement	County is providing ROW for Purple Line.	$945,000	CIP #710302	Purple Line ROW is approximately 19% of the total site or a land value of $2,700,790. Value of the easement for the Purple Line ROW is 35% of the land value.
Silver Spring Green Trail	Silver Spring Transit Center to Sligo Creek Hiker/Biker Trail	$6,300,000	CIP #509975	County is coordinating project with Purple Line. MTA will likely construct trail with Purple Line construction along Wayne Avenue.
Public Facilities				
Silver Spring Library	Additional construction costs resulting from the Purple Line	$5,532,000	CIP #710302	$3,234,385 raising the ground level of the building 30' above grade; $1,677,500 providing a 60' clear space and cantilever of the building structure over the platform; $520,000 platform slab; $100,000 development of ground plane landscape.
Subtotal – Capital Improvement Projects		**$1,647,277,000**		

Operating Budget Impacts				
Additional Police Officers and associated equipment	First year cost estimate includes personnel ($1,778,280, 21WYs); operating ($1,466,745, vehicles and equipment)	$3,245,000		8 officers and 1 detective assigned to the 2nd District; 12 officers assigned to the 3rd District.
Additional Fire and Rescue Vehicles and equipment	Vehicle and equipment costs	$200,000		Includes two all-terrain vehicles (ATVs) with EMS and fire pump inserts, ATV trailers, and small trucks for towing the ATVs to access points along the Purple Line and trail system. Once actual design of the Purple Line is developed, FRS would determine complete operational needs which may be impacted by size and location of electrical sub-stations, access points and road/trail surfaces for emergency vehicles, and may include specialized training required by Occupational Safety and Health Administration (OSHA) for emergency incidents occurring in transit system tunnels.
Subtotal – Operating Budget Impacts		**$3,445,000**		

COST Summary	
Total Cost Estimate CIP	**$1,647,277,000**
Current CIP Projects	$75,277,000
Not included in Current CIP projects	$25,000,000
Paid by MDOT	$1,517,000,000
Other (County Owned ROW)	$30,000,000
Total Operating Budget Impacts	**$3,445,000**
TOTAL COST ESTIMATE	**$1,650,722,000**

NOTES:

- There may be indirect fiscal impacts from spillover redevelopment due to the Purple Line. Indirect impacts are not addressed as they will be handled as direct impacts in fiscal impact analyses for future master plan amendments for plan areas around the Purple Line alignment.
- Capital project cost estimates are high-level, order-of-magnitude estimates. Final estimates for capital projects would not be available until completion of design development.

OFFICE OF THE COUNTY EXECUTIVE
ROCKVILLE, MARYLAND 20850

Isiah Leggett
County Executive

MEMORANDUM

June 25, 2010

To: Nancy Floreen, Council President

From: Isiah Leggett, County Executive

Subject: Purple Line Functional Plan

I am pleased to have the opportunity to provide the Council with my comments on the Planning Board Draft of the Purple Line Functional Plan. As required by the Regional District Act, I am also attaching the fiscal impact assessment analysis. It should be noted that there may be indirect fiscal impacts from spillover redevelopment due to the Purple Line. Indirect impacts are not addressed as they will be handled as direct impacts in fiscal impact analyses for future master plan amendments for plan areas around the Purple Line alignment.

The Purple Line Functional Plan represents one important step in a long and involved process to move the Purple Line from planning to design and construction. In August 2009, the Governor selected the light rail alternative on the Georgetown Branch as the locally preferred alternative, and the County has been working with the Maryland Transit Administration (MTA), the Planning Staff and the community to refine plans for the trail, stations, and alignment.

On February 2, 2009, County Council President Andrews and I signed a joint letter to the Maryland Department of Transportation (MDOT) requesting nine follow-up items be examined during preliminary engineering. The Purple Line Functional Plan lists these follow-up items on page 2 of the Plan. Many of these nine follow-up items are best handled during preliminary engineering, but should be reflected as appropriate in the Plan.

The following is a summary of other items Executive staff believes should be addressed in the Plan:

1. A successful trail design should maximize the opportunity for access and provide for areas for emergency access to the trail and Transitway. We would like the Plan to identify additional locations for access to the trail, for example, from an area between 4306 and 4340 Montgomery Avenue, Lynn Drive, Coquelin Run, Terrace Drive/Grubb Road, town homes near Elkhart Street and Apple Avenue.

2. The Takoma Langley Park Station will need to be designed to connect to the Takoma Langley Park Transit Center at University Boulevard and New Hampshire Avenue to accommodate bus to Purple Line transfers and safe pedestrian movements.

3. The Plan should identify the need for additional sidewalks and or shared use paths to achieve continuous sidewalks/paths along the Purple Line alignment, including any missing links.

4. The Plan should include the identification of natural resources and noise sensitive locations for potential mitigation.

5. Include a statement on the need to accommodate kiss and ride at the Connecticut Avenue Station, similar to the Lyttonsville Station and the 16th Street Station.

6. Address the feasibility of connecting the trail and Lyttonsville Station directly to the Fort Detrick Forest Glen Annex entrance to minimize the walking distance.

7. Address the impact of and requirement for locating a station at Wayne Avenue and Fenton Street.

8. The Department of Fire and Rescue Services (FRS) supports the recommendation to expand the pavement width of the trail to a minimum of 12 feet and up to 16 feet where possible for better access for fire-rescue vehicles. The trail may be used to provide direct access to Purple Line and trail incidents for fire-rescue vehicles.

9. FRS requires adequate access to the Purple Line tracks and the Capital Crescent Trail. Multiple access points along the length of the tracks and trail are needed to facilitate immediate access by fire-rescue vehicles from adjacent roadways. The plan should identify strategic positioning of access points after consultation with FRS.

10. The Plan should make reference to the number and general size and spacing required for the electrical substations.

11. The Plan should recognize the relocation of on-street parking and loading areas in commercial area and should recommend the need and location for replacement parking and loading spaces.

The Executive Departments appreciate the hard work of the Planning Staff, the Advisory Committee and MTA in preparing the Plan. We will continue to work on the issues identified in this memorandum, as well as those in the February 2, 2010, memorandum to MDOT.

IL:lh

PH 6/29/10 Purple Line Functional Plan

GO
CC
SBF
LL
EMC
OLO

MCPS MONTGOMERY COUNTY PUBLIC SCHOOLS
www.montgomeryschoolsmd.org MARYLAND

July 2, 2010 057927

The Honorable Nancy Floreen, President
Montgomery County Council
Stella B. Werner Council Office Building
100 Maryland Avenue
Rockville, Maryland 20850

Dear Ms. Floreen:

This is to comment on the Planning Board Draft *Purple Line Functional Plan*, the alignment of which affects three Montgomery County Public Schools (MCPS) sites—Rosemary Hills and Sligo Creek elementary schools and Silver Spring International Middle School.

Rosemary Hills Elementary School

I am concerned that the Purple Line alignment, as shown on Map 9 in the *Purple Line Functional Plan*, will have a negative impact on the Rosemary Hills Elementary School site, as it will reduce useable area on a site that already is constrained in size. The proposed alignment along Talbot Avenue will necessitate the relocation of the street very close to the school building, requiring a massive retaining wall, in addition to the one that currently exists. As shown on the enclosed illustrations, the relocation of Talbot Avenue will worsen an already cavernous effect in the rear of the school building. To lessen the impact to Rosemary Hills Elementary School, MCPS proposes that the Talbot Avenue vehicular bridge and the Capital Crescent Trail be combined into one structure, crossing near the Hanover Street terminus, as shown on the illustrations. Because the Talbot Avenue Bridge will have to be reconstructed in order to allow construction of the Purple Line, it seems logical and cost effective to combine the facilities into one structure and eliminate two crossings. While we understand that a retaining wall still may be needed behind the school, relocating the bridge could lessen the height of the wall and/or permit it to be located further away from the school.

Silver Spring International Middle School and Sligo Creek Elementary School

Our concern with the alignment as it affects Silver Spring International Middle School and Sligo Creek Elementary School is that of safety and efficient school operation. The Purple Line alignment, as shown on Map 13, passes the combined campus that serves over 1,500 students and staff, with 35 school buses accessing the campus in the morning and 32 school buses accessing the campus in the afternoon. Currently, there is a draft plan that provides one vehicular entrance to the middle school site from Wayne Avenue. With this one entrance, MCPS will have to require full-motion turning, allowing school buses and all other vehicles to proceed by making both left and right turns, as traffic enters and

leaves the campus. We are concerned about the safety and circulation for vehicles using the proposed new school entrance, as ingress and egress will require crossing both the Silver Spring Green Trail and the Purple Line alignment to access Wayne Avenue.

