

PURPLE LINE
Responses to Questions Raised by
Residents of the Town of Chevy Chase
August 2007

ROUTE:

Question: What is the role of the State vs. Montgomery County in route selection?

Answer: The State determines the route with input and coordination from both Counties and elected officials. Further, the Maryland Transit Administration (MTA) will continue to work closely with Montgomery County staff, agency representatives, and local elected officials in understanding and addressing issues and concerns associated with each segment of the Purple Line alignment alternatives and options under consideration.

Question: Is the DEIS performed with respect to a particular route or will option routes, such as the Beltway route to Medical Center, also be studied for this DEIS? Will DEIS consider any tunneling, or only above grade? What is the metric that determines impact to residences that would eliminate the Purple Loop but keep the Purple Line? (If the northern/NIH route option has been eliminated because of its impact on residents, why wouldn't the southern route option be eliminated as well?)

Answer: The Alternatives Analysis (AA) and DEIS process began with an evaluation of a wide range of alternatives to serve the transportation and mobility needs of the corridor. Through coordination with the County (as described above), as well as public outreach efforts, several alignment options have been dropped from further study while other alternatives have been modified or refined during the study process for the Purple Line. The process works to reduce the range of alternatives to a more manageable number of alternatives that are the most promising and have a reasonable chance of being cost effective and selected as the Preferred Alternative. At this point in the AA/DEIS process, the study is focused on a small number of alternatives that the State has determined to be reasonable alternatives, with input from both Counties, elected officials, and through our public outreach efforts.

The Beltway Route (Metrorail Loop), as proposed by former Montgomery County Executive Duncan, was evaluated previously in conjunction with M-NCPPC, and it was determined that it did not serve the purpose and

need of the Purple Line project as well as the other alternatives already under consideration, and therefore this alignment proposal was not carried through the full DEIS process. The key purposes and need of the Purple Line is to provide a direct connection to the radial Metrorail lines, to improve system connectivity and efficiency, link one activity center or central business district to another, to serve the University of Maryland, and to provide an improved transit option to transit dependent populations along the corridor. The AA/DEIS will consider tunneling in areas that will not adversely affect the cost effectiveness of the project or the ability to obtain federal funding. This funding is largely dependent upon the cost effectiveness ratio, which is the travel time benefits obtained divided by the operating costs and the capital costs.

A "northern" route to the NIH/Bethesda Naval Hospital area is still included as an alternative with BRT as the transit technology. All of the other build alternatives include improved bus service to the NIH/Bethesda Naval Hospital complex along Jones Bridge Road from the Silver Spring Transit Center.

Question: A recent State study of the Purple Line tunneling option between the Air Rights Center and Jones Bridge road noted "it is not worthwhile to further study the underground tunnel options." In light of Governor Martin O'Malley's recent comments in favor of an underground system, will the State study the underground options further?

Answer: No, the State will not study it further. The Governor understands that we need to find a cost effective and affordable solution if the project is to go forward. The Governor is comfortable with the direction of the current study, in terms of not evaluating any further, underground alignments that would not be cost effective.

Question: Has the State discussed an underground connection from Silver Spring as part of the existing Metro system? Is the Washington Metropolitan Area Transit Authority (WMATA) at all interested in this?

Answer: The State has not discussed an underground connection from Silver Spring as part of the Metrorail system. An extension of Metro is not consistent with the purpose and need of the Purple Line project. (This type of connection was considered during the examination of the Metrorail Loop concept discussed above.) We are working closely with WMATA's staff to ensure good, convenient connections of the Purple Line to the Metrorail system.

Question: Some advocates of the Purple Line discuss future connection of the Purple Line to Tyson's corner Virginia. Has the State discussed this option? If so, what is the proposed route? Does the State view this future connection as an important facet of the Silver Spring--Bethesda connection?

Answer: The State has not discussed this option. The limits of the Purple Line are from Bethesda east to New Carrollton. We are not looking at any transit alignment that extends farther west of downtown Bethesda.

Question: Why not use the Medical Center Metro stop as the Purple Line Terminus? That's where the jobs and the traffic will be.

