**MCPB**
Item No. 4
Date: 07-11-13

## White Oak Science Gateway Master Plan – Worksession No. 3

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**Completed: 07/03/13**

### Staff Recommendation:

Discuss and provide guidance to staff.
Planning Board members should bring their copies of the Public Hearing Draft Master Plan.

### Summary

This packet is intended to serve as the staff report for all of the Planning Board's worksessions on the White Oak Science Gateway Master Plan. The attached issues matrix summarizes the oral and written testimony, provides staff responses, and indicates the Board's decisions as the worksessions proceed. The general topics to be covered in each worksession are listed below, but a session may cover more or less than the subjects outlined depending on the time and length of the discussions.

At the first worksession on June 20, the Board reviewed the testimony and staff's responses to the "General" items and most of the "Mobility" topics in the attached issues matrix (items 1-21). At the second worksession on June 27, the Board discussed several properties and made decisions on zoning and other issues that had been raised (items 22, 23, 28, and 29 on the issues matrix). Items 27 and 30 on the matrix do not require a Board decision; one notes a correction to be made to the proposed zoning map and the other is testimony in support of the Plan's zoning recommendations for several properties. At the third worksession on July 11, the Board will continue discussing zoning recommendations and several other property-specific issues (items 24, 25, and 26), designation of a historic site (item 31), and the staging recommendations (items 33-35). This packet includes a staff memorandum that provides background materials for the historic designation of the Naval Ordnance Laboratory Administration Building on the campus of the U.S. Food and Drug Administration.

There are five Planning Board worksessions scheduled over six weeks in June and July, as shown below. At the Planning Board meeting on Wednesday, September 4, the Board is scheduled to review the Planning Board Draft of the Master Plan and approve it for transmittal to the County Executive and County Council. (Note: The Board is not meeting on Thursday, September 5 due to the Rosh Hashanah holiday.)

Planning Board worksessions are scheduled as follows:

June 20, 2013 Worksession 1: Transportation
June 27, 2013 Worksession 2: Land Use and Zoning
July 11, 2013 Worksession 3: Land Use and Zoning, Historic Preservation, Staging
July 18, 2013 Worksession 4: Staging and outstanding issues
July 25, 2013 Worksession 5: Design Guidelines and outstanding issues
Sept. 4, 2013 Transmit the Planning Board Draft to the County Executive and County Council

Attachments:
Issues Matrix and Functional Planning and Policy Division Staff Memorandum
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| Area | | Issue to Be Resolved | Draft Plan (page) | Testimony (Commenter) | Staff Response | Board Decision |
|---|---|---|---|---|---|---|
| **General** | | | | | | |
| 1 | Area-wide | Land Use-Transportation Balance | Pages 19-23 | • Applaud staff for proposing Plan that is not "technically" in balance (Wilhelm/CAC)<br>• Achieving balance would improve the Plan; consider small "tweaks" to land use (Finnegan) | • Achieving balance by reducing recommended densities may stymie redevelopment and reinvestment and may make it more difficult for the area to support high quality transit. Postponing possible redevelopment has been tried in the past and many in the community have not been satisfied with the results. | Board concurs with general direction of the Plan. (6/20/13) |
| 2 | Area-wide | Land Use: housing/ employment | Pages 19-20, 25-48, 97 | • No assurance of life sciences or other jobs; GP didn't direct intensity to US 29 (Quinn)<br>• Too much housing in Plan, don't need more housing (Quinn)<br>• Substantial residential increase is first step, "multiplier effect" will trigger job creation (Genn) | • Plan is not dependent on life sciences jobs alone; other jobs, including high technology, will achieve the same objectives.<br>• Recommendation for Stage 1 in the North White Oak/Cherry Hill Road Center limits residential to 1 million square feet.<br>• Plan's proposed CR Zones are flexible and could accommodate variety of commercial and residential uses. | Board concurs with general direction of the Plan (6/20/13) and made property-specific zoning decisions (6/27/13, see below). |
| 3 | Area-wide | Jobs-Housing Ratio | Page 96 | • J/H ratio would only be slightly improved (Quinn)<br>• J/H imbalance is actually too little housing in relation to jobs (Genn) | • The ratio of jobs to housing units in an area is always dependent on the geographic boundaries. Staff estimates J/H ratio is currently 3.8/1 within Plan boundary and 1.6/1 in study area; with the proposed zoning/land use, it could be 4.4/1 within Plan area.<br>• Increased J/H ratio within the Plan area is efficient from a transportation perspective; improving opportunities to live and work in area may reduce trips. May also increase travel in the off-peak direction. | Board concurs with general direction of the Plan. (6/20/13) |
| **Mobility Issues (Transit, Street Network, Pedestrians and Cyclists)** | | | | | | |
| 4 | Area-wide | No substantive issues to resolve. | Pages 49-68 | • Supports mixed-use, compact, walkable centers and staging<br>• US 29 interchanges are in CTP, but are not funded<br>• Reconcile this Plan with BRT Plan, as necessary<br>• Various suggestions for minor edits and cross-referencing; SHA contact information provided for ongoing coordination (Halligan, MDOT) | • While not funded, US 29 interchanges are not contemplated to be removed from the State's Consolidated Transportation Program (CTP) and are consistent with SHA's long-range planning documents.<br>• Staff will reconcile any inconsistencies between this Plan and the Countywide Transit Corridors Functional Master Plan (the "BRT Plan") as the two plans proceed through the approval process.<br>• Staff will address the suggested minor edits and cross-referencing of information. | Board discussed US 29 interchanges; will revisit topic during staging discussion. (6/20/13) |

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| 5 | Area-wide | Land Use-Transportation; BRT assumptions | Pages 19-23, 49-68 | • Concurs with need for US 29 interchanges; supports other roadway recommendations<br>• Plan does not achieve land use-transportation balance under the TPAR roadway test<br>• Plan assumes BRT corridors not yet approved by Council<br>• Current NADMS should be documented<br>(Gonzalez, MCDOT) | • Balance question is a key finding of the transportation analysis which speaks to the significant impact of regional through traffic and limited ability to introduce a more robust traffic network. The manner by which this finding will be addressed will be a policy decision.<br>• The Plan will be modified, as appropriate, in accordance with the approved BRT Plan, including possible adjustments to ROW widths.<br>• The current Non-Auto Driver Mode Share (NADMS) is 14% and was derived from the 2000 Census Transportation Planning Package (CTPP); this information can be added to the Plan. | Board discussed US 29 interchanges (6/20/13); will revisit topic during staging discussion. |
| 6 | Area-wide | | Pages 52-58 | • Questions whether all intersections were tested; seems like there should be more "red dots" (Finnegan) | • The critical intersections in the Plan area were evaluated. | Staff notes that additional analysis (Highway Capacity Manual) is underway. |
| 7 | Area-wide | | | • Area shouldn't be constrained by regional traffic problems beyond County control (Pollin, Elmendorf, Bloom, Redicker) | • The impacts of regional traffic are reflected in the traffic analysis. How to handle the impacts of out-of-County traffic generally and US 29 congestion specifically are, ultimately, policy decisions. | Board supports general direction of the Plan. (6/20/13) |
| 8 | Area-wide | | | • US 29 at capacity now; Plan will make bad situation worse (Hansen) | • Planned US 29 grade-separated interchanges will address capacity issues within the Plan area.<br>• Intersections along US 29 south of the Plan area will exceed capacity regardless of the Plan. | Board discussed US 29 interchanges (6/20/13); will revisit topic during staging discussion. |
| 9 | Area-wide<br>Four Corners/ Woodmoor-Pinecrest Citizens' Association (WPCA)<br>US 29 | | | • Opposes Plan: too much density will dramatically worsen traffic; promotes sprawl (Quinn)<br>• More US 29 interchanges creates freeway to bottleneck at NH Ave-Four Corners (Quinn, Goemann)<br>• Developers want to treat US 29 like I-495 to avoid LATR/TPAR-unacceptable to exempt them (Quinn, Goemann)<br>• Developer assertions that majority of traffic is from outside County are overblown (Quinn) | • Plan does not promote sprawl; it focuses future development in three distinct areas that will be served by BRT and limits the amount of development allowed until additional infrastructure is provided.<br>• Additional interchanges are a long-standing SHA recommendation for US 29 that are reflected in the County's Master Plans and SHA's long-range planning documents.<br>• Staff was asked to analyze the impacts of discounting traffic on US 29 (i.e., treating it like I-495 and I-270), but since it is not an interstate in its entirety, staff does not support this approach.<br>• Staff does not support developer exemptions from LATR/TPAR. | Board discussed US 29 interchanges (6/20/13); will revisit this and related topics during staging discussion. |