In addition, the proposal to locate a station near the intersection of Dale Drive and Wayne Avenue poses a safety concern, as there is the probability that staff and students will be tempted to cross mid-block to access the station platform. Consideration should be given to installing acceptable pedestrian barriers along the Wayne Avenue frontage.

Thank you for the opportunity to provide comments. We look forward to continuing to work with staff in the months ahead on the Purple Line configuration. Should you have any questions, please contact Mr. James C. Song, director, Department of Facilities Management, at 240-314-1060.

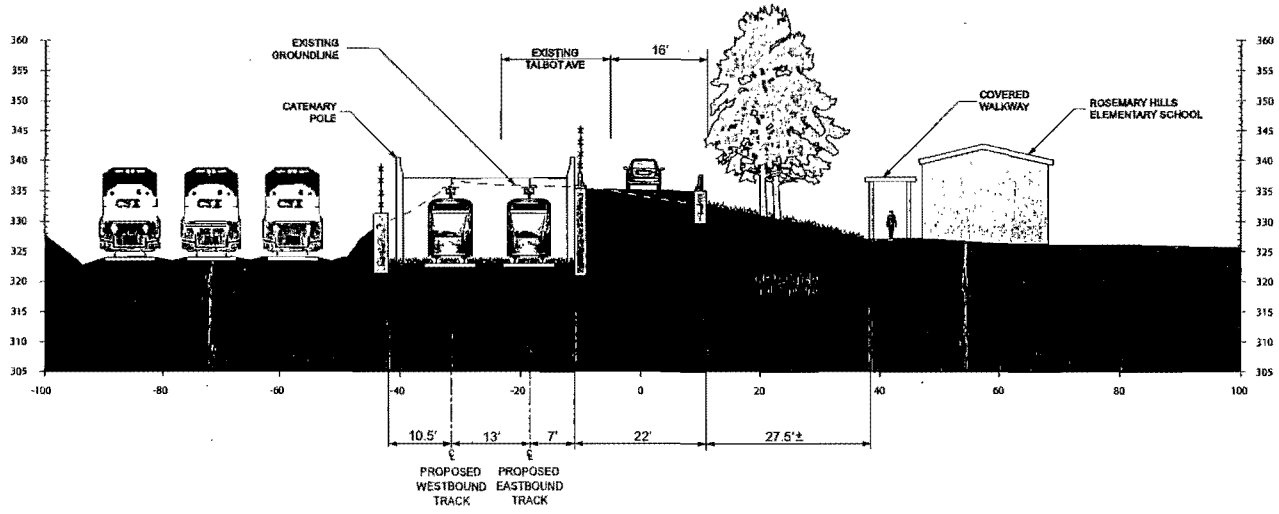
Respectfully,

Jerry D. Weast, Ed.D.
Superintendent of Schools

JDW:jlc

Enclosures

Copy to:
Members of the Board of Education
Mr. Bowers
Dr. Lacey
Dr. Stetson
Mr. Bulson
Ms. Mills
Ms. Lake-Parcan
Mr. Song
Mrs. Swift
Ms. Turpin
Mr. Viggiano



12

TALBOT AVE
SECTION 1

NOTE
LANDSCAPING IS SHOWN FOR ILLUSTRATIVE PURPOSES AND IS NOT REPRESENTATIVE OF EXISTING OR PROPOSED PLANS

DRAFT WORK-IN-PROGRESS

The Purple Line Transit Study information shown shall be used for general planning/information only. The locations of the proposed transit facilities and/or proposed roadway reconstruction/relocation are approximate and subject to change during subsequent stages of project development.

MARYLAND DEPARTMENT OF TRANSPORTATION
MTA Maryland

STV
STV Incorporated
7125 Ambassador Road, Suite 200
Baltimore, MD 21244

JACOBS

Purple Line

10' 0 10' 20'
SCALE: 1"=20'

PURPLE LINE

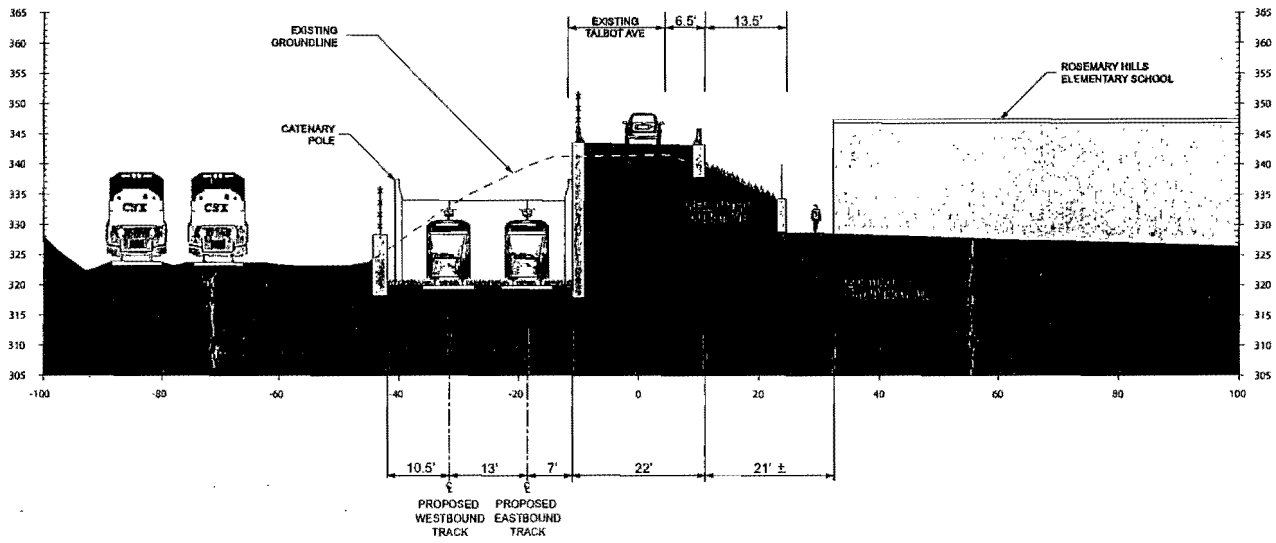
TALBOT AVE - SECTION 1

DATE: JUNE 2010 SCALE: AS SHOWN

DRAWING NO.

SHEET NO.
____ OF ____

13



TALBOT AVE
SECTION 2

NOTE
LANDSCAPING IS SHOWN FOR ILLUSTRATIVE PURPOSES AND IS NOT REPRESENTATIVE OF EXISTING OR PROPOSED PLANS

DRAFT WORK-IN-PROGRESS

The Purple Line Transit Study information shown shall be used for general planning/information only. The locations of the proposed transit facilities and/or proposed roadway reconstruction/relocation are approximate and subject to change during subsequent stages of project development.

MARYLAND DEPARTMENT OF TRANSPORTATION
MTA Maryland

STV
STV Incorporated
7125 Ambassador Road, Suite 200
Baltimore, MD 21244

JACOBS

Purple Line

10' 0 10' 20'
SCALE: 1"=20'