Answer: A significantly larger number of people use the Bethesda Metrorail Station than the Medical Center Metrorail Station, and those passengers using the Purple Line would be able to transfer to/from the Medical Center station. More importantly, based on the **Pre-Draft EIS** issued for the National Naval Medical Center (NNMC) as a result of BRAC, only a small proportion (15%) of the 600 (under Alternative 1 of the NNMC study with a build year of 2011 and 1,400 additional staff members) to 1,100 (under Alternative 2 of the NNMC study with a build year of 2015 and 2,500 additional staff members) new peak hour trips are currently projected to be carried out by transit. Also, based on the current dispersal of NNMC employee residences, only a small proportion of the new employees are estimated to reside in areas that would be served by the Purple Line. The current studies do not indicate a significant increase in potential Purple Line ridership from the NNMC due to BRAC. We are estimating the number of new peak hour riders due to BRAC that would likely be served by the Purple Line to be approximately 60 to 100 riders.

In addition, as part of all of the Purple Line alternatives, improved bus service to NIH/Bethesda Naval Hospital complex along Jones Bridge Road from the Silver Spring Transit Center is included.

Question: (from Lance Hoffman, Councilmember, Town of Chevy Chase, regarding ridership projections and NIH/ Navy Medical Center after Town Council Meeting) If your ridership studies show much more demand and potential use for a system that goes directly to NIH/Navy Medical Center/Walter Reed via light rail (not a bus connection at Bethesda Metro station), will you consider rerouting the light rail from the trail before it enters the Town to terminate at that station instead (with no bus component in this area)?

I thought I asked that and got an answer of "No" from Mike. But after talking with you Wednesday night after the meeting, it appears that maybe I was not the only person there who thought he said "No" but may have misinterpreted his answer.

Was there some miscommunication, or is my perception correct?

More generally, will your ridership studies explore/model/project riderships at Bethesda and at NIH/Navy Medical Center/Walter Reed under all of these conditions:

- a) Light rail with bus extension to NIH

- b) Light rail with re-routing not to Bethesda but to NIH
- c) Light rail with tunnel in the Chevy Chase part, connecting to Bethesda (with seamless Metro transfers (same method of payment using a mechanism equally usable on the Md. system or on Metro) to the Red Line for those going to NIH)?

If you don't consider any of these, why?

If after your ridership studies, it is determined that significantly more Purple Line riders be generated by having option b) or c) available than a), will you reconsider (suggesting) redirecting the Purple Line (light rail) to terminate at NIH?

Answer: See above discussion regarding the impact on potential transit use as a result of BRAC at the NNMC in Bethesda.

Option a) is being studied since all Purple Line alternatives include improved bus service to NIH/Bethesda Naval Hospital complex along Jones Bridge Road from the Silver Spring Transit Center.

Option b) is not being studied further. Bus/Bus Rapid Transit (BRT) service along Woodmont Avenue/Jones Bridge Road from the Master Plan Alignment to the NIH/Bethesda Naval Center area would have the same or even faster operating speed and travel time than Light Rail Transit. Therefore the BRT option under study would have the same or even higher ridership in this segment than a light rail transit alternative. Light rail transit would have a capital cost of several orders of magnitude greater than BRT service in this corridor and therefore, Light Rail Transit would not be cost effective relative to our BRT option in this segment of the corridor.

Option c) is not being studied further. A tunnel in this segment would provide no travel time benefit to the riders over a surface alignment and therefore attract no additional riders. An underground Purple Line station at Bethesda would still require a connection to the Metrorail Red Line station similar to the proposed connection between the Purple Line station on the Master Plan alignment and would therefore have the same relative level of convenience for travelers transferring between the Metrorail Red Line and the Purple Line. (As the rail alternatives for the Purple Line would employ Light Rail Transit technology, it could not connect directly into the Metrorail Red Line.) An underground Purple Line station would be less convenient than the Master Plan alignment station on the surface for those travelers whose trips begin or end in Bethesda – which would be a considerable part of the travel market.

It is expected that any Purple Line alternative implemented would employ a method of payment system for fares that allow a “seamless” connection by employing a “smart card” or similar technology.

Question: There is a narrow, short, and very run-down strip of houses north of the trail between Woodmont tunnel and Montgomery Ave up to its intersection with EW highway. Most of these are currently low-rent office space. Is there any way that the State can acquire this property, through eminent domain if necessary, and make it part of a green space solution in making the trail/train combination more useable and aesthetic? Its commercial value would appear to be limited since it is narrow and would be sandwiched between a busy road and the train.