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| | | | | • 10 intersections not analyzed<br>• Route 29 Mobility Study should have been done to analyze corridor (Quinn, Goemann) | • A significant proportion of US 29 traffic is estimated to originate from outside the County. Staff estimates that roughly half of the southbound traffic on US 29 in the vicinity of Cherry Hill/Randolph Road is currently external. This percentage is estimated to drop to roughly one-third in the context of the Plan.<br>• All critical intersections within the Plan area were analyzed and a representative sample of intersections within the study area were analyzed. | |
| 10 | BRT | Should lanes be taken from cars for BRT; i.e., repurposed? | | • Opposes taking lanes from cars for BRT south of White Oak (Graham)<br>• Opposes lane repurposing; means more congestion, more cut through (Quinn)<br>• Transit won't solve traffic congestion (Hansen, Goemann) | • The BRT Plan is addressing lane repurposing. Staff notes that more detailed study is needed to make a final determination on lane repurposing; an assessment of its feasibility was needed to determine ROW requirements. For the most constrained areas, such as US 29 south of White Oak, lane repurposing appears the only way to implement BRT since impacts/costs of building additional lanes would be too great. | Board agrees to NH Ave. ROW of 120-130 feet for BRT. On Stewart Lane/ Lockwood Dr., ROW needs to change from 80 to 89 feet. (6/20/13) |
| 11 | BRT | Should BRT have dedicated lanes? | | • Action Committee for Transit supports Plan, but need BRT in dedicated lanes (not in mixed traffic) on US 29 and NH Ave. (Reed, Dancis)<br>• Supports BRT (Slater) | • The BRT Plan is addressing the level of treatment for BRT Corridors.<br>• Mixed traffic, rather than dedicated lanes, is recommended where forecast BRT ridership was too low to warrant dedicated lanes and/or where traffic and/or property impacts would be too great. | BRT Plan is addressing these issues. |
| 12 | BRT | None. | Pages 63, 64 | • Need Randolph/Cherry Hill Road BRT (Myo Khin) | • Staff supports a BRT on Randolph/Cherry Hill Road; it is listed on page 63, shown on Map 13, page 64. | No change to draft Plan. |
| 13 | Old Columbia Pike bridge | Should the Plan recommend the bridge be reopened? | Page 52 | • Opposes reopening bridge to vehicular traffic (Davis-Isom, Simmons, Perlingiero, Federline, Spatafora, Esmark, Obie, Karns, Median, Mannos, Carter, Maydonovitch) | • If the area redevelops as envisioned in the Plan, improved vehicular circulation is necessary and options are limited; purpose of connection is for local circulation, not an alternate for US 29 commuter travel. | A majority of the Board agrees to retain the Plan recommendation to reopen the bridge to vehicular traffic but text should note it is for local circulation. (6/20/13) |

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| 14 | Calverton | The Plan will impact traffic in Calverton. | | • Traffic is big concern, will create too much congestion on Cherry Hill Road and Calverton Blvd. (Karns, Kammel)<br>• Connect Industrial Pkwy to FDA Blvd; need intersection improvements all around; more bike paths (Karns) | • Calverton Boulevard and Cherry Hill Road will be impacted by traffic regardless of whether the Master Plan vision becomes reality.<br>• Plan recommends Industrial Parkway be extended and connected with FDA Boulevard. | Board did not discuss; staff will raise at upcoming worksession. |
| 15 | Hillandale - Elton Road | Should classification of Elton Road be modified? | Pages 60-61 | • Classification of Elton Road should reflect its dual nature as residential road with some commercial uses<br>• Trucks parked on Elton Road present hazard for residents<br>• Elton Road used as cut-through; volumes and speed pose risks for residents; proposed solutions aren't enough; need engineering solution (Finnegan, C. & J. Scott) | • Classification of Elton Road is currently Business District Street from New Hampshire Avenue to County line; residential classification could be considered for portion in front of single-family homes.<br>• Trucks parking on Elton Road is an operational, not a Master Plan, issue.<br>• Elton Road operational issues should be addressed by MCDOT in coordination with Prince George's County. | Board agrees with staff suggestion to reclassify portion of Elton Road in front of single-family homes to a Primary Residential Street. (6/20/13) |
| 16 | Hillandale-National Labor College | Could there be alternative APF standards for Powder Mill and New Hampshire? | | • Consider alternative APF standards/policies to deal with Powder Mill/New Hampshire Avenue congestion (Peinovich) | • CLV standards are for an entire policy area, not for a specific intersection. | Board did not discuss; staff will raise this on 7-11-13. |
| 17 | Washington Adventist Hospital (WAH) | No substantive issue to resolve. | Pages 60-61 | • Show proposed road B-5 as private street with 60' width, without bus circulator; bike path on east side; text revisions submitted (Newmyer, Perrine, Morgan) | • Staff agrees text can be revised to clarify that proposed road B-5 will remain a private street; will remove bus circulator and show on alternate streets, with language noting that operational decisions like the circulator route will be made later by DOT. | Board agrees with staff suggestion to clarify B-5 as a private street and to make other noted changes. (6/20/13) |
| 18 | North White Oak/Cherry Hill Center | Removal of Trip Mitigation agreements | Page 99 | • Supports recommendation to remove the trip reduction restrictions and proposes slight text revisions (Kominers) | • Staff agrees with suggested text revision. | Contingent on Legal Staff's review, Board agrees with suggested text revision. (6/20/13) |

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| 19 | US 29 Bikeway | Should the type of bikeway recommended on US 29 be changed? | Pages 65-66 | • Signed Shared Roadway on Colesville Road not sufficient; should at least be Shared Use Path (Filice, Cochrane) | • Staff recommends that US 29 between Lockwood Drive and the Northwest Branch be changed to a Dual Bikeway with a signed shared roadway and a shared use path on the east side of the road. This will accommodate cyclists that want to ride on the road (few in this location) and those that want a protected bikeway. | Board agrees with staff to add a shared use path in this segment. Board suggests additional language for areas with constrained ROW. (6/20/13) |
| 20 | Bikeways | No substantive issues to resolve. | Pages 65-66 | • New Hampshire Avenue should have bike lanes (instead of signed shared roadway) if road is resurfaced (Cochrane)<br>• July Drive should be signed shared roadway (Cochrane)<br>• Bikeways that extend into Prince George's should be coordinated (Halligan, MDOT)<br>• Plan should encourage private property owners to provide bike parking (Halligan, MDOT)<br>• Barriers on Old Columbia bridge inhibit cyclists (Halligan, MDOT)<br>• Bikeway through White Oak Shopping Center should be provided (Halligan, MDOT) | • Plan recommends Dual Bikeway (DB-7) with shared use path and signed shared roadway. Plan could note that a cycle track and sidewalk should be considered in the future.<br>• Bikeway connection between Lockwood Drive and Old Columbia Pike in vicinity of July Drive may be possible if there is redevelopment as shown on illustrative (page 35).<br>• Proposed bike lanes on Powder Mill Road are consistent with Prince George's County bikeway recommendation for its segment of the road.<br>• County code requires bicycle parking. Zoning Code Rewrite proposes updates to bicycle parking requirements as well.<br>• Plan recommends bridge be rebuilt, reopened; addressing bikeway "barriers" in interim is operational issue.<br>• Plan shows bikeway through shopping center (SP-63) that could occur with redevelopment. In interim, bike lane (LB-2) exists on Lockwood Drive and Stewart Lane. | No change to draft Plan. |
| 21 | Bikeways and Pedestrians | No substantive issues to resolve. | Pages 65-66; 85-90 | • Address several inconsistencies with bikeway recommendations; suggests pedestrian links in Parks section be referenced on page 65 (Halligan, MDOT)<br>• Improve walkability by using "paper" streets as formal paths; better maintenance needed (Finnegan) | • Staff will clarify use of term "shared use path" on two illustratives as well as other minor edits.<br>• Staff agrees with suggestions to reference pedestrian connections discussed on pages 85-90 (Parks chapter) in the Bikeway and Pedestrian section (Transportation chapter, page 65) as well.<br>• Staff will consult with DOT regarding the future use of "paper" streets for pedestrian paths. Current maintenance of these areas is not a Master Plan issue. | Minor changes will be made to draft Plan as noted in staff response column. |

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| **Property Specific Issues (Use, Zoning, Site Design)** | | | | | | |
| 22 | White Oak Shopping Center<br><br>*Current Zone:* C-2<br><br>*Site Acres:* 28 | Is recommended zoning/density for this site appropriate?<br><br>Is recommended open space on this site appropriate? | *Proposed Zone:* CR-2.5 C-1.5 R-1.5 H-200 (page 31 #1, 36)<br><br>Open spaces (page 87)<br><br>Illustrative (page 35) shows grid, open spaces, and FDA connection | • Needs CR-3.5 C-3.0 R-3.0 H-250 to support redevelopment<br>• Opposes on-site neighborhood green urban park, but not urban plaza<br>• Illustrative should show more of a grid in this node per developer's drawing<br>• County initiative needed to encourage FDA and private property owners to create connection between FDA and Lockwood Drive (Downie) | • Staff's recommended density for this site is substantial (3 million square feet). Owner's requested density and height is not appropriate outside a CBD or Metro station area and was not modeled for transportation impacts.<br>• The two-acre neighborhood green urban park (and the .75-acre urban plaza) on this 28-acre site represents 7% open space (gross tract). CR optional method projects of 6 or more acres must provide minimum public use space of 10% (net tract area), approximately 2.8 acres.<br>• Intent of illustrative is to indicate desire for additional future connections should redevelopment occur; staff has shown connections along property lines and has avoided placing them through lots and buildings; Plan text can encourage more connections if redevelopment occurs.<br>• Staff agrees that language could be added regarding County initiative, but connection requires property owner agreement and possible private redevelopment. | Board agrees with Plan's proposed zoning. (6/27/13) |
| 23 | 11120 NH Av<br>*Current Zone:* C-2/C-O<br>*Site Acres:* 4.18 | Should zoning density and height be increased? | *Proposed Zone:* CRT-1.5 C-1.0 R-0.75 H-50 (page 31 #2, 37) | • Plan density and height offers no redevelopment opportunity; property owner requests minimum 2.0 FAR and 65' height (P. Harris) | • The overall recommended zoning density is comparable to the existing zone and height is eight feet more than currently allowed; housing is additional use in CR.<br>• Site is adjacent to single-family homes, so 50-foot height is appropriate, focused toward New Hampshire Avenue. | Board agrees with Plan's proposed zoning and staff's suggestion to increase commercial from 1.0 to 1.5 FAR; Board raises height to 60 feet. (6/27/13) |
| 24 | 10230 NH Av Hillandale<br>*Current Zone:* C-T<br>*Site Acres*: 2.4 | Should zoning density and height be increased? | *Proposed Zone*: CRN-1.0 C-0.75 R-0.75 H-45 (page 31 #7, 40) | • Plan density and height offers no redevelopment opportunity; property owner requests minimum 2.0 FAR and 65' height (P. Harris) | • The recommended zoning density and height are more than what is allowed in the existing zone; housing is additional use in CR.<br>• Site is adjacent to single-family homes, so 45-foot height is appropriate. Small site size limits ability to ameliorate or transition height and provide buffer for single-family. | |