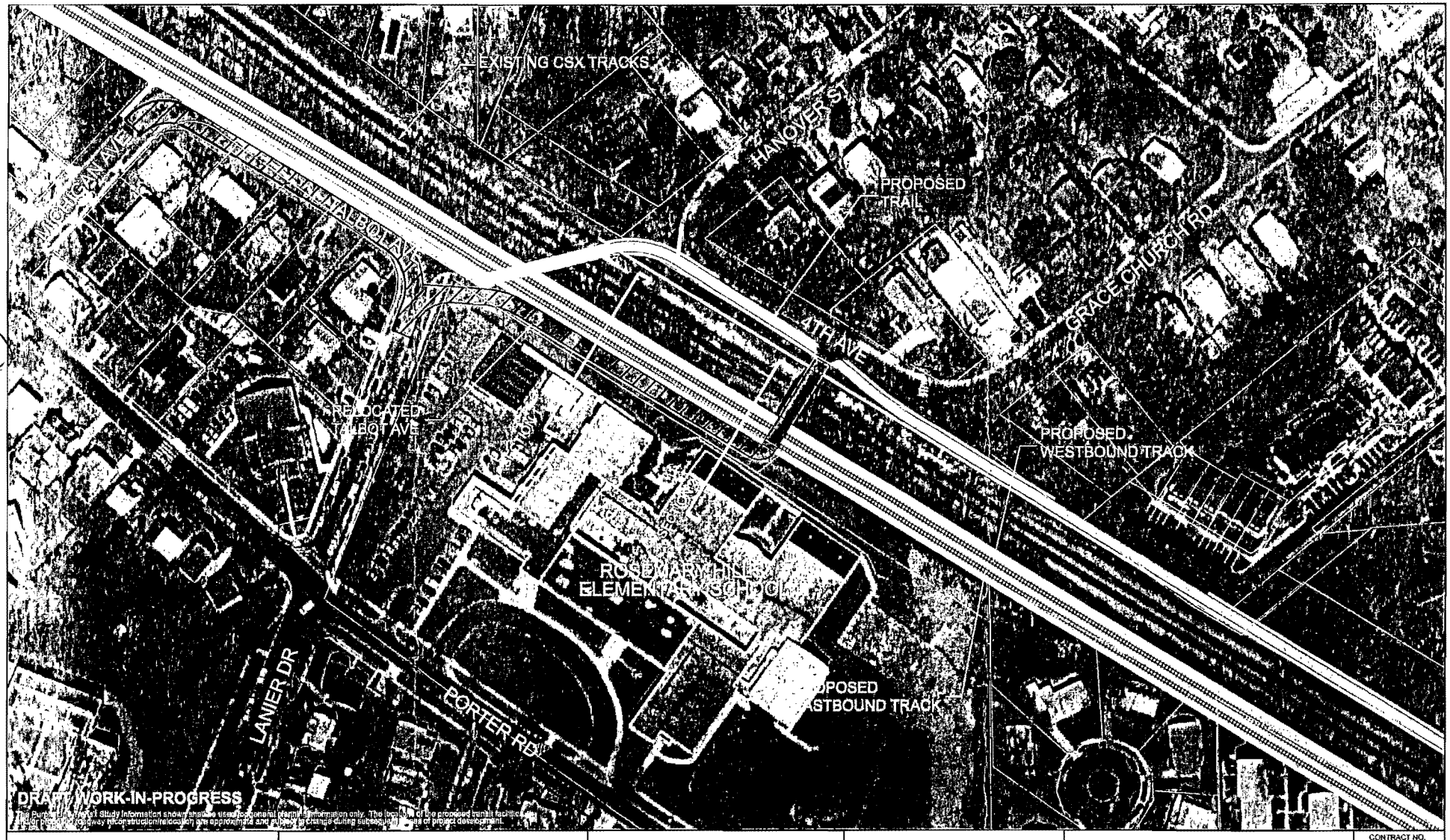
PURPLE LINE

TALBOT AVE - SECTION 2

DATE: JUNE 2010 SCALE: AS SHOWN

DRAWING NO.

SHEET NO. ____ OF ____



The Purple Line Project Study Information shown and is used for general planning information only. The locations of the proposed transit facilities and roadway reconstruction/relocation are approximate and subject to change during subsequent phases of project development.

MARYLAND DEPARTMENT OF TRANSPORTATION
MTA Maryland

STV Incorporated
7125 Ambassador Road, Suite 200
Baltimore, MD 21244
www.stvinc.com

JACOBS

Purple Line

50' 0 50' 100'
SCALE: 1"=100'

PURPLE LINE

ROSEMARY HILLS -PLAN VIEW

DATE: MAY 2010 SCALE: AS SHOWN

CONTRACT NO.
DRAWING NO.
SHEET NO. ____ OF ____

PLOTTED: WEDNESDAY, JUNE 16, 2010 AT 05:22 PM
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(14)

OPPORTUNITY FOR USE OF SINGLE TRACK ALONG THE GEORGETOWN BRANCH RIGHT-OF-WAY

Summary

Introducing a single-track segment between Bethesda and Connecticut Avenue would significantly compromise travel time savings, service frequency, passenger carrying capacity, and the maintenance and operating reliability of the entire Purple Line, thereby reducing the effectiveness, efficiency, and the return on a $1.5 billion investment. These issues are compounded for the Purple Line because of the restriction on having a tail track or pocket track at the Bethesda terminal station and train lengths limited to a two-car train. The reduction in the amount of tree clearing hoped for from building a trail and single-track segment would not be achieved because of the amount of space needed to construct the permanent trail, associated buffers, and the transit facility. A single-track segment between Bethesda and Connecticut Avenue would have adverse impacts to the ENTIRE Purple Line system in Montgomery County and Prince George's County. These impacts would be:

- Longer travel times to the riding public – due to the need to wait for trains in the opposing direction; a delay along any part of the entire line would be compounded by this single-track section,
- Less frequent service – trains would not be able to operate at below seven-minute headways, resulting in a less convenient, attractive service (the Purple Line operating plan currently assumes six-minute headways),
- Lower passenger capacity due to less frequent service, which will limit future ridership growth,
- Overall restrictions to operations and maintenance, requiring night-time maintenance work or total service shut down between Bethesda and Silver Spring to perform required maintenance.

Introduction

The Montgomery County Council and Executive endorsed and recommended the Medium Investment Light Rail Transit (LRT) alternative, running along the Master Plan alignment between Silver Spring and Bethesda, for the Purple Line locally preferred alternative. As part of that endorsement, they requested that the MTA examine the implications of constructing and operating a segment of single-track LRT in the western portion of the Master Plan alignment; as means of reducing the amount of trees that would need to be removed within the available right-of-way. The purpose of this paper is to evaluate the opportunities for introducing a single-track segment into the Purple Line LRT; and its effects on service capacity, service headways, and operational reliability. The area identified as presenting an opportunity for the possible use of a single-track segment is between Bethesda and the western boundary of the Columbia Country Club with the Master Plan alignment.

In examining the opportunity for single tracking, it should be noted that the section of the Purple Line between Bethesda and Silver Spring is estimated to be the segment with the highest passenger loads. This means that this segment determines the line's maximum service capacity and therefore requires a certain number of trains at a peak period headway. Current projections indicate that Medium Investment LRT alternative would have a peak hour, peak direction load of some 2,200 to 2,300 passengers per hour while operating on a headway or minimum interval of six minutes with two-car trains. The Transportation Research Board's *Transit Capacity and Quality of Service Manual – 2nd Edition*, states that single-track section with two-way operations is the greatest capacity constraint on light rail lines.

Use of Single-Track Segments in other Light Rail Systems

Four cities in the United States, San Diego, Portland, Sacramento, and Baltimore, constructed their original LRT lines with single-track segments. In these examples, the use of single track sections was done to save construction funds because of then-existing budgetary limits. In each of these cases, the headways originally operated were in the range of 15 minutes. Indeed, Baltimore was required to lengthen its headways to 17 minutes to accommodate the operating limitations of its multiple single-track sections. In all four cases the operational and service limitations of single-track were recognized early. These limitations are:

- Longer travel times – this is due to the need to wait for trains in the opposing direction,
- Less frequent service – resulting in a less convenient, attractive service,
- Lower passenger capacity due to less frequent service, not allowing for future ridership growth,
- Overall operational and maintenance flexibility.

Eventually in all four cities funding was provided to add the second track for most of their route mileage. The additional cost required to double-track those portions was greater than the amount saved initially. In addition, the service disruption had significant adverse impacts to passengers.

In the case of Baltimore, the decision was made to close the entire line to allow for faster reconstruction despite the inconvenience to passengers. Because of additional neighborhood impacts along the alignment (since the new tracks were closer to residences) the project created strong community opposition. New environmental analysis was required, further adding to the time and the expense. The closing of the service resulted in substantial loss of ridership that was not recovered for several years. The additional cost was far higher due to the escalation of costs, including the not insubstantial mobilization cost. During the closing of the service the MTA still had infrastructure maintenance costs for the tracks and overhead wire system despite the fact the project generated no revenue.

Suggested Purple Line Single-Track Segment

The single-track segment identified for consideration extends along the former Georgetown Branch right-of-way generally between the western edge of the Columbia Country Club and Pearl Street; a distance of approximately 3,500 feet.