Answer: No. We can only acquire property or displace buildings if it necessary for the construction or operation of the project.

SCHEDULE AND FUNDING:

Question: What level of ridership on the Purple Line is necessary for the State to pursue the project? What level of ridership is necessary for federal funding of the Purple Line light rail? What ridership levels, or other factors, are necessary for federal funding of tunneling?

Answer: The State will pursue the project if a build alternative is selected and if we are able to secure federal and state/local funding for the project. This funding is not just based upon the level of ridership. It is based upon the cost effectiveness ratio, which is the cost derived from the capital and operating costs divided by the travel time benefits – the measure of mobility improvements used by the Federal Transit Administration. Mobility is a measure of how well this mode helps people make their trips. If the capital costs increase substantially (as with constructing a tunnel) without bringing significant increase in benefit to the riders in terms of travel time savings, then the project may not meet the required cost effectiveness ratio, in which case the project would not be expected to receive federal funding.

Question: Could you give a written explanation of how the calculation is made by the federal government to determine funding for transportation projects? Senator Madaleno mentioned that you explained it at the meeting, but that it was quite complicated to follow. Apparently, there is a cost per rider calculation that also takes into account a time savings calculation. Can you put your presentation into writing, explaining how this entire federal funding calculation is made and how the process works?

Answer: For transit projects seeking federal funds, the agency sponsoring a locally selected transit project submits a “New Starts Criteria” package to the Federal Transit Administration (FTA) as part of the process requesting to advance the project into the “funding pipeline.” This package is first developed after the Alternative Analysis is completed and a locally preferred alternative is selected, prior to officially requesting to enter the Preliminary Engineering phase. The package provides information describing the proposed project as well as information on a number of criteria that are used to rate the project against other projects from around the country competing for the limited pool of Section 5309 New Starts funds. These criteria have included:

- mobility improvements (travel time savings (transportation system user benefits); low income households served);
- environmental benefits (changes in pollutant and “greenhouse gases” emissions and regional energy consumption);
- operating efficiencies (operating cost per mile);
- cost effectiveness (transportation system user benefits relative to costs)
- transit supportive land use patterns, policies and programs; and
- local financial commitment.

For each of these categories, a project receives a rating from high to low with high-medium, medium, and medium-low being other ratings. The ratings are rolled up to a FTA recommendation to Congress for funding consideration -- Highly Recommended; Recommended; and Not Recommended. (The recommendation is for consideration for Administration and Congressional appropriations but a project designation as Highly Recommended or Recommended is not an assurance that the project will obtain federal funding). The project still has to go through the administrative and political steps of the Executive and Congressional budget and appropriation processes. A project must receive a medium or better financial rating to be recommended for funding, regardless of the strength of the project justification rating.

At the end of these responses, we have included a more detailed description of how the cost effectiveness measure is prepared.

Question: What subsidies will be necessary annually? That is, what costs will not be covered by fares? What are the proposed fares?

Answer: It is not yet known what the annual subsidy will be. This amount will be part of the calculation to determine the cost effectiveness ratio in terms of the operating cost. It has not yet been determined what the fares will be. The fare structure we are proposing is similar to the distance based fare structure that WMATA currently uses.

Question: Has your study looked at creative funding sources for alternatives to light rail? The operative word is “creative” and might include a local tax.

Answer: The State will be exploring a number of sources of funding the Purple Line and other transit projects under consideration, such as the Corridor Cities Transitway and the Red Line in Baltimore, including use of current state and federal sources.

Question: What is the timeline and methodology that MTA is going to use for the ridership study for the Purple Line?

Answer: The MTA is following the Federal Transit Administration’s guidelines and procedures for developing the ridership and mobility benefits used in planning and evaluation of the Purple Line alternatives and in seeking federal funding. The ridership results for the Purple Line alternatives are expected in November/December of 2007.

Question: What is likely the fastest track that the Purple Line schedule might follow from DEIS to MD government approval to groundbreaking?

Answer: The earliest that construction could begin would be 2012. It should be pointed out that this is an optimal date.