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| 25 | National Labor College (NLC)<br>*Current Zone:* R-90<br>*Site Acres:* 46 | Is the proposed zoning (FAR and height) appropriate? Should Plan encourage single-family in CRN and specify items for CR points? | *Proposed Zones:*<br>Eastern area:<br>CRT-1.5 C-1.0 R-1.0 H-75<br>(page 31 #5, 40)<br>Western area:<br>CRN-0.25 C-0.0 R-0.25 H-45<br>(page 31 #6, 40) | • HOC and Reid Temple Church are acquiring NLC site (Marks, Watley, Kline)<br>• Request west area residential be increased to R-0.3, height to 50'<br>• Request 150' height for "mixed use land bay" near Beltway<br>• More comments to follow on zoning, site issues, staging (Kline)<br>• Plan should promote single-family on CRN portion; don't use it for surface parking. Consider CR points for public playground, path to neighborhood, adaptive reuse of buildings (chapel, Meany archives) (Finnegan) | *Update*: *NLC informed staff on 6/26/13 that the HOC/Reid Temple purchase is not going forward, therefore, the issues raised by legal counsel for these two parties (Jody Kline) are no longer being considered.*<br>~~• CR Zone densities must be increments of 0.25 FAR, so an R-0.3 is not possible and staff believes an R-0.5 is too high. Density transfers could be considered from eastern portion.~~<br>~~• An additional 5 feet in height on the western portion, with substantial buffers, is acceptable.~~<br>~~• Staff is analyzing request for additional 75 feet of height on east side.~~<br>• CRN allows for single-family housing<br>• Language could be added regarding specific items for points in the CRT Zone. | |
| 26 | Hillandale – Properties on Elton Road & residential adjacent to commercial | Is density and height on properties adjacent to residences appropriate? | *Proposed Zones:*<br>CRT-1.5 C-1.0 R-1.0 H-75<br>Page 31 #5, 39<br><br>CRT-1.0 C-0.75 R-0.75 H-45<br>Page 31 #8, 39 | • Consider reducing FAR and height of properties adjacent to residences (Scott, Finnegan)<br>• Review whether proposed zoning on Elton Road is appropriate given traffic problem; consider guidance (or CR points) for future development that addresses Elton Road cut-through (Finnegan) | • The densities and heights are appropriate and text addresses compatibility on page 39 (…*ensure adequate transitions through buffering or reduced building heights…adjoining the single-family residential lots on Green Forest Drive)*.<br>• The Design Guidelines will provide additional guidance on these sensitive transition areas. | |
| 27 | Washington Adventist Hospital<br>*Current Zones:* I-1, I-3 | None. | *Proposed Zone:*<br>LSC Zone<br>(page 31, 47) | • Entire 48 acres of WAH site should be in LSC Zone (Newmyer, Perrine, Morgan) | • Concur. Map on page 31 will be corrected to show entire WAH site in the LSC Zone. | |

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| 28 | Percontee/ Site 2<br><br>*Current Zone:* I-2 (overlay)<br><br>*Site Area:* 300 acres | Should the entire area be one CR zone?<br><br>Should there be a new "CR/LSC" zone for these properties? | *Proposed Zones:* CR-0.75 C-0.5 R-0.5 H-120 (page 31 #9, 46)<br><br>CR-1.25 C-1.0 R-0.25 H-220 (page 31 #10, 46) | • Want one CR zone; eliminate #9, use #10 for all 300 acres and increase residential density: CR-1.25 C-1.0 R-0.75 H-220 (Genn, Elmendorf)<br>• Ensure heights, densities are appropriate, flexible (Ossont)<br>• Adopt new CR/LSC Zone for marketing and viability of LifeSci Village (Genn, Elmendorf)<br>• Supports Percontee's Global LifeSci Village plans (Myers, Bloom, Newmyer, Bretz, Ruben, Levin, Richardson, Amir, Rosario, Dyer, W. Harris, Gillece, Myo Khin, Seyfert-Margolis) | • The rationale for two CR zones is to establish a higher density core district (or Town Center along Industrial Parkway extended to FDA Blvd.) and a lower density periphery, which includes an elementary school and park site. The recommended zoning includes a higher "C" in the core area and a higher "R" for the surrounding area.<br>• Staff does not support an increase in density; what is recommended is substantial. Developer request is more density than was modeled.<br>• Staff does not support a new zone. Developer's proposed CR/LSC Zone makes minor additions/deletions to use table, but reduces the minimum public benefit points and makes BLT payments optional. | Board agrees with developer request for one CR Zone for Percontee and Site 2 (300 acres) with following elements: CR-1.0 C-1.0 R-0.5 H-220. Board does not support developer's proposed CR/LSC Zone, but suggests some uses could be added to the CR Zone through the Zoning Rewrite. (6/27/13) |
| 29 | Percontee/ Site 2<br><br>North White Oak/Cherry Hill Road Center | Should the Plan's illustrative be replaced with the developer's?<br><br>Should this node be renamed "Life Sciences/FDA Village Center"? | Page 45 | • Percontee's illustrative is more representative of community, CAC, County input (Genn, Elmendorf, Ossont, Newmyer Wilhelm/CAC, Myers)<br>• Board should note Executive's/ DED's marketing/branding efforts for the LifeSci Village (Ossont)<br>• Rename "North White Oak /Cherry Hill Road Center" to "Life Sciences/FDA Village Center" (Genn, Elmendorf) | • The Plan illustrative is schematic and conceptual, which is appropriate given the long-term development timeframe for such a large site. The Plan illustrative Plan does not preclude the type of layout shown on the developer's concept. Master Plans do not and should not include project plans created by individual property owners. The Plan illustratives are intended to convey a sense of desirable future character rather than a recommendation for a particular design.<br>• Staff does not support a name change for the "North White Oak/Cherry Hill Road Center," which includes the County/developer's 300-acre area as well as 500 acres with many existing businesses and a residential community. The names of the nodes are intended to identify areas by their neighborhood name or the geographic location. Developers ultimately select their own marketing names. | Board directs staff to put the developer's illustrative in the Appendix.<br><br>Board agrees with developer's request to rename the "North White Oak/Cherry Hill Road Center" to "Life Sciences/FDA Village Center" and rename the "White Oak/FDA Center" to the "White Oak Center." (6/27/13) |
| 30 | North White Oak/Cherry Hill Road Center | None | Page 31 #11, 41, 46 | • Supports zoning for their property and overall Plan direction (Solomon) | | No Board decision required. |

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| **Historic Preservation** | | | | | | |
| 31 | Naval Ordnance Laboratory Building/FDA | Should this property be designated for historic preservation? | Page 80 | • Supports designation of NOL in the *Master Plan for Historic Preservation* (Kirwan, Peper, Tino)<br>• Future improvements to New Hampshire Avenue may impact the environmental setting (Halligan, MDOT) | • Designate in the *Master Plan for Historic Preservation* as a historic resource and add to the Locational Atlas and Index of Historic Sites in the interim. | |
| **Environment** | | | | | | |
| 32 | National Labor College (NLC) | Should maps and text be changed per commenter's request? | Maps 4 and 15 (Pages 26 & 71) show stream from GIS layer NLC Environmental text (pages 73-74) | • There is no stream on the NLC as depicted on Maps 4 and 15 and text on pages 73-74<br>• Approved FCP does not depict stream as identified in Plan<br>• Delete all references to a NLC stream in this location (Peinovich)<br>• Preserve environmental wetlands in center of site and forest conservation easements; enhance buffers for community (Finnegan) | • Any streams shown on maps are for illustrative purposes only and depict hydrology. Stream determinations are made through the regulatory process and not in the Master Plan. In the case of NLC, the stream bisecting the property was piped. While the stream channel is missing, the hydrology, complete with floodplain, is still present. This stream should be daylighted and restored through the redevelopment process, improving hydrology and creating a community asset. Forested areas adjacent to the existing community should be preserved and enhanced. | |
| **Staging** | | | | | | |
| 33 | Area-wide | Should the staging plan be modified to have six stages instead of three and different trigger mechanisms? | Pages 96-100 | • Modify staging to create six phases. Stage 1 changes: add 1 million SF, raise CLV. Stage 2: add 1,000 more DUs (Genn, Elmendorf, Wilhelm/CAC, Bloom, Pollin, Myers)<br>• Consider more staging steps based on NADMS (Ossont)<br>• Add "optional method pathway" to each stage with voluntary taxing to allow development without LATR (Genn, Elmendorf, Wilhelm/CAC, Pollin) | • Staff does not support suggested changes to the staging plan, including increasing Stage 1 by 1 million square feet, raising CLV in Stage 1, or increasing housing in Stage 2.<br>• Staging triggers are appropriate for implementation of the entire length of the BRT corridors that show more potential ridership. Building only the segment of the BRT within WOSG will not relieve the area-wide congestion.<br>• NADMS goals need to be area-wide to be effective, not project-by-project.<br>• TPAR and LATR requirements must be retained as critical and essential regulatory tools to analyze, mitigate, and resolve a development's traffic impact. | |