Headway Impacts

With a top speed of 45 mph, the one-way running time for the single track segment would be about two minutes. To this must be added a minimum allowance of 60 seconds in order to clear the interlocking (track switch), move the track switch over, and verify its position, and clear the interlocking for operation in the opposing direction.

Based on detailed train operational simulation analyses, train intervals shorter than seven minutes would be precluded, higher than the six-minute peak headways needed for the Purple Line. Even with this level of headways, there would be no margin for error. This would be true even if the train ready to enter the single track had its doors closed, ignored intending passengers wanting to board, and left the instant that the signals cleared.

With a minimum headway of seven minutes, only eight trains would run between Bethesda and Connecticut Avenue in the peak hour. This would be a reduction in passenger-carrying capacity of 20% from the planned six-minute headway. In specific capacity terms, this would reduce capacity to some 2,300 passengers per hour which, while just adequate for the initial projection of ridership, would provide preclude the ability to accommodate future ridership growth.

Service Reliability Impacts

East of Silver Spring, the Purple Line is an approximately 12-mile long, at-grade route almost all of which is subject to traffic signal and other traffic-related impacts. Several segments of the alignment in particular have the potential to be sources of delay and uncertainty in the schedule. These areas are:

- *Wayne Avenue*. In this one-mile segment the LRT is in shared lanes with added left turn lanes. While traffic analyses indicate that this segment would operate well despite the shared lanes, there nonetheless exists the potential for delay.
- *University of Maryland*. This segment, while in dedicated lanes, is an area of heavy pedestrian traffic, which increases the potential for unanticipated delays and unpredictability.
- *Paint Branch Parkway*. This half-mile segment is also in shared lanes, and like Wayne Avenue, is not anticipated to be the source of traffic delays, but the potential exists.

Any delay in these three areas (or elsewhere) would have significant impacts on the operations of the single-track segment. Delays to the eastbound trains, in turn, would then cause delay to successive westbound trains, resulting in delays that would cascade through the peak period and possibly beyond, resulting in poor reliability.

With the single-track, late-running westbound trains might not be able to make their scheduled eastbound departures. Previous directions for the County have precluded the introductions of an operational tail track or pocket track at the Bethesda terminal station

to store "back-up" train. Single-track here would preclude operating any additional eastbound trains to fill in gaps in service with a "rippling effect" all the way east to New Carrollton.

Poor service reliability would have a significant impact on the quality of service that the Purple Line is intended to offer. This, of course, would have a negative impact on the anticipated ridership of the line as well as its capacity to handle growth in future travel demand. The current bus service is sufficiently unreliable at the present time that consideration is being given to eliminating express bus trips since they don't achieve their scheduled running times, being stuck in the same traffic as their local counterparts. Instituting a new rail service with the same lack of reliability would fly in the face of the basic objective of making this investment; namely to provide a transit service superior to the existing bus service which it replaces.

Maintenance Impacts

The operational impacts to the Purple Line have been discussed thus far, but another significant issue would be the maintenance of the single-track sections. With the existence of a second track, routine maintenance could be performed on one track during daylight hours while running service on the second track. This would typically be done during off-peak hours when headways are low. Along a single-track segment between Bethesda and Silver Spring, maintenance would have to be performed when service is not operating; i.e. between midnight and 5AM on weeknights, and 3AM and 7AM on weekends. Track and overhead wire maintenance late at night would have substantial adverse impacts to the adjacent properties, including lighting and noise. An alternative proposed to minimize community impacts may well result in different, but more onerous impacts. In addition labor costs would be higher. Alternately, the single-track segment could be taken out of service and rail service shut down on that portion of the line, adversely impacting ridership and inconveniencing passengers. In order to maintain service a shuttle bus service would need to be operated between Bethesda and Connecticut Avenue, requiring passengers to transfer to a slower service.

Systemwide Effects

The impacts of using single-track in this segment extend throughout the 16-mile Purple Line corridor in Montgomery County and Prince George's County, far beyond this single track segment. Providing a single-track section between Bethesda and Connecticut Avenue would have significant adverse impacts on the riding public throughout the corridor. As noted above, riders between Bethesda and New Carrollton would see their service's reliability, frequency, and speed substantially impaired as a result of introducing a single-track segment. In addition to limiting capacity, the length of the headways has an impact on the attractiveness of the service to passengers.

Reduction in Tree Loss

The intent of this request to explore the construction and operation of a single-track segment in the western portion of the Master Plan alignment is to reduce the amount of trees that would need to be removed within the available right-of-way. It is expected that to construct the trail, the double-track transitway, and the associated buffers; the trees in most of the typical 66-foot right-of-way would need to be removed. New trees and

landscaping would be planted into the buffers and along the side of the transitway and trail when construction was completed. While building a trail and single-track transitway would reduce the width required for permanent use by 10-12 feet, construction of that arrangement would still require clearing of most of that 66-foot width. As the trail would be largely at a different elevation than the transitway along the master plan alignment, construction of one track of the transitway would require access from the side. When building one track, the construction equipment would use the space for the other track and vice versa. Therefore, the hoped-for intent that building a segment of trail and single-track segment would reduce the amount of tree clearance from what would be required for building a trail and double-track segment not likely be achieved.

Conclusion

In sum, introducing a single-track segment between Bethesda and Connecticut Avenue would significantly compromise travel time savings, service frequency, passenger carrying capacity, and the maintenance and operating reliability of the Purple Line, thereby reducing the effectiveness, efficiency, and the return on a $1.5 billion investment. The reduction in the amount of tree clearance hoped for from building a trail and single-track segment would not likely be achieved. For the many reasons stated above the MTA strongly opposes single-tracking any portion of the Purple Line.

Alternative Traction Power

Based on Feedback of PB's Global PAN

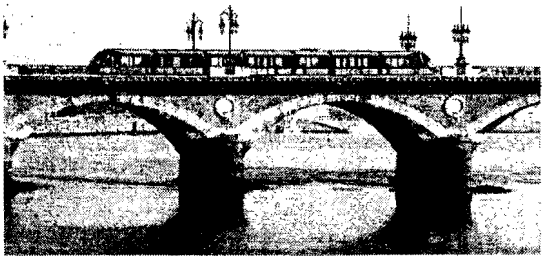
Technology	Examples	Pros	Challenges
ALSTOM APS (underground power rail)	Bordeaux France	No onboard storage needed	• Proprietary technology • Concern about all weather operation • Concern with salt on roads in winter
Battery (various types) – OH electric Various manufacturers	Hiroshima, Japan, several European cities, Savannah, GA	Proven technology	• Some proprietary tech. • Heavy • Long recharge
Ultracapacitors – OH electric	FTA funded demo in Charlotte (in development)	• Faster recharge • One U.S. option	• Unproven for rail • Potential for explosions
Flywheel – OH electric (ALSTOM)	Rotterdam (prototype)	Efficiently rechargeable	• Very heavy • Pre-market technology

APS
The street level power supply

> The principle

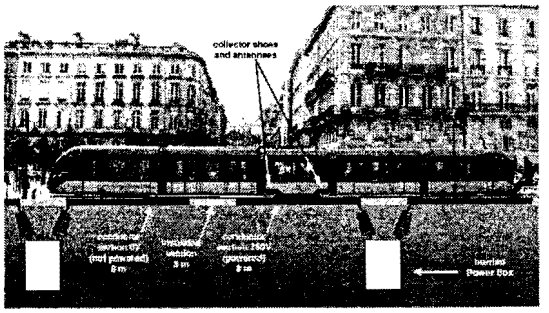
APS is a system to power trams without overhead catenaries, allowing the tram to operate « wire-free » over journeys of any distance and hence to blend into the urban environment.

APS is an Alstom exclusivity. The Communauté Urbaine de Bordeaux (Bordeaux Metropolitan Area) is the first city in the world to have opted for this completely new technology on 14 km of its 44 km long tram network. It has been operating since the end of 2003. The French cities of Angers, Reims and Orleans chose an APS solution in 2006, like the Emirates of Dubai in 2008 and Brasilia in 2009.



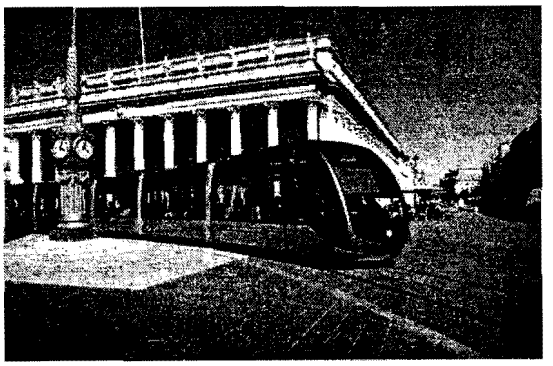
> How does it work?