Question: Of the three major State transportation projects in the planning stages (Baltimore Red Line, Corridor Cities Transit Way, Purple Line), what is the most optimistic schedule for completion of all three? That is, could MD expect to fund each simultaneously? Would federal government fund each simultaneously?

Answer: The Purple Line, Baltimore Red Line, and Corridor Cities Transitway are on almost the same schedule. The Baltimore Green Line is one to two years behind the others. It is unlikely that the federal government and the State would fund all of the projects at the same time. It is possible that construction of the projects will be carried out in phases and the projects also could be prioritized.

HOURS OF OPERATION:

Question: What are the expected hours of operation and frequency of trains? How many trains per hour in both directions will run in peak hours? How will that depend on ridership studies?

Answer: The hours of operation of the Purple Line will be approximately equivalent to Metrorail hours which are 5:00 AM to Midnight, with service until 3:00 AM on Friday and Saturday nights. During the peak, approximately 10 trains per hour will pass any given point in Chevy Chase

in each direction. Off peak, approximately half the number of trains will do so. This number will be adjusted up or down as required by projected travel demand volumes.

TRAIL:

Question: Has current trail usage been studied or documented by the State?

Answer: M-NCPPC conducted in 2000 a Capital Crescent/Metropolitan Branch Trail Survey, with volunteers from the Coalition for the Capital Crescent Trail. This survey found that trail usage increased significantly since the survey conducted in 1996, and that the highest surveyed peak hourly use of the Capital Crescent trail was at Brookway Drive with 561 users, during a weekend. In addition, the highest average hourly use occurred at Bethesda Avenue with 240 average users per hour. We certainly anticipate that increases in trail usage have continued and we have requested the County to carry out a new updated count of trail users.

It should be noted that the permanent hiker/biker trail that would be built as part of the Purple Line, if the Master Plan alignment is selected, will be owned, operated and maintained by Montgomery County. All guidelines and requirements associated with the parallel trail in terms of design and use are the responsibility of the County and M-NCPPC.

Question: If the trail is north of the rail, what access points will there be to the trail for residents of Town Chevy Chase? Will there be an access point between Bethesda and East West highway? Would there be handicapped accessible pedestrian entrances to the Purple Line and the Red Line at both ends of the Woodmont tunnel? Would or could there be a handicapped accessible pedestrian access point through the trail or from the trail to Montgomery Ave. at the Woodmont tunnel? Would or could there be a pedestrian access point from the trail to Montgomery Avenue about half way between Woodmont tunnel and EW Highway (which might require a pedestrian tunnel)? Currently many town residents go from the trail between buildings to get to Montgomery Ave.

Answer: There will be four access points to the trail between Bethesda and East-West highway. The first access is from Woodmont Avenue and the second will be at Pearl Street. Both of these will be handicap accessible. The Pearl Street access will enable trail users to access Montgomery Ave. Another access point is approximately 250' south of East-West Highway which is immediately south and adjacent to the Riviera. This connects Lynn Drive to Montgomery Ave. A fourth access point is from East-West Highway and is handicap accessible. In addition, there is a possibility of a connection from Elm Street Park that we are still evaluating. Another access point is located 600' north of East-West

Highway and connects East-West Highway to Kentbury Drive, and this will be handicap accessible.

Question: Can there be a path or tunnel from the south side of the EW highway (currently a public Town access point to the trail from Lynn Dr.) to the north side of EW highway at Sleaford St? This is a key route from the Town to BCC high school. Currently, kids do not go this way, but cut directly across the trail and go between the buildings there, and then cross EW highway. They do not walk to the public trail access point on the north west side of EW highway at Sleaford, a short walk from BCC, because it is slightly farther and because the stairs at this access from the trail toward the high school are dangerously ill maintained. Providing safe access for High School students from the Town to the north side of EW would improve safety. Some Town residents might want a direct access at Lynn Dr. across the trail to Montgomery Avenue, but a direct trail crossing at this point would tempt high school students to save 20 yards but cross EW highway. If Town residents have access to Montgomery Ave. halfway between Woodmont tunnel and EW highway tunnel, this would be a little longer route for students to get to BCC this way, encouraging them to go north to Sleaford instead. This may seem trivial but it will save a life, or several, someday.