| Area | | Issue to Be Resolved | Draft Plan (page) | Testimony (Commenter) | Staff Response | Board Decision |
|---|---|---|---|---|---|---|
| 34 | Area-wide | Should the staging plan be retained as is? | Pages 96-100 | • Ineffective staging, too reliant on unproven BRT (Quinn)<br>• Supports Staff's staging plan, which is clear and equitable; Opposes Genn's changes, which will weaken it<br>• "Optional pathway" eliminates TPAR, LATR; more traffic problems without funds to fix it<br>• Retain 1475 CLV in Stage 1<br>• Randolph Road BRT is not equal to US 29 and New Hampshire<br>• Opposes more housing in Stage 2 (Finnegan) | • Staff disagrees that staging is ineffective. It is clearly defined yet flexible enough to evolve over time. Proposed staging plan ensures excessive development does not occur without transit or equivalent infrastructure. We have several approved Master Plans that include staging elements. As with those areas, this Plan recommends an implementation advisory committee be formed and a biennial report be prepared to monitor development and the delivery of infrastructure.<br>• Staff does not recommend changes to the staging plan. | |
| 35 | Area-wide | Should suggested modifications be made to staging? | Pages 96-100 | • Agree with NADMS goal of 30% in stage 3<br>• Concur with raising CLV to 1600 in stage 2<br>• Biennial report should track development, LOS, actual NADMS, transit, roads<br>• Construction of US 29 interchanges should be prioritized and added to staging (Gonzalez, MCDOT) | • Agree that Plan could list more specific items that will need to be addressed in the biennial monitoring report.<br>• Council staff and Council have not typically supported the inclusion of specific road improvements in Master Plan staging plans. The US 29 interchanges are in the State's Consolidated Transportation Program (CTP). | |

MONTGOMERY COUNTY PLANNING DEPARTMENT
THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION

**MEMORANDUM**

**DATE:** June 27, 2013

**TO:** Montgomery County Planning Board

**FROM:** Sandra Youla, Senior Planner/Historic Preservation (301-563-3400) sly
Functional Planning and Policy Division/Montgomery County Planning Department

**VIA:** Scott Whipple, Historic Preservation Supervisor SW
Mary Dolan, Division Chief, Functional Planning and Policy Division MD

**SUBJECT:** White Oak Science Gateway Worksession #3: Historic Preservation Recommendations
Naval Ordnance Laboratory Administration Building (Resource 33/25-1)

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**STAFF RECOMMENDATION**

The Naval Ordnance Laboratory Administration Building is being considered for designation on the *Master Plan for Historic Preservation in Montgomery County, Maryland* as part of the *White Oak Science Gateway Master Plan*.

In concurrence with the unanimous recommendation of the Historic Preservation Commission on February 22, 2012, Historic Preservation staff recommends that the Naval Ordnance Laboratory Administration Building be:

- added to the *Locational Atlas and Index of Historic Sites in Montgomery County, Maryland* as an interim measure to protect the resource prior to designation; and
- designated on the *Master Plan of Historic Preservation*.

**EXECUTIVE SUMMARY**

Today the Naval Ordnance Laboratory Administration Building, located at 10903 New Hampshire Avenue, is part of the new U.S. Food and Drug Administration White Oak Campus. When constructed in 1946 according to designs by Eggers and Higgins, a nationally known architectural firm, it served as the principle administration building for another federal complex, the Naval Ordnance Laboratory. One of the few buildings in Montgomery County designed in the modern (or stripped) classical style, the

building is an area landmark and a reminder of the important roll the Naval Ordnance Laboratory played in national defense and the development of the White Oak community. Maryland's State Historic Preservation Office found the Naval Ordnance Laboratory complex eligible for listing in the National Register of Historic Places. The Administration Building was renovated in 2008 as part of the FDA headquarters consolidation at White Oak. The FDA supports the designation of the Administration Building, and the Historic Preservation Commission has recommended that the Planning Board add the resource to the Locational Atlas and recommend its designation on the Master Plan for Historic Preservation.

This staff memo presents background, an analysis, photos and images, and, for the reader's convenience, the Public Hearing Draft Amendment photo, text, and map for the Naval Ordnance Laboratory Administration Building. The staff memo, research forms, and other relevant information may be found online at http://www.montgomeryplanning.org/historic/naval_ordnance_lab/. The Montgomery County Code's list of criteria for designation (per Section 24A-3(b)), along with other referenced materials, is found in the Appendix of this staff memo.

**LOCATION**

The resource known historically as the Naval Ordnance Laboratory Administration Building is located on an approximately 610-acre parcel (P700) east of New Hampshire Avenue (MD 650) between the Beltway (I-495) and Colesville Road/Columbia Pike (US 29) in the White Oak area of Silver Spring, Maryland. The building's address is 10903 New Hampshire Avenue, and the parcel's tax account ID is 05-00280622. Currently, the building is known as Building 1 in the new U.S. Food and Drug Administration White Oak Campus, within the Federal Research Center. The parcel is owned by the federal government and its legal description is Civil Case 2296 966/342 NOL. The resource number is 33/25-1.

**BACKGROUND**

***Naval Ordnance Laboratory Origins:*** The Naval Ordnance Laboratory had its origins in 1919 in an operation called the Mine Building at the Washington Navy Yard in southeast Washington, DC. After the Experimental Ammunition Unit joined the operation in 1929, the operation was renamed the Naval Ordnance Laboratory. World War II prompted an increased demand for weapons' research and development. In response, in 1944 the Navy purchased a large tract straddling Prince George's and Montgomery Counties in White Oak to expand facilities.[1] All operations of the Naval Ordnance Laboratory in Washington, DC were transferred there by 1948.

***Naval Ordnance Laboratory Building Program:*** Ultimately, the federal installation at White Oak contained over three hundred buildings, many designed for specialized engineering functions. Buildings were laid out in distinct groups to allow functions to be separated and isolated. Building groups

[1] The site acreage was reduced over time. In 1969, about 137 acres in the south-central portion of the site were transferred to the Department of the Army for construction of the Harry Diamond Laboratories (now the US Army Adelphi Laboratory). In 1996, about 22 vacant acres in the southeastern corner were transferred to the U.S. Army. By 1997, when the Naval Ordnance Laboratory was closed, the site was about 732 acres.

included administration and laboratories, magnetics testing, explosives storage and testing, ballistics, small-scale explosives testing, and hazardous material storage. Most buildings were constructed between 1945 and 1954. The Administration Building was constructed in 1946 within the administration and laboratory group and was one of four interconnected buildings. The building was designed by Eggers and Higgins.

***Naval Ordnance Laboratory Name Changes:*** The Naval Ordnance Laboratory's name was changed to the Naval Surface Weapons Center in 1974 after the Naval Weapons Laboratory in Dahlgren, Virginia, was merged with it. In 1987, the name was changed to the Naval Surface Warfare Center. During its tenure on the site, the laboratory also was informally called the White Oak Laboratory.

***Closure and Redevelopment:*** In 1995, the Defense Base Realignment and Closure Commission recommended that the Naval Surface Warfare Center be closed, and its personnel, equipment, and operations transferred elsewhere. The property was transferred to the General Services Administration in 1997 and renamed the Federal Research Center at White Oak. The General Services Administration and the Food and Drug Administration (FDA) then began evaluating whether to construct consolidated facilities for the Food and Drug Administration on a portion of the site.[2] Construction of the consolidated FDA facilities began in 2001 and is still underway as of the writing of this staff memo. The construction and expansion of the FDA headquarters necessitated removal of many Naval Ordnance Laboratory buildings and structures.[3]

***Historic Resource Surveys:*** The Naval Ordnance Laboratory and Administration Building are not listed on the original 1976 *Locational Atlas and Index of Historic Sites in Montgomery County Maryland*.[4] They are represented in historical surveys prepared from 1992 to 1997 to support the evaluation of whether to close the Naval Surface Warfare Center and construct consolidated FDA facilities. Based on information in one of these surveys, the Maryland Historical Trust in 1997 found that the Naval

[2] The Federal Research Center at White Oak is about 662 acres, 622 of which are within Montgomery County and 40 of which are in Prince George's County. The Food and Drug Administration Consolidation is on a 130-acre portion of the Federal Research Center site and is within Montgomery County.

[3] A Final Environmental Impact Statement from 1997 and a Final Supplemental Environmental Impact Statement from 2005 noted that construction of the FDA Headquarters at White Oak would cause adverse impacts to on-site cultural resources. A Final Supplemental Impact Statement from 2009 assessed the impacts of expansion of the consolidated headquarters at White Oak.

[4] However, a 1995 MNCPPC publication notes that "Eggers and Higgens received many commissions in the Washington DC metropolitan area in the 1940s and 1950s, and would also design the original buildings of the Naval Surface Warfare Center…These buildings were highly representative of the firm's nationally renowned modern Neo-classical design and, with the perspective of additional time, may well be considered to possess public architectural significance and historical importance for their association with the federal government's decentralization policies during the Cold War era." MNCPPC, Montgomery County Planning Department/Design, Zoning & Preservation Division, *Background Report: Historic Resources of the Eastern Montgomery County Master Plan Areas* (August 1995), page 18.