Power is supplied to the tram through a third rail embedded in the tracks. This third rail is made up of 8 metre-long conducting segments, which can be powered, and which are separated by 3 metre insulating joints. Power is supplied to the conducting segments by underground boxes every 22 metres. The electricity transmitted through this third rail is picked up by two friction contactors located in the mid-section of the tram. The delivery of power to the conducting segments is triggered by coded radio dialogue between the tram and the ground, and only occurs once the conducting segment has been covered by the tram, ensuring total safety for pedestrians.



> The advantages

- Preservation of the urban environment and historical heritage
- Performance levels equal to those of a conventional tram in terms of comfort and speed
- Total safety for pedestrians and road users
- Compatibility with all types of road surface
- Easy extension of the system if the line is prolonged



Nice Tramway, France

Email Article Print Link To Us Related Projects

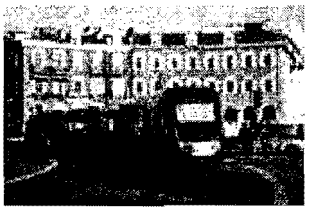
Key Data

Population	Approx. 350,000
System Length (Line 1)	8.7km (5.4 mile)
Gauge	1,435mm
Construction began	Spring 2005
System opened	November 2007
Power supply	750V dc overhead supply (also Ni-MH batteries)
Stops	21

Full specifications

Set by the Mediterranean near the Italian border in south-east France, Nice is an ancient settlement that found international fame in the 19th century as a pioneering sunshine destination. Prior to the onset of modern mass tourism, a multi-line tramway system had ceased operation by the 1950s.

The densely packed site sloping north towards the Maritime Alps has grown to become the country's fifth biggest city, the terminus for TGV rail services and location of the country's busiest airport outside Paris.

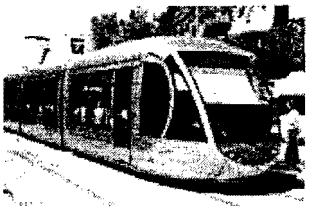


Expand Image
The Nice project is notable for the use of on-board battery power for operation without an external power supply: Place Masséna.

THE PROJECT

Following consideration of a light metro system and after substantial delays and controversy, and given the scale of the city's road traffic problems, Nice's modern tramway came relatively late in the resurgence of French light rail.

Opening as Line 1 of a projected three in November 2007, the system's distinguishing technical feature is the use of batteries aboard the trams to avoid the necessity of erecting overhead line equipment (OHLE) on two sections of the route. This was felt necessary to protect the character of the distinctive Italianate architecture and also because of restrictions such structures would put in the way of Nice's carnival processions, both relevant to the area's substantial tourism industry.



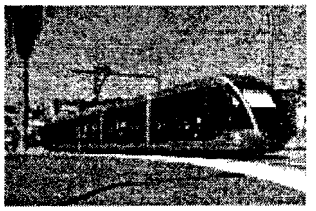
Expand Image
After crossing Place Garibaldi, trams raise the pantograph at Cathédrale-Vieille-Ville for traction current and to re-charge batteries.

"The system's distinguishing technical feature is the use of batteries aboard the trams to avoid the necessity of erecting overhead line equipment."

With relatively short distances, a battery option was felt more appropriate than the alternative Alstom OHLE-free system, APS.

As used in Bordeaux and due for future systems in Angers, Reims, Orléans and the Al Safooh tramway in Dubai, the more elaborate Alimentation Par le Sol/APS (ground-supply) format requires specialised equipment aboard the vehicles and also in the permanent way.

There are sections of grassed tracks away from the city centre, and overall the Nice tramway project embodies a high degree of reworked space and road traffic exclusion, with large areas restricted to tram and pedestrian access.



Expand Image
Like most modern French tramways, Nice opted for the Alstom Citadis.

The European Investment Bank made a €150m loan for the project which had a total cost of approximately €560m, of which just over 70% related to creating the tramway. Areas of expenditure indicative of the demands of the setting included storm water drainage works (€25m), rebuilding of Place Massena (€13m), public

INFRASTRUCTURE

The 8.7km double-track 1,435mm gauge line, with two brief sections where tracks diverge through narrow streets, forms a 'U' configuration, the two arms largely serving demand in residential areas and institutions. The base is near the southern end of the main thoroughfare Avenue Jean Médecin and the two open spaces near the Old Town, Place Masséna and Place Garibaldi, respectively 440m and 470m sections without OHLE. These 'gaps' are joined by a 320m section with OHLE between Opéra-Vieille-Ville (pictured) and Cathédrale-Vieille-Ville stops where trams run conventionally.

With the capacity for over twice the present fleet, the system's depot is at the Las Planas terminus on the line's westerly arm. Built on sloping ground, the complex makes use of the restricted site by a line spiralling over the entry tracks beyond the Las Planas stop to give access to the depot proper and a short test track. Located close to the A8 autoroute, Las Planas also incorporates a park-and-ride facility.

ROLLING STOCK

Resulting from a €57m order from authority Communauté de l'Agglomération de Nice Côte d'Azur (CANCA), the fleet is 20 Alstom Citadis type 302. The fully air-conditioned, 100% low-floor, modular five-unit double-ended trams could be extended in response to the high take-up of the service.

Roof-mounted Ni-MH (nickel-metal hydride) traction batteries with an operational life of at least five years were supplied by Saft under a €2m contract. Giving trams a range of up to 1km at a maximum speed of 30km/h with air-conditioning in operation, the switching of power being either from the overhead line or the batteries is activated by the driver, with the pantograph fully lowered when running without OHLE.

Each tram's driver console features visual and audio indications of the need to operate the power changeover sequence. The batteries recharge from the overhead supply while in conventional operation. There is no additional external infrastructure needed to operate the trams under battery power over the OHLE-free track.

SIGNALLING AND COMMUNICATIONS

Covered by a common ticketing system and operated by Veolia Transport, tram Line 1 is a constituent part of the primarily bus network, Ligne d'Azur. The approximate Line 1 end-to-end journey time is 30min. Tram stops have the usual features of Alstom systems such as ticketing and information equipment, with 'signature' aspects including tall metal 'T' markers at each stop and the use of stylised script.

The control centre is at the depot, linked with trams and to the extensive network of video monitoring of the system. Benefiting from road traffic exclusions and priority at crossings, in this totally urban setting, trams can attain an average 18km/h, as opposed to 11km/h for buses.

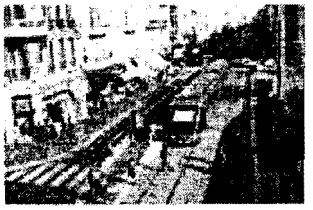
THE FUTURE

For completions projected between 2013 and 2020, the system's future is covered in Le Plan de Déplacements Urbains (PDU), CANCA's statement covering traffic management. Line 1 should be extended 4.5km north from the Pont Michel terminus to La Trinidad.

Split into two parts, Line 2A will run from the Port de Nice, east of the Old Town, westwards to serve the Arénas business district and Nice Côte d'Azur Airport and generally an area in great need of improved public transport.

"The project aim is for over 60% of those resident in the metropolitan area and 150,000 jobs to be within 500m of a tram line."

Expand Image
With landscaping and traffic restrictions, Avenue Jean Médecin is a main thoroughfare transformed by the tram project.



Expand Image
A few hundred metres separate Nice-Ville SNCF station from the nearest tram stop, Gare Thiers.

Expand Image
Combining the Las Planas terminus and a park and ride, the depot complex uses a spiral track layout on a very restricted hillside site.

Expand Image
At Las Planas, trams continue towards the depot before setting back for the next southbound service.

Expand Image

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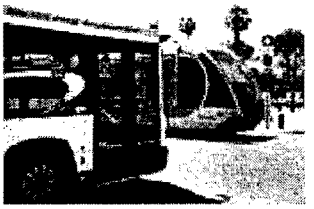
Beyond there, 2B would continue along the coast to Cagnes sur Mer. Also to the west of the city and connecting with the future Line 2, Line 3 would head inland. The total system would approximate to 36km (22 miles). The project aim is for over 60% of those resident in the metropolitan area and 150,000 jobs (80% of the total) to be within 500m of a tram line.