Answer: We are currently planning a crossing 600' north of East-West Highway, which would connect East-West Highway to Kentbury Drive/Sleaford Road intersection. This crossing would be a pedestrian tunnel crossing under the Purple Line. We will evaluate your suggestion further.

Question: How many times, and where and how, will the trail and train tracks cross one another between the Woodmont tunnel and Silver Spring? Would these be pedestrian tunnels or at-grade crossings?

Answer: The first crossing will be 250' south of East-West Highway which is immediately south and adjacent to the Riviera. This connects Lynn Drive to Montgomery Ave. It has not yet been determined if it will be an at-grade crossing or a pedestrian overpass. The next crossing will be 600' north of East-West Highway and connects East-West Highway to Kentbury Drive. This crossing will be a pedestrian tunnel. The next crossing is at-grade and is 400' west of Jones Mill Road. We are also currently evaluating an option that could provide a pedestrian overpass from Elm Street to Pearl Street, which would be located just east of the existing tunnel section.

Question: You mentioned that there are 7 light rail transit lines in the country with trails. What are these 7 lines? What proximity do they have to homes which existed before they were built? Were the trails there before the transit lines, or were they included as amenities when the transit lines were built? Is there usage

information on these 7 trails, both before and after the rail lines were created, if applicable?

Answer: We refer you to the following good resources to find out about Rail-with-Trails:

www.fhwa.dot.gov/environment/rectrails/rwt/

www.silverspringtrails.org

www.americantrails.org

www.bicyclinginfo.org

www.railtrails.org

On similar trail related issues and concerns, we also encourage you to access the following website that is maintained by a group of trail advocates: www.silverspringtrails.org This website provides their own views on various trail issues and the MTA's plans for the permanent Capital Crescent Trail along side of the Purple Line within the Georgetown Branch right-of-way.

Question: The presentation at the Town Meeting said that the train "might" go over Connecticut Ave. Would the trail also go over Connecticut Ave., or might it go over this avenue even if the train does not? I would strongly urge a trail crossing over Connecticut for safety and convenience of both trail users and drivers.

Answer: We are evaluating both an at-grade and an aerial crossing of Connecticut Avenue for the BRT and LRT alternatives. If the LRT or BRT alternative that bridges over Connecticut Avenue is selected as part of the Preferred Alternative, then the trail would also extend over Connecticut Avenue. It has not yet been determined whether or not the trail would bridge over Connecticut Avenue if the transitway does not bridge over Connecticut Avenue.

Question: The presentation said that the train will go under Jones Mill Road. Would the trail also go under the road, or over it? I would strongly urge this for safety and convenience of both trail users and drivers.

Answer: We agree that it would be beneficial to have a grade-separated crossing for the trail at Jones Mill Road. Our plans show that the trail will go under Jones Mill Road, along with the transitway.

Question: Can the new or re-done sections of the trail be widened and separated into walking and bike lanes? Other sections of the CCT are currently very crowded.

Answer: The trail specifications, such as the width, shoulder requirements, and paving, have been established by the County. Our

design plans for the trail are based on the established requirements/specifications.

NOISE:

Question: Could you speak to the noise issue? In terms of decibels, how noisy will the train be? Specifically, will the noise it makes exceed 55 decibels? What are the federal noise level restrictions? What is the proposed distance between the edge of the trains to the edge of the trail in the 66' right of way along the Town? What kind of noise might there be on the edge of the Town in the tunnel, i.e., what about door closing, ding dong, horns, etc?

Answer: The evaluation of potential noise impacts is an important part of the current study. The potential increase in noise will be one of the many factors considered when an alignment is chosen. The alignment currently being evaluated has a planting area between the trackbed and trail that varies in width from 0' up to 11'

The Federal Transit Administration requires a careful analysis of noise impacts that includes identification of land uses that are sensitive to noise, which includes residential areas (please access the FTA website for Federal noise assessment and requirements). As part of the Alternatives Analysis/Draft Environmental Impact Statement (AA/DEIS), noise studies for both the construction and operation of each alternative will be performed by qualified experts. These studies will include the measurement of existing noise levels, the identification of noise sensitive areas (particularly residential areas), and the projection of noise levels for the different modes (bus rapid transits and light rail) and for the different alignments under consideration.