Ordnance Laboratory Historic District was eligible for listing on the National Register.[5] Subsequently, a Section 106 consultation was undertaken.

***Memoranda of Agreement:*** The Maryland Historic Trust, Food and Drug Administration, General Services Administration, and others signed several Memoranda of Agreement starting in 2000 to ensure that measures were implemented to minimize or mitigate the adverse impacts of the Food and Drug Administration consolidation on the historic resources within the site. The 2000 Memorandum of Agreement for the FDA consolidation specified that certain contributing resources be retained, including Building 1 (the Administration Building), the fire station portion of Building 100, and the flagpole with a redesigned circle to be located in front of Building 1. The Memorandum also specified that historic structures within the entire Federal Research Center be documented and recorded to certain standards.[6]

***Naval Ordnance Laboratory Administration Building Renovation:*** Pursuant to the Memoranda of Agreement, the Naval Ordnance Laboratory Administration Building was retained and renovated as part of the FDA headquarters consolidation. The renovated building was dedicated on December 18, 2008 and was the seventh structure completed for the FDA headquarters consolidation at White Oak. The building contains approximately 102,000 s.f. and houses the FDA's Office of the Commissioner and related executive functions. The building earned a U.S. Green Building Council's LEED NC 2.0 Gold certification in 2010. KlingStubbins in Association with RTKL, Washington DC, were the design architects and engineers.[7]

***Historic Preservation Commission Evaluation:*** On February 22, 2012, the Montgomery County Historic Preservation Commission voted unanimously to recommend designating the Naval Ordnance Laboratory Administration Building on the *Master Plan for Historic Preservation* and, as an interim measure, adding the resource to the *Locational Atlas and Index of Historic Sites*.

***Planning Board Public Hearing Testimony:*** On May 23, 2013, the Planning Board held a public hearing on the Public Hearing Draft of the *White Oak Science Gateway Master Plan*. The Public Hearing Draft

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[5] Christopher Martin and David Berg, *Maryland Historic Trust State Historic Sites Inventory Form M: 33-25 -- Naval Ordnance Laboratory Historic District* (February 1997); Maryland Historical Trust NR-Eligibility Review Form, M:33-25 Naval Ordnance Laboratory (June 6, 1997); letter dated June 6, 1997 From J. Rodney Little, Maryland State Historic Preservation Office, to Andrea Mones-O-Hara, Historic Preservation Officer, General Services Administration, National Capital Region; all at http://www.mdihp.net/dsp_search.cfm?search=property&id=17973&viewer=true&requestTimeout=6000.

[6] U.S. Food and Drug Administration Headquarter Consolidation, *Final Supplemental Environmental Impact Statement, March 2005,* prepared by the General Services Administration in cooperation with the U.S. Food and Drug Administration, page 3-34.

[7] U.S. Food and Drug Administration Press Release, December 18, 2008, *Historic Building One Dedicated at FDA's White Oak Federal Research Center*, retrieved January 17, 2012 at http://www.fda.gov.NewsEvents/Newsroom/PressAnnouncements/2008/UCM116996.htm.

contains the recommendation that the Naval Ordnance Laboratory Administration Building be added to the Locational Atlas and designated on the Master Plan for Historic Preservation. Three people testified to the Planning Board regarding the resource.

- William Kirwan, Chair of the Historic Preservation Commission, summarized the Historic Preservation Commission's conclusions and recommendations. **The Historic Preservation Commission found the resource to have exceptional architectural and historic significance and met criteria for designation 1a, 1c, 2a, and 2e of the Historic Preservation Ordinance**. The Historic Preservation Commission also noted that the building is a stellar example of how a successful historic restoration program can also be environmentally sustainable. A written copy of the testimony is in the record of the public hearing before the Planning Board.

- Brian Peper, RA, Architect and Program Manager/White Oak Consolidation Program/Food and Drug Administration, testified that **the FDA supports designation of the Naval Ordnance Laboratory Administration Building**. Mr. Peper also gave a PowerPoint showing the renovation of the building. His written testimony and PowerPoint are in the record of the public hearing before the Planning Board.

- John Tino, President of the White Oak Laboratory Alumni Association, **testified in favor of designation** and gave background on history, mission, and scientific achievements of the Naval Ordnance Laboratory. His written testimony is also in the record of the public hearing before the Planning Board.

See http://www.montgomeryplanning.org/historic/naval_ordnance_lab/ for copies of the testimony and PowerPoint presentation.

**DESCRIPTION**

***Parcel:*** The parcel within which the Naval Ordnance Administration Building is located is composed of a landscape of woodlands and open spaces, punctuated by groupings of buildings and structures, many of which are being removed. The Paint Branch, West Farm Branch, and other unnamed tributaries of the Paint Branch flow through the parcel. The topography is generally rolling, with steep slopes in the stream valleys. The parcel is within the eastern edge of the fall line between the Piedmont Plateau and the Coastal Plain.

***Building:*** The Naval Ordnance Administration Building faces southwest toward New Hampshire Avenue and is highly visible from the public right of way. The building is the major public face of the new Food and Drug Administration Headquarters, and the entire Federal Research Center. Situated approximately 975 feet from New Hampshire Avenue, the building is accessed via a linear drive (Mahan Road), which forms the main entrance to the Federal Research Center. A flagpole purchased and erected at the time the building was constructed[8] stands within a relocated traffic circle (Mahan Court) directly in front of

[8]Per email dated 3.27.2012 from John Tino, President, White Oak Laboratory Alumni Association, to Sandra Youla: "WOL Flag Pole. Many believed the WOL pole was historical as it was from the sunken USS Maine of the Spanish-

the building. Pedestrian access for employees only is off the traffic circle via a newly constructed, partially below- grade, secure entry pavilion that has replaced the steps that once led up to the main entrance. As at the Bethesda Naval Hospital, a golf course, now preserved as open space, spreads out in front of the building, creating a stately setting for the building. The former steps, separated into component blocks, have been relocated to the southeast side of the Administration Building, near Building 31, which has community meeting space and several history displays. The steps now function as an outdoor art installation commemorating the history of the Naval Ordnance Lab.

The Administration Building is generally rectangular in plan, with two wings that extend laterally from a tripartite central entrance, and two front-projecting ells at either end of the wings. Along the rear (northeast) façade, an arcade connects to Building 2, both newly constructed. The Administration Building is three stories and flat-roofed, with the central entrance section higher than the wings and ells. The central entrance section is topped with a very small fourth story, probably for utilities.

The exterior of the Administration Building is clad primarily in red brick laid in a Flemish Bond, with alternating headers and stretchers. Cornices, copings, window surrounds, watertable, and the projecting tripartite central entrance are limestone. New cladding around the side entrance on the southeast façade and along part of the rear (northeast) façade within the new arcade is also limestone. The newly constructed submerged entry pavilion that replaced the central stairs is topped with both an upswept metal canopy and a glass roof to allow light into the interior. The canopy is supported by rose-colored granite-faced pillars alternating with five glass double doors. Granite-faced walls of the same color extend laterally from either side of the new entry pavilion, acting as retaining walls for plantings above. The new entry pavilion and lateral walls are low and unobtrusive and are a sensitive replacement for the original central stairs.

Fenestration in the main block is stacked and recessed. Compatible replacement awning-style windows alternate with dark stone panels, creating vertical columnar voids that contrast with the red brick of the wings and ells and the limestone of the central entrance. Underneath the stacked windows in the central entrance are three wooden double doors, each door containing four stacked lights.

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American War. This turned out not to be accurate. Bob Ridgway, who worked at the WOL discovered the drawing for the flagpole, which in fact was purchased from a company in Silver Spring, MD. Bob wrote the following:

"I did not find the bill of sale for the flag pole. The drawings for the flag pole were in the drawing files that were moved to Bldg. 405 from Bldg. 25. The flag pole is listed as Bldg. No. 6 on the Station Map. Its drawing listed the fabricator and how the commercial pole was to be modified. I removed nothing from the files. I am sure the purchase order had been destroyed a long time ago. At that time all I was interested in doing was to prove that it was not the midland mast from the Maine. The Maine did not have a midland mast."" Therefore, the Martin and Berg Inventory Form, Op. Cit., Section 7 (Description) Continuation Sheet 2, citing a telephone interview of Kenneth Caudle, Betty Gay, John Tino, and Bob Voisinet by David C. Berg of Greenhorne and O'Mara on January 28, 1997, incorrectly asserts that the flagpole is from the USS Maine.

Incised on the limestone above the tripartite central entrance are the words, “Naval Ordnance Laboratory.” A cornerstone incised with “1946” is located on the central entrance façade to the northwest of the three wooden double-door entries.

The sleek interior lobby and public spaces maintain many original features including metal and brass grates, vents, and railings, and beige and rose-colored marble walls and floors.

The Naval Ordnance Laboratory Administration Building evidences strict symmetry, limited ornamentation, and restrained classicism. This style, sometimes called “Modern Classicism” (or “Stripped Classicism”), was popular for government buildings built in the late 1930s and 1940s, particularly in the Washington, DC, area. The building resembles Paul Philippe Cret’s Federal Reserve Building (1937) on Constitution Avenue in Washington, DC. Like the Federal Reserve Building, the Administration Building gives the overall impression of a one-story classical temple.

The condition of the Administration building is excellent. Although alterations have been made, they are sympathetic, and the building maintains a high level of integrity.