The line's eastern arm skirts the Old Town: trams join a brief overhead supply between Opéra-Vieille-Ville (pictured) and Cathédrale-Vieille-Ville.



Expand Image
The projected line along the western sea front would greatly improve public transport to Nice Côte d'Azur Airport and the business district.

Related Projects: Light Rail Systems
- Sonoma-Marin Rail Transit Project, California
- Ottawa Light Transit System
- Central Corridor, Minnesota
- Sheppard East Light Rail Transit
- Macau Light Transit System

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To: Montgomery County Council
From: Tina Slater and Residents of the East Silver Spring/Wayne Ave area
Subject: Please Support a Purple Line Stop at Wayne Ave and Dale Drive
Date: June 29, 2010
Cc: MNCPPC, MTA, Governor O'Malley, District 20 Delegation, Representative Edwards

We, the undersigned 179 residents, are advocates for the Purple Line and for building a station at Wayne Avenue & Dale Drive.

In our metropolitan area, we are very fortunate to have an established Metrorail system that serves residents and visitors; however people traveling east-west don't have good transit options. The proposed Purple Line will improve this by linking several important transit centers. The Planning Board has approved its draft of the Purple Line Functional Plan, which recommends the route, mode and stations. We urge the Council to approve this plan, but with one modification --- the Planning Board supports the possibility of a future station at Wayne Avenue and Dale Drive, however, we ask the Council to consider including the station ***in the initial construction phase*** of the Purple Line.

And it's not only neighbors who want to see a station there --- the MTA's analysis shows that adding that station will improve the cost-effectiveness rating for the whole project. This rating will be important to the Purple Line as it competes for Federal funds with other transit projects from across the nation.

The station would serve not only local residents, but people coming from outside our neighborhood to visit the two public schools and "Old Blair" auditorium located right there at Wayne and Dale. Plus it will allow people outside the area to access the recreational opportunities offered at Sligo Creek. A station at Wayne and Dale would encourage more people in our close-in neighborhood to leave their cars behind and use public transit. They could ride the Purple line to Metro and their jobs in DC, or ride the Purple Line to visit the restaurant and entertainment offerings of Bethesda, downtown Silver Spring, and the Takoma/Langley International Corridor, or ride the Purple Line to classes, performances and sporting events on the College Park campus. We want to live in a neighborhood like this and we envision future generations wanting to live like this too. The proposed Purple Line is an *infrastructure* project that will serve the Maryland suburbs and integrate various transit modes for the next 75 years. This is not a wait and see situation; we need the station now.

A stop at Wayne and Dale would provide:

- the advantage of a light rail stop in our neighborhood to offset the impacts of the Purple Line (which will travel in front of closely spaced homes, requiring strips of property to be taken from some front-yards)
- a convenient, car-free connection to the Metro Red Line, helping to reduce to rush-hour congestion
- a convenient way for parents, teachers and guests to reach the two adjacent schools: Silver Spring International Middle School and Sligo Creek Elementary School
- transit service to audiences attending programs at the renovated Elizabeth Stickley (Old Blair) Auditorium, which should be opening about the time the Purple Line would be built
- a station for people outside the area to access the recreational opportunities offered at Sligo Creek
- easy access to the expanded integrated transit network, and therefore enhanced property values

Thank you for the opportunity to express our views on the Purple Line.

To: **County Council Members and their staff**
County Executive Ike Leggett
Date: **June 28, 2010**
Re: **Purple Line Functional Master Plan, Public Hearing Tuesday June 29, 2010**

Dear County Council Members and County Executive Ike Leggett:

The attached cover letter and petition is in **opposition** to the proposed Purple Line Station at Wayne Avenue & Dale Drive, in Silver Spring, Maryland 20910. The petition is signed by 178 residents who live in the immediate neighborhood of this proposed station. We appreciate your consideration of this issue.

We the undersigned are writing in strong opposition to a Purple Line station at Wayne Avenue & Dale Drive in our community. We believe a station is unnecessary, unjustified statistically and not worthy of funding, nor worthy of inclusion in any master plan.

We believe this is NOT the transit infrastructure needed at this low density location. We believe this community already has an abundance of transit options within walk-able distances including Metrorail, buses, Ride-on, bike paths, sidewalks, and 4 other purple line stops. We do not need 5 purple line stations in downtown Silver Spring within 1.9 miles of each other (between the Silver Spring Metrorail Purple Line Station and the Arliss & Piney Branch Station.) Please do not add the fifth station at Wayne Avenue & Dale Drive.

We believe the County Council should consider the reality of this station location and disavow unrealistic MTA statistics. We ask that you not support this station in any initial construction.

We specifically ask that you DO NOT include this station in any master plan.

MTA ridership statistics are not based on the lay of the land nor the real neighborhood density.

We do not believe the MTA "statistics" that the density in our neighborhood could ever come close to supporting 1400 "boardings" per day. By one comparison the Ride-On #15 on Wayne at Dale currently boards about 4 persons per day during morning rush hour.

Within one-quarter mile of this intersection are only 420 single family homes, 20 half-way house residents, and an 84-resident retirement home. (A quarter mile is the distance transit planners use to gauge walk-ability to a transit station.)

Within a half-mile of this intersection there are 2 other Purple Line stations in high density areas. (Half-mile is the statistic basis MTA used to justify 1400 boardings per day)

From the intersection of Dale and Wayne there are 3 other high density area Purple Line Stations: Manchester & Wayne (.5 mile), Silver Spring Library (.5 mile), or Silver Spring Metro (.7 mile). Given our neighborhoods very hilly landscape residents outside a quarter mile of this intersection have a much shorter and faster walk to these other stations. By comparison, along the entire 16 miles of the purple line, segments between stations are 1 mile apart or more.

It is not at all clear what fraction of teachers and students might transit to elementary or middle school on the purple line. A large percentage of students are bused from outside the N-S-E-W radius of a half-mile, and many parents outside the immediate one-third mile surrounding neighborhood drive their children to school or to the French immersion program, or do not live on or near an accessible purple line alignments.

The disadvantage of a Wayne Dale Stop includes:

--To accommodate a 200 foot long station and 180 foot long trains, current entrance to the middle school will be closed (at the corner) and the lower teacher parking lot and long driveway (in front of the historic old entrance) will need to be significantly reengineered, and school traffic relocated at considerable impacts to the landscape and the environment.

--To accommodate the large station Wayne will be widened further, on a longer stretch of Wayne, increasing the impervious residential road (now 42" curb to curb) to the size of a 6 lane state highway (72') (example is Colesville Road) or as MTA fine print points out – the engineering caveat of up to 90' feet with a station) increasing vulnerability of pedestrian crossings, at a community crossroad, in front of an elementary and middle school.

--A station is the precursor for high density rezoning within one-half mile around stations, a station sets the stage of future changes to a single family R-60 neighborhood to higher density as part of 'transit-oriented development" and the County's smart growth policy.

--Adverse Environmental Impacts: It is important to consider context sensitivity. This community sits in the hills and valleys of the Sligo Creek watershed and is traversed by parklands and bike paths and playgrounds. Wayne Avenue is the residential main-street. Wayne Avenue near the schools is lined with historic majestic over-story trees, the new 35' wide bridge at the creek will become wider 60-72' wider, the road is residential, and county owned. It is not a state street (as all other purple line on-street routes run on State streets.) The environmental noise and increased decibels generated by trains on rails stopping and starting every 3-6 minutes at this location will reverberate forever amidst an otherwise quiet residential neighborhood.