In terms of the decibel level associated with the LRT and BRT alternatives, actual noise levels depend on a number of important factors, including the track geometry (straight or curved), track profile (the grade or steepness), type of vehicle, source of propulsion, topography of the surrounding land, and trackbed characteristics (how the tracks are built and the type of materials used). If any federal or local noise levels would be exceeded, we will develop measures to reduce noise impacts to acceptable levels. The noise criteria are strict for residential areas in terms of the level of increased noise permitted. The MTA will develop specific strategies for mitigating potential noise impacts (as well for potential visual impacts) including evaluating a range of possible measures such as sound walls/barriers, earth berms and landscaping, enhancements to the trackbed including the possibility of providing grass along the tracks, and including noise reduction enhancements on the

vehicles themselves. These measures would be incorporated into the design plans for the option selected as the Preferred Alternative.

TRAFFIC:

Question: Will the ridership study include how many more cars will be on the road due to increased development?

Answer: Yes, the DEIS includes traffic analyses that assess the traffic impacts associated with each of the alternatives evaluated. For our traffic studies, we include additional growth in vehicle traffic based on overall growth trends in population and employment projected for the project study area. The ridership forecasting model does include changes in land use (population, households, and employment) over time, and thus also accounts for increased congestion on the roadways when estimating the transit ridership (i.e. if more cars are on the road due to increased development in the area, traffic speeds will be lower, and thus transit will be a more competitive mode).

Question: Why were the parking garages removed from the plan?

Answer: There were never any parking garages proposed for the Purple Line. The only park and ride facilities associated with the Purple Line are those that already exist at Metrorail stations.

Question: Regarding the location of the railway in the area of 8401 Connecticut Avenue (office building) is the Purple Line adjacent to the building or is the trail adjacent to the building? How does the rail cross streets/impact on traffic? Will there be a stop on Connecticut Avenue? How will the Purple Line cross Connecticut Avenue? How will it impact traffic flow on Connecticut Avenue?

Answer: The Purple Line transitway is adjacent to the office building. The trail will be on the far side of the Purple Line. There are two options for the Purple Line at Connecticut Avenue. The first one bridges over Connecticut Avenue and the second crosses it at-grade. If the at-grade option is selected the crossing would be treated as a signalized intersection. There is a station planned on the east side of Connecticut Avenue.

Question: Commercial development at Connecticut Avenue as a result of the trail/train could greatly worsen what is already one of the most congested corridors in the city. How can the design of the PL mitigate this?

Answer: Land use and zoning are the responsibility of the County. We are working closely with County staff (both Montgomery and Prince

George's County) in terms of station planning for the entire 16-mile Purple Line.

LANDSCAPING AND AESTHETIC DESIGN:

Question: In the Woodmont Tunnel, would there be a concrete wall or noise barrier between the trail and trains below and to the side? What lighting, design, and art could make the tunnel more attractive to pedestrians?

Answer: No decisions on the aesthetics through the tunnel have been made yet. We do not feel that the trail within the tunnel will be very attractive, nor would this likely lead to what we would consider a pleasant or comfortable trail experience. We will continue to investigate design features that could possibly improve the trail experience through the tunnel while also examining options that locate the trail outside the tunnel.

Question: What kind of landscaping and plantings on both sides of the trail will make it more attractive? The Town should have considerable input on choice of plants and other aspects of the aesthetic design of the trail on sections adjacent to the Town.

Answer: We have placed the trail on the north side of the Purple Line to provide additional planting area. We encourage the community to work with us on the design features for both the transitway and the parallel trail through this portion of the corridor, and we welcome input for the landscaping and aesthetic design elements.

Question: There is currently a small stream north of the trail between Woodmont and EW Highway. With fewer trees and more runoff, this could get much more water during rain storms. Although the water flow would be intermittent, could it be made into an aesthetic stream, rather than a concrete culvert?

Answer: No, the right-of-way within this area is still quite narrow, only 66' wide. This width is not wide enough to accommodate a stream.

MISCELLANEOUS:

Question: Can we get our concerns to the authors of the DEIS in advance of the draft? If so, whom do we contact?

Answer: The community can get their concerns to the authors of the DEIS through the various community meetings we will be holding this fall. They can also request the MTA to come and meet with their community association or neighborhood organization by contacting the State's Project Manager Michael Madden.

Question: Have you worked with the folks at Columbia Country Club to meet their needs, too?