***FDA Campus:*** As noted, the Naval Ordnance Laboratory Administration Building was originally part of a complex of four interconnected buildings within the larger administration and laboratories group at the front of the Naval Ordnance Laboratory White Oak Campus. While the Administration Building was retained, most of the buildings within the administration and laboratories group were razed and replaced by new buildings for the FDA campus. The new buildings echo the brick and limestone facades, stacked fenestration, and low massing of the Administration Building. They are arranged in a roughly symmetrical campus plan, and the Administration Building maintains its central prominent location.

**ANALYSIS**

***Architectural Significance*:** Staff finds that the Naval Ordinance Laboratory Administration Building has architectural significance.

Architecturally, the resource is highly representative of the Modern Classicism of federal buildings from the late 1930s and 1940s, exhibiting hallmark features of the style, including classical composition, implied classical design elements, planar walls, and limited ornamentation.

> *Modern Classicism, also known as Stripped Classicism, was an economical and sober interpretation of the Beaux-Arts-inspired classical idiom favored for much federal architecture from the 1890s to 1940s. Modern Classicism retained classical principles of symmetry and composition (through the use of tripartite facades, plans, and design elements), while flattening and reducing design elements to simple two-dimensional geometric forms. Classical design elements such as columns and capitals were no longer incorporated into facades but instead were merely suggested, usually through manipulation of fenestration and wall surfaces. Limited Art Deco influence often is seen in the style's planar walls, linear ornamentation, and stepped design features.*
>
> *The overall restraint and economy of Modern Classicism was thought to be appropriate during the Depression and WWII years, when the federal government embarked on a large and urgent public building program to reduce unemployment and meet growing defense needs. Modern Classicism was originally advocated for public buildings by the Office of the Supervising Architect, most notably by Louis A. Simon. The Office of the Supervising Architect was the federal agency within the U.S. Treasury Department tasked with designing or commissioning federal buildings between 1852 and 1939. The style was used for major military and civilian federal buildings throughout the 1930s and 1940s, but gradually was abandoned as an appropriate American civic architecture after it became associated with various totalitarian regimes in Europe and Asia.*

Few federal buildings in Montgomery County exhibit Modern Classicism. One example is the Bethesda Naval Hospital Tower Block (1939-41), designed by internationally recognized architect Paul Philippe Cret, a main proponent of Modern Classicism. The Bethesda Naval Hospital Tower Block is on the *National Register of Historic Places* and was designated on the *Master Plan for Historic Preservation in Montgomery County, Maryland* in 1979.

Prior to the 1930s, Montgomery County had few buildings designed by trained architects, and fewer still from nationally known firms. The Naval Ordnance Laboratory Administration Building (1946) was designed by Eggers and Higgins, a prominent New York firm with a national practice. Otto Reinhold Eggers (1882-1964) and Daniel Paul Higgins (1886-1953) worked for many years in the practice of renowned architect John Russell Pope (1874-1937), first as associates and from 1922 as partners. Pope, along with Stanford White, Charles McKim, William Mead, and Daniel Burnham, was an advocate in the early twentieth century of Beaux Arts Classicism for major civic buildings. After Pope's death, Eggers and Higgins reorganized the firm under their own names. The firm had many commissions and was

responsible for the construction phase of Pope's Jefferson Memorial (1939) and the National Gallery (1941), as well as the design of the Dirksen Senate Office Building (1958), a late Modern Classicism building.

The Naval Ordnance Laboratory site – represented by Eggers and Higgins' Naval Ordnance Laboratory Administration Building, with its imposing design, prominent location, and national designers -- helped establish the suburbs of eastern Montgomery County as an upcoming neighborhood. The federal government chose the Naval Ordnance Laboratory site in part because of its easy access to Washington, DC, and proximity to land for new housing and shopping for federal workers. Thus the Administration Building quickly became the symbol of the neighborhood, and with its high visibility off a major thoroughfare, it remains an area landmark to this day.

*Conclusion:* Therefore, staff finds that the Naval Ordnance Laboratory meets the following criteria from Section 24A-3b of the Historic Preservation Ordinance (Montgomery County Code Chapter 24A. Historic Resources Preservation): 2a. embodies the distinctive characteristics of a type (Modern Classicism), and 2e. represents an established and familiar visual feature of the neighborhood, community, or County. (See Appendix A for criteria.)

***Historical Significance*:** Staff also finds that the Naval Ordinance Laboratory Administration Building has historical significance.

Historically, the Naval Ordnance Laboratory Administration Building, as one of the last remaining original buildings dating to the origins of the Naval Ordnance Laboratory in White Oak and certainly its most visually prominent, is representative of the nationally important role of the Naval Ordnance Laboratory in weapons research, testing, and development. The mission of the Naval Ordnance Laboratory in 1945, when first established at White Oak, was to:

> conduct research, design, development, test, and technical evaluation of ordnance materials, components, assemblies and systems, principally in the fields of fuzes, explosives, warheads, mines, depth charges, torpedoes, bombs and missiles.[9]

Further, the Naval Ordnance Laboratory is known for other advances in science and its association with prominent national scientists and German scientists who were brought to the facility after WWII. For further information on the historical (and architectural) significance of the Naval Ordnance Lab, see Appendix B.

The Naval Ordnance Laboratory also spurred the transformation of the White Oak area from a rural enclave to an emerging suburban community, and illustrates the results of the federal government's policy during and following WWII of dispersing governmental operations that were vulnerable to attack to sites outside but near Washington, DC. As noted in one publication,

[9] Christopher Martin and David Berg, MIHP Research Form MC: 33-25 Naval Ordnance Laboratory Historic District, 1977, citing Joseph P. Smaldone, *History of the White Oak Laboratory, 1945-1975* (Naval Surface Weapons Center: Silver Spring, MD), 1977.

> the immediate imprint of the [Naval Ordnance Laboratory's] construction was felt in the Burnt Mills Knolls neighborhood where it was estimated that 60 percent of the new houses developed around Schindler Drive by 1954, named in honor of the Navy laboratory's former chief Admiral Water Schindler, were purchased by laboratory employees. In 1973, the [Naval Ordnance Laboratory] employed 2,542 persons.[10]

*Conclusion:* Therefore, staff finds that the Naval Ordnance Laboratory Administration Building meets the following criteria from MCC Chapter 24A (Historic Resources Preservation): 1a. has character, interest, or value as part of the development, heritage or cultural characteristics of the County, State, or Nation; and 1c. is identified with a person or group of persons who influenced society. (See Appendix A for criteria.)

***Public Benefits and Public Interest Considerations:*** The *Master Plan for Historic Preservation* states that the Historic Preservation Commission should identify any public benefits that might result from designating a resource, including that it might be highly visible.[11] Staff notes that the Administration Building is highly visible. Designation also serves to mark the resource's local and national significance and help publicize its little known but important history.

Staff also finds that designation would not compromise other known public interests.[12]

- Maryland Department of Transportation noted in its letter dated May 31, 2013 to White Oak Science Gateway lead planner Nancy Sturgeon that:

> Page 80 – The Naval Ordnance Laboratory (NOL) Administration Building, 10903 New Hampshire Avenue, Resource #33-25 *(sic, #33/25-1)*, is located on MD 650 (New Hampshire Avenue), now a part of the Federal Research Center at White Oak. While the building itself is sited some distance from MD 650 (New Hampshire Avenue), the environmental setting is immediately adjacent to MD 650 (New Hampshire Avenue). Future improvements to MD 650 (New Hampshire Avenue) may have right-of-way impacts to this recommended-for-designation historic resource. Coordinate with Dr. Julie Schablitsky, Assistant Division Chief, Environmental Planning Division, SHA, at 410545-8870 or jschablitsky@sha.state.md.us.

Because the Naval Ordnance Laboratory Administration Building is part of a federal complex, improvements to MD 650 will be reviewed by the Maryland Historical Trust under state and federal review processes designed to help mitigate adverse impacts to historic resources that

[10] MNCPPC, *Background Report: Historic Resources of the Eastern Montgomery County Master Plan Areas*, Op. Cit., page 18.

[11] *Master Plan for Historic Preservation* (MNCPPC: September 1979), page 21.

[12] It should be noted that state and federal facilities are not subject to local laws, and thus local designation is primarily commemorative.

are National Register-eligible or listed on the National Register. The Historic Preservation Section of the Montgomery Planning Department Functional Planning and Policy Division will ask to be a consulting party, but the county-established environmental setting will have no impact on this process.

***Locational Atlas:*** The resource under review was not previously identified on the *Locational Atlas and Index of Historic Sites*. In placing the resource in the *Locational Atlas*, the Planning Board demonstrates its recognition of the resource's significance, pending designation on the *Master Plan for Historic Preservation*. Having found that the resource meets the criteria for designation, staff therefore recommends that the Planning Board add the resource to the *Locational Atlas*.