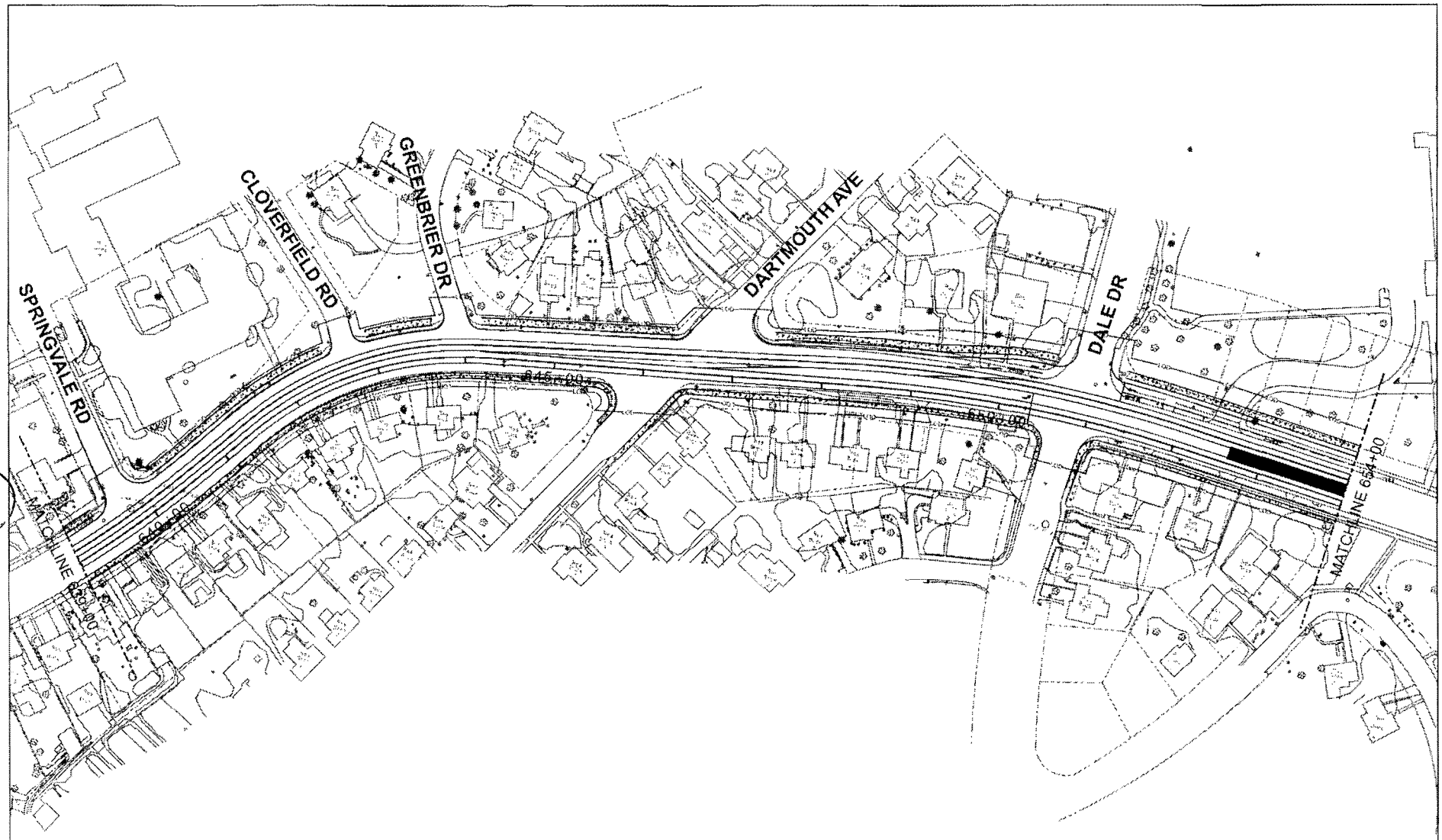
We ask that MTA's statistics of this station at Wayne & Dale not be misinterpreted for a justification to help meet federal cost-effectiveness, or federal funding, for the purple line.

We believe that 5 purple line stations in downtown Silver Spring within 1.9 miles of each other (between the Silver Spring Metro/Purple Line Station and the Arliss/Piney Branch Station, do not add the fifth station at Wayne & Dale) and density in this residential single family area is too low to support a station, even in the future.

Please make the right fiscal decision, don't waste tax dollars. DO NOT INCLUDE a Purple Line Station -- at Wayne Avenue & Dale Drive. Do not put this station in any Master Plan.

Sincerely,

The undersigned opposed residents live in the Park Hills and Seven Oaks Evanswood neighborhoods of Silver Spring, Maryland, 20910



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MARYLAND DEPARTMENT OF TRANSPORTATION

MARYLAND TRANSIT ADMINISTRATION

A joint venture of PARSONS BRINCKERHOFF QUADE & DOUGLAS RUMMEL, KLEPPER & KAHL, LLP

IN PROGRESS

NOT FOR CONSTRUCTION

NO.	DESCRIPTION	BY	DATE
	REVISIONS		

SAK

SAK

PURPLE LINE

PRE-CONCEPTUAL DESIGN

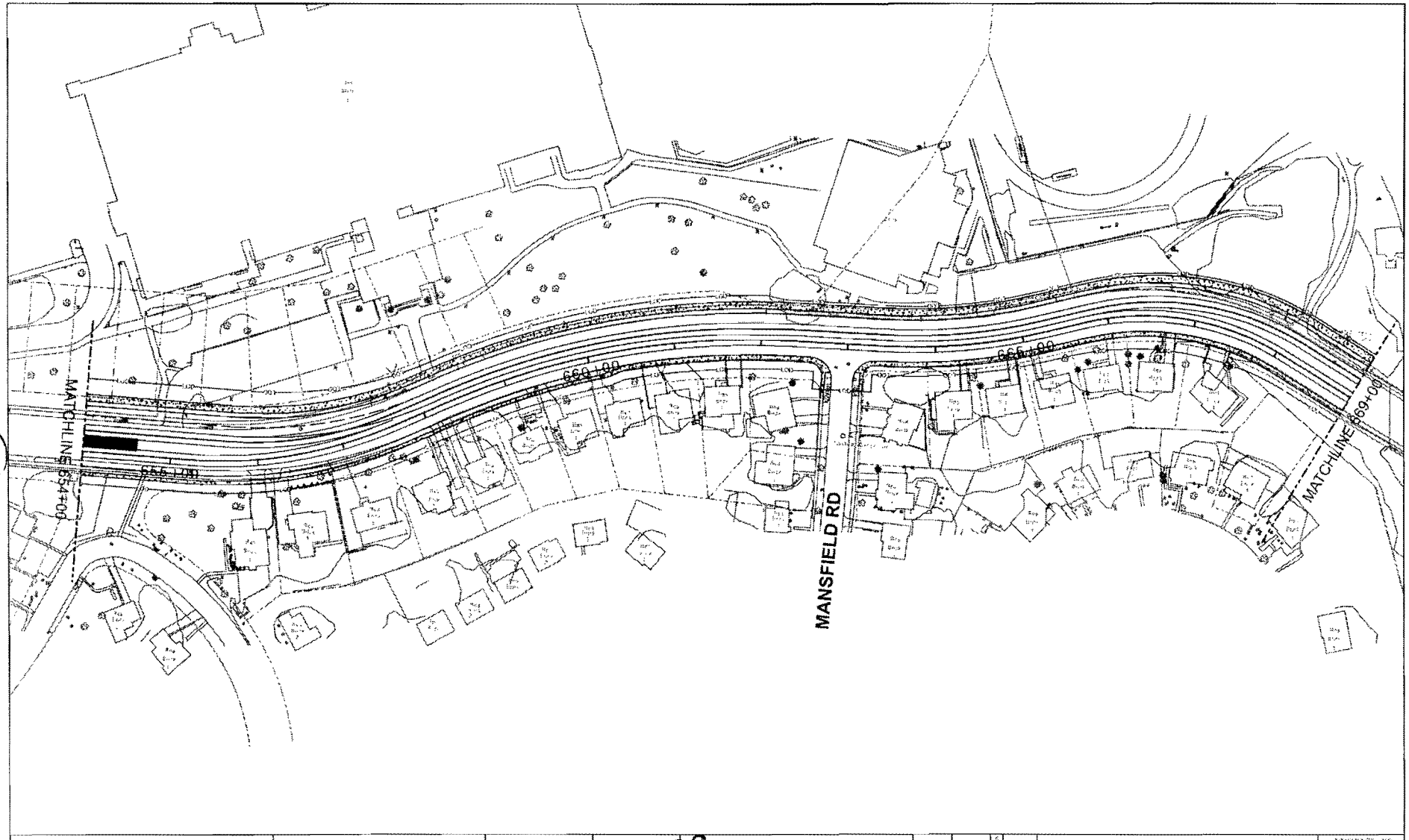
DATE: DECEMBER, 2006 PLAN SCALE: 1"=100'

CONTRACT NO.