Answer: We have met in the past on several occasions with representatives of the Columbia County Club. The country club also has been invited and has attended the Community Focus Group meetings we have held for both the Master Plan alignment and the Woodmont Avenue/Jones Bridge Road. We also have made more recent offers to coordinate with the country club on the design plans for the transitway and trail alternatives through the golf course, but they have not taken us up on these latest offers to meet.

Question: PB is a consultant on the EIS. Will they be able to bid on construction?

Answer: All contracts will follow state and federal procurement guidelines.

Explanation of the Federal Transit Administration's New Start Criteria Cost-Effectiveness Measure

The cost-effectiveness analysis is a mechanism comparing the total costs of a project to its benefits. While many measures of benefits or effectiveness could be used (riders, travel time savings, reductions in auto use), the measure used by the Federal Transit Administration (FTA) for New Start funding consideration is the transportation system user benefits (TSUB) achieved. The method for determining the cost-effectiveness measure is a formula described in *Technical Guidance on Section 5309 New Starts Criteria* (updated annually as part of requests to submit New Starts Criteria) published by the FTA. The output of the formula is a project's cost per hour of TSUB achieved for the proposed project (or each capital-intensive alternative) relative to the Transportation Systems Management (TSM) alternatives. The TSM alternative is designed to represent the most effective solution to transportation problems short of new facility construction. The TSM alternative provides a baseline against which it is possible to isolate the added costs and benefits of a capital-intensive alternative. In addition to presenting a comparison of total costs to benefits among the alternatives, the cost index is used by the FTA to rate proposed major capital transportation projects around the country that are being considered for federal funding.

The general methodology of this cost-effectiveness analysis translates the capital costs of the alternatives into equivalent uniform annual costs. These uniform annual capital costs reflect assumptions about the economic life of the capital components in each alternative (based on federal guidelines) and the cost of the capital (i.e., the discount rate). Uniform annual capital costs are combined with annual operating and maintenance (O&M) expenses and then compared to the benefits of the alternatives -- measured by TSUB achieved -- to arrive at a cost-effectiveness index for the alternatives.

Placing the capital costs of the alternatives into a common framework involves calculating a stream of annual costs that is equivalent to their initial investment. These annual costs are referred to as an equivalent annual cost (EAC). The method of computing the EAC is straightforward: an annualization formula, which takes into account the discount rate and the useful economic life of major cost components, is applied directly to the initial year capital cost of each major component. For cost components with relatively long useful lives (over 25 years), this formula is approximately equal to the discount rate. In effect, the EAC represents the amount that would have to be invested each year to maintain the capital stock of the alternative at its initial level. The reason for converting the capital costs of each alternative to equivalent annual costs is that EAC can be compared with annual operating statistics and annual passengers, allowing a reasonably uniform analysis of cost-effectiveness.

Because all costs used in the analysis are in constant dollars, the effects of inflation are already taken into account; the discount rate used in the analysis is a "real" discount rate that reflects prevailing interest rates net of the effect of inflation.

As noted above, key assumptions required for the derivation of EAC include the choice of discount rates and the effective useful lives of all major cost components. Following recommended FTA practice, a real discount rate of 7 percent will be used. Assumptions about the effective useful lives of major cost components correspond to the economic lives of the major categories of capital cost. The economic life of heavy construction items, for instance, will be assumed to be 50 years, while buses and rail vehicles will be assumed to have useful economic lives of 12 years and 25 years, respectively, before needing replacement.

The index measures the additional cost of proposed transit investments, using the cost per additional rider expected under the Future Baseline alternative as the measure against which the proposed project or alternatives would be compared. Specifically, the cost effectiveness index is computed as follows:

$$\text{C/E Index} = \frac{\Delta \$\text{CAP} + \Delta \$\text{O\&M}}{\Delta \text{TSUB}}$$

where the Δ s represent changes in costs and benefits compared to the TSM alternatives, and

- $\Delta \$\text{CAP}$ = equivalent annual capital costs
- $\Delta \$\text{O\&M}$ = annual operating and maintenance costs
- ΔTSUB = transportation system user benefits, measured in hours of travel time saved

The use of a cost-effectiveness measure allows analysis of added benefits and added costs of the corridor alternatives as compared to the TSM alternative.