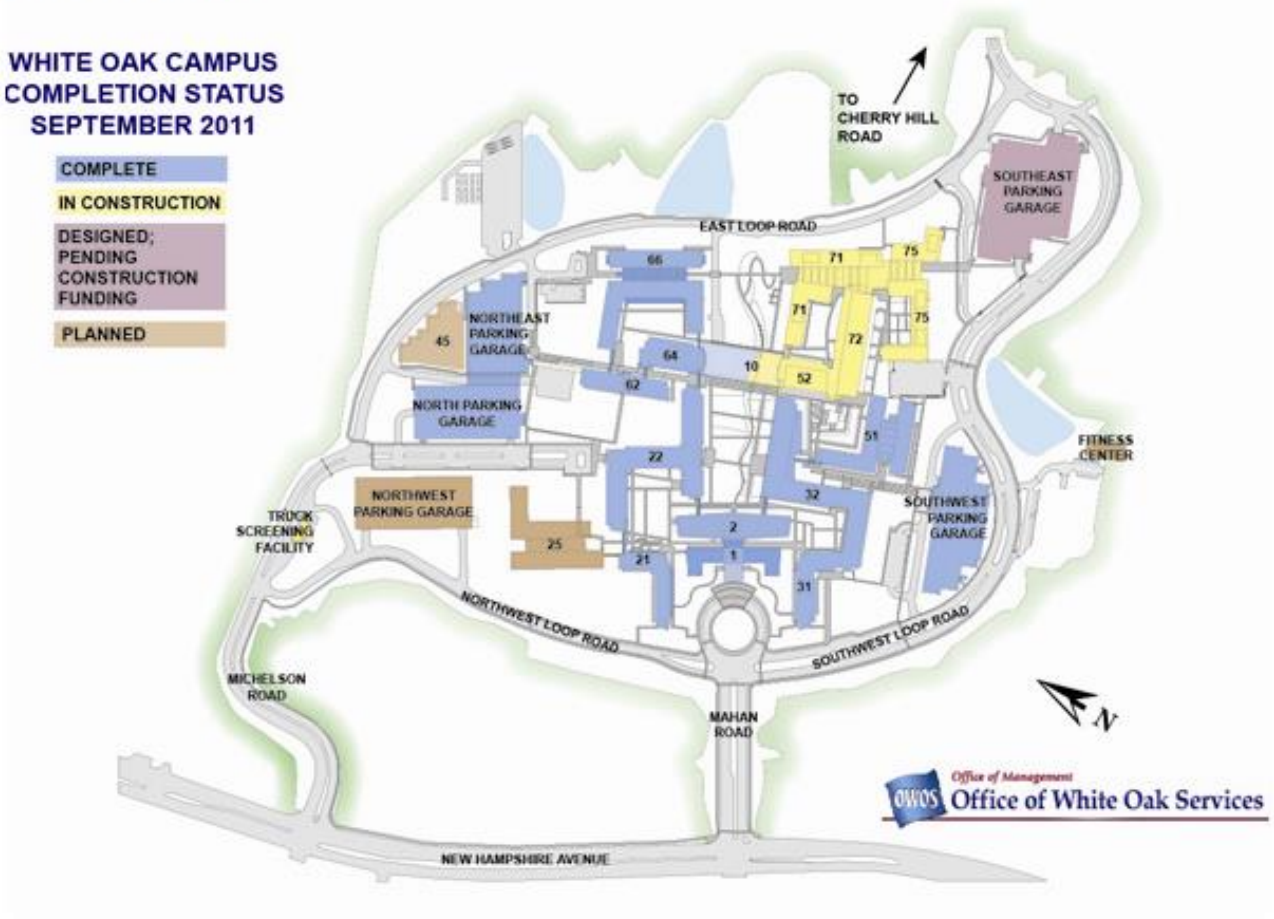
***Environmental Setting:*** See the Planning Board Draft Amendment map and text later in this staff memo for depiction and information about the recommended environmental setting.

**PHOTOS AND IMAGES**


**Naval Ordnance Laboratory Administration and Laboratories Group, Historic View, ca. 1947, with Administration Building at front**

**Food and Drug Administration Consolidated Headquarters White Oak Campus Plan, with Administration Building on left at terminus of traffic circle**

## Master Plan




**Above – Food and Drug Administration Campus Master Plan – Completion Status 9.2011, still correct as of 6.12.2013.**

**Building 1 is the Naval Ordnance Administration Building**

**Left -- Aerial, 2013**

**Front façade, partial view, with flagpole and partially submerged new entry, 2011**


**Front (southwest) façade, tripartite central entry, inscribed with words "Naval Ordnance Laboratory", 2011**

**Looking toward northwest façade of southeastern ell, 2011**

**Southeast façade with limestone panels where connector wing once stood, 2011**

**Main lobby, 2011**

**Main lobby and front entrance windows, 2011**

**Brass fretwork in main lobby, 2011**

**Stairwell with added railing (for code purposes), rear public stairwell lobby, 2011**

**PUBLIC HEARING DRAFT EXCERPT (Pages 78 – 79) -- AMENDMENT PHOTO, TEXT, AND MAP FOR THE NAVAL ORDNANCE LABORATORY ADMINISTRATION BUILDING**

## Site Recommended to be added to the Locational Atlas and Designated in the *Master Plan for Historic Preservation*

**Naval Ordnance Laboratory Administration Building, 10903 New Hampshire Avenue**
**Resource ~~#33-25~~ #33/25-1 (Tax Account ID: 05-280622)**

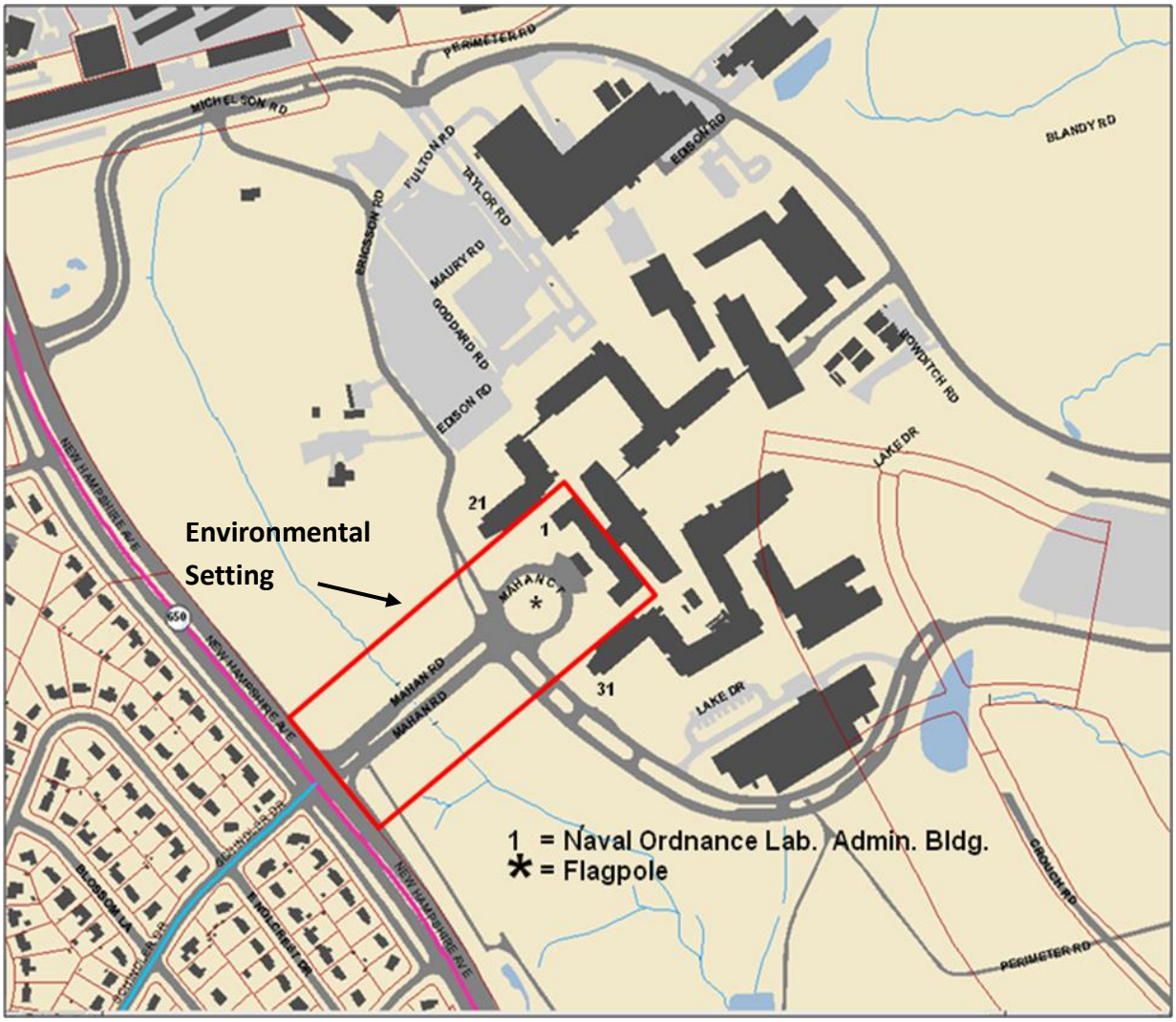
The Historic Preservation Commission (HPC) has evaluated this resource and recommends its designation as a historic site in the *Master Plan for Historic Preservation*. The HPC recommends the resource be added to the Locational Atlas and Index of Historic Resources as an interim measure prior to designation. The Maryland Historical Trust has found the Naval Ordnance Laboratory Historic District, of which this resource is part, eligible for listing on the National Register of Historic Places.

The Naval Ordnance Laboratory (NOL) Administration Building has architectural and historical significance. The building was designed in 1946 by Eggers and Higgins in Modern Classical style, an architectural style used for federal buildings in this era, noted for its restrained classical features. Eggers and Higgins, the successor firm of John Russell Pope, was a nationally prominent firm known for the Dirksen Senate Office Building. The NOL contributed significantly to national weapons research, development, and testing in the postwar era and helped transform White Oak from a rural to suburban area. The NOL Administration Building became a symbol of the NOL and the new neighborhood of federal workers that grew around it, and with its highly visible and prominent location, is still an area landmark. Although the NOL closed in

1997, the campus is now home to the U.S. Food and Drug Administration and the Administration Building (Building 1) has been integrated into the redesigned site and its architectural features are echoed in new buildings. The NOL meets 1a, 1c, 2a, 2e of the Criteria for Historic Designation.

This Plan recommends preserving open space along the main access road and retention of the view of the Administration Building from New Hampshire Avenue.

The environmental setting is approximately 10.5 acres, as depicted on the map below. The setting includes the Administration Building, the flagpole, the traffic circle and axial entrance drive, open space on either side of the drive, and a commemorative installation along the southeast façade featuring former entry steps to the building.



## STAFF MEMO APPENDIX A

## CRITERIA FOR DESIGNATION

Per Section 24A-3b of the Historic Preservation Ordinance (Montgomery County Code Chapter 24A. Historic Resources Preservation), the following criteria shall be applied when considering historic resources for designation as historic sites or historic districts on the *Master Plan for Historic Preservation*:

(1) *Historical and cultural significance.* The historic resource:

a. Has character, interest or value as part of the development, heritage or cultural characteristics of the county, state or nation;

b. Is the site of a significant historic event;

c. Is identified with a person or a group of persons who influenced society; or

d. Exemplifies the cultural economic, social, political or historic heritage of the county and its communities.

(2) *Architectural and design significance.* The historic resource:

a. Embodies the distinctive characteristics of a type, period or method of construction;

b. Represents the work of a master;

c. Possesses high artistic values;

d. Represents a significant and distinguishable entity whose components may lack individual distinction; or

e. Represents an established and familiar visual feature of the neighborhood, community or county due to its singular physical characteristic or landscape.

## STAFF MEMO APPENDIX B

## Excerpt: MIHP RESEARCH FORM M: 33-25 NAVAL ORDINANCE LABORATORY HISTORIC DISTRICT, Significance

(from Christopher Martin and David Berg, *Maryland Historic Trust State Historic Sites Inventory Form M: 33-25 – Naval Ordnance Laboratory Historic District* (February 1997) at http://www.mdihp.net/dsp_search.cfm?search=property&id=17973&viewer=true&requestTimeout=6000)

**Elaboration of History and Significance**

Land for the Naval Ordnance Laboratory complex at the White Oak site was acquired by the U.S. Navy in 1944 to supplement the tremendous wartime expansion of research and weapons development needs at the original Ordnance Laboratory located at the Washington Navy Yard in southeast Washington, D.C. According to the published administrative history of the White Oak facility, during World War II the Washington Navy Yard's Naval Ordnance Laboratory became the world's largest military research and development center of its kind (Smaldone 1977). The Washington Navy Yard, where the NOL's parent facility is located, was listed as both a National Register site and National Historic Landmark in 1973, with significance under National Register criteria A (association with events contributing to the broad patterns of our history) and C (for architectural significance).

Despite the end of the war, there were several reasons for pursuing plans to expand Navy Yard facilities and relocate the Ordnance Laboratory functions to a new, separate site. During war time, lack of space made it increasingly difficult for growing ordnance testing laboratories and production facilities (the Naval Gun Factory) to coexist on the same site. In searching for a new site, the Bureau of Ordnance required several characteristics for a new ordnance laboratory site, including: a suburban site within 30 minutes driving distance from the main Navy Yard buildings; a location near a developed residential community commensurate with the income of NOL personnel; a low-density location where security could be enforced relatively easily; an area isolated from residential and commercial buildings to minimize radio and communications interference; a large site with sufficient open space to allow the isolated locations for electromagnetic testing facilities; a site with little "magnetic noise", or with ground having uniform magnetic fields to accommodate magnetic testing; and the potential for a campus-like atmosphere to attract civilian scientific and research personnel (Rosenzweig 1995). At the time, the idea of having a facility solely for the purpose of Navy research and development was somewhat revolutionary.

A new ordnance laboratory accommodated an expanded post-war research and development program which included a new partnership between military officers and civilian scientists. This cooperative approach, quickly accepted throughout the Navy, was forwarded by Dr. Ralph D. Bennett, a Massachusetts Institute of Technology professor who became associated with the NOL in 1940. Bennett eventually became its Director by 1945, and remained in that position until 1954 (Alexis 1988). Laboratory and testing facilities were built at the White Oak site during an initial building campaign lasting between 1945 and 1954, with the transfer of Naval Ordnance Laboratory operations from the Navy Yard completed in mid-June 1948 (Greenhorne & O'Mara, Inc. 1992a; Rosenzweig 1995). A resulting housing boom transformed the White Oak area in the decade following World War II, immediately felt in the Burnt Mills Knolls neighborhood, where it is estimated that 60% of the houses around Schindler Drive, named in honor of the Lab's former chief Admiral, Walter Schindler, were purchased by Laboratory employees (Maryland-National Capital Parks and Planning Commission 1995).

The Administration and Laboratory complex (in the 100 Area), Magnetic Research buildings (in the 200 Area), and several buildings in the 400 Area were designed by the architectural firm of Eggers & Higgins, New York, with Taylor & Fisher, Baltimore, as associates. The consulting engineer was Edward A. Sears, also of New York City. Otto Eggers and Daniel Paul Higgins were partners in, and successors to, the firm of John Russell Pope, the internationally renowned architect. In 1937, after Pope's death, they formed their own firm, completing such projects as the National Gallery of Art, and the Jefferson Memorial (Rosenzweig 1995). By the 1950s the firm of Eggers & Higgins was one of the largest in the country, designing a large number of government buildings, hospitals, military facilities, commercial buildings, and university buildings (Greenhorne & O'Mara, Inc. 1992a, 1992b). According to *Historic Resources of the Eastern Montgomery County Master Plan Areas*, the buildings at the facility "were highly representative of the firm's nationally renowned modern Neo-classical design" (Maryland-National Capital Park & Planning Commission 1995).

The three-story administration/laboratory complex is articulated in a Late Art Deco style with restrained Neoclassical inspiration, with an institutional appearance used in other government buildings of the period in Montgomery County and the metropolitan area (Alexis 1988). The Front Area, with its original circular drive, maintains the rigid symmetry of its original campus design. Its focal point is the facade of the main building, visible from New Hampshire Avenue. The facade has slightly projecting angular columns faced with granite contrasting with the red brick construction. The style and appearance of the main building recalls the Bethesda Naval Hospital (1942) and Erskine Hall of the Army Mapping Service (1945) (Alexis 1988).

One aspect of the NOL landscape that holds particular significance for NOL employees is the nine-hole golf course, which was conceived, built, and maintained entirely by the employees. By 1952 the NOL Employees Association formed a special Naval Ordnance Laboratory Golf Association (NOLGA) to explore the construction of an employee golf course.

The golf course is personally important to many former and current employees as a major achievement because all costs associated with the venture were borne by the members, with no Navy-appropriated funds used for its construction and maintenance. This also included the purchase and maintenance of all equipment required to service the golf course. Because of a close working relationship with the University of Maryland, the NOL golf course was the first to use the then new hybrid of Zoysia which was developed by the University's agricultural labs. In 1964, the NOLGA contracted with Edmund Ault, a registered golf course architect, to provide a long range renovation plan to improve the course's safety and character. Over the next thirty years several of these suggestions were implemented, again using association members to provide not only the funding but the physical labor. Initially, membership was restricted to military and civilian employees of NOL, the Army's Harry Diamond Laboratory, and employees of tenant activities at NOL. For community relations, membership was opened to residents in the surrounding communities by the 1960s. The vast majority of current members are retired employees (Marion 1996b).

The mission of the NOL at White Oak upon its creation in 1945 was to:

> Carry out the mission of research and development establishments as related generally but not exclusively to fire control, demolitions, guns and accessories, explosives, including nuclear, projectiles, propellants, ammunition and components, guided missiles, mines, depth charges, torpedoes, nets, degaussing, and such other weapons or devices as may from time to time be assigned (Smaldone 1977).

By 1956, when many aspects of the facility were in full operation, the general mission statement became more focused: "conduct research, design, development, test, and technical evaluation of ordnance materials, components, assemblies and systems, principally in the fields of fuzes, explosives, warheads, mines, depth charges, torpedoes, bombs and missiles." The statement concluded with an added emphasis, to "conduct research and evaluation in the fields of aerodynamics" (Smaldone 1977). By 1972, the initial, broad mission of the NOL became more restricted, due to both the growth of other Navy facilities and the impending consolidation with the Navy's Dahlgren facility. By that time, the NOL's mission was to be the principal, although no longer the exclusive, in-house research and development facility for ordnance technology, concepts, and systems (Smaldone 1977).

Since its founding, the White Oak facility has developed numerous unique and highly significant research facilities, including wind tunnels, a hydroacoustic facility, hydroballistics tank, electromagnetically shielded laboratories, and several environmental and nuclear effects simulation facilities (Greenhorne & O'Mara, Inc. 1992a). An interesting aspect of weapons development at the NOL involved war prizes after 1945 and interaction with German scientists after the war. The sphere on top of 402 (Supersonic Wind Tunnel, 1947) is a German war prize that became important in the testing of V-2 rocket projectiles (DeSavage 1996). According to architect Joseph Miller, who was the project manager for Eggers & Higgins associated with the design and construction of the Supersonic Wind Tunnel, German engineers were brought to White Oak and provided valuable information, because they were the designers of the original rocket system that caused much damage in London during World War II (Miller 1996).

Among the most notable scientists brought from Germany after the war was Dr. Rudolf Hermann. Dr. Hermann was Director of the German wind tunnel developments at Peenemunde, Germany beginning in 1936, and after November of 1944, at Kochel, Germany. The experiments and equipment