DRAWING NO. LRT-MED-WAYNE

OF

29



MARYLAND DEPARTMENT OF TRANSPORTATION

MARYLAND TRANSIT ADMINISTRATION

PB

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IN PROGRESS

NOT FOR CONSTRUCTION

NO	DESCRIPTION	BY	DATE
	REVISIONS		

DRAWN: SAK
CHECKED: SAK
APPR:

PURPLE LINE

PRE-CONCEPTUAL DESIGN

DATE: DECEMBER, 2008 PLAN SCALE 1"=100'

CONTRACT NO

DRAWING NO. LRT-MED-WAYNE

___ OF ___

Metropolitan Branch Trail -- No. 501110

Category	Transportation	Date Last Modified	May 12, 2010
Subcategory	Pedestrian Facilities/Bikeways	Required Adequate Public Facility	No
Administering Agency	Transportation	Relocation Impact	None.
Planning Area	Silver Spring	Status	Preliminary Design Stage

EXPENDITURE SCHEDULE ($000)

Cost Element	Total	Thru FY09	Est. FY10	Total 6 Years	FY11	FY12	FY13	FY14	FY15	FY16	Beyond 6 Years
Planning, Design, and Supervision	2,520	0	0	2,520	915	625	240	100	250	390	0
Land	4,450	0	0	4,450	0	0	1,000	3,000	450	0	0
Site Improvements and Utilities	570	0	0	570	0	0	0	0	290	280	0
Construction	4,600	0	0	4,600	0	0	0	0	1,500	3,100	0
Other	0	0	0	0	0	0	0	0	0	0	0
Total	**12,140**	**0**	**0**	**12,140**	**915**	**625**	**1,240**	**3,100**	**2,490**	**3,770**	**0**

FUNDING SCHEDULE ($000)

G.O. Bonds	9,810	0	0	9,810	915	625	1,240	3,100	2,490	1,440	0
Impact Tax	2,330	0	0	2,330	0	0	0	0	0	2,330	0
Total	**12,140**	**0**	**0**	**12,140**	**915**	**625**	**1,240**	**3,100**	**2,490**	**3,770**	**0**

DESCRIPTION

This project provides for completing preliminary engineering and final engineering necessary to obtain CSX and WMATA approvals for the 0.62 mile segment of this trail in Montgomery County between the end of the existing trail in Takoma Park and the Silver Spring Transit Center. This project also includes the land acquisition , site improvements, utility relocations and construction of the project from the Silver Spring Transit Center to and including a new pedestrian bridge over Georgia Avenue (Phase I). The trail will be designed 8 - 10 feet in width. The design will include: the new bridge over Georgia Avenue, a grade separated crossing of Burlington Avenue, the narrowing of Selim Road and the design for the construction of new and the reconstruction of existing retaining walls.

ESTIMATED SCHEDULE

Preliminary engineering and final engineering are to be completed in the spring of 2012 for Phase I and 2013 for Phase 2. Rights-of-way acquistion and coordination with property owners, including external agencies, are anticipated to take three years.

JUSTIFICATION

The Metropolitan Branch Trail is to be part of a larger system of trails to enable non-motorized travel around the Washington region. The overall goal for these trails is to create a bicycle beltway that links Union Station and the Mall in Washington, D.C. to Takoma Park, Silver Spring, and Bethesda in Maryland. The trail is to be an off-road facility serving pedestrians, bicyclists, joggers, and skaters, and will be Americans with Disabilities Act of 1990 (ADA) accessible.
Plans & Studies: Silver Spring Central Business District Sector Plan.

OTHER

The initial design for this project is under Facility Planning Transportation (No. 509337).

FISCAL NOTE

Federal Transportation Enhancement Funds will be pursued after property acquisition is complete. Expenditure schedule reflects fiscal capacity.

OTHER DISCLOSURES

- A pedestrian impact analysis has been completed for this project.

APPROPRIATION AND EXPENDITURE DATA

Date First Appropriation	FY11	($000)
First Cost Estimate Current Scope	FY11	12,140
Last FY's Cost Estimate		0
Appropriation Request	FY11	1,780
Appropriation Request Est.	FY12	0
Supplemental Appropriation Request		0
Transfer		0
Cumulative Appropriation		0
Expenditures / Encumbrances		0
Unencumbered Balance		0
Partial Closeout Thru	FY08	0
New Partial Closeout	FY09	0
Total Partial Closeout		0

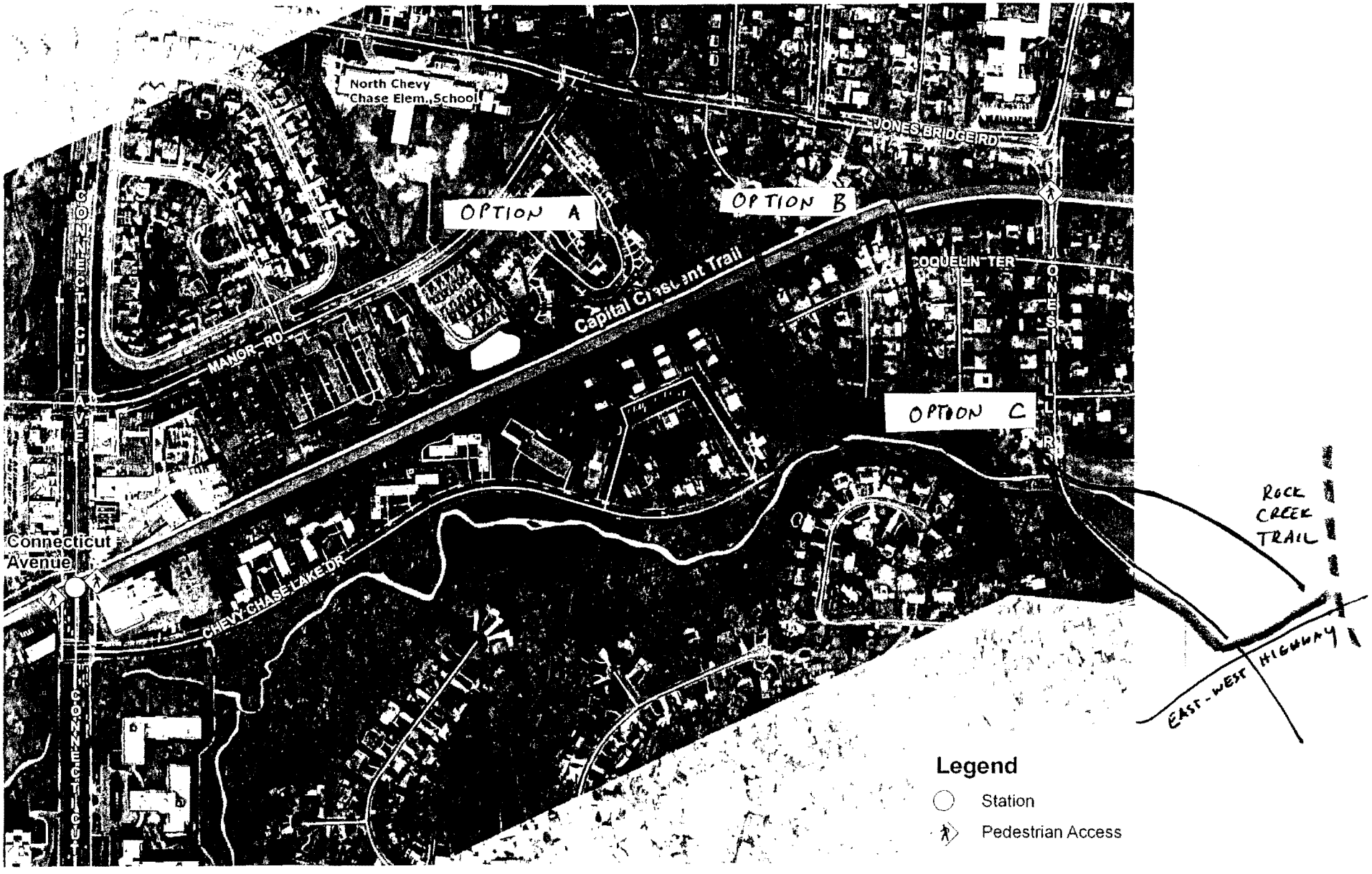
COORDINATION

Washington Metropolitan Area Transit Authority
CSX-Transportation
Maryland State Highway Administration
Montgomery College
Maryland Historical Trust
Purple Line Project
Maryland-National Capital Park and Planning Commission
Montgomery County Department of Health and Human Services

MAP

See Map on Next Page

Map 4: Connecticut Avenue to Jones Mill Road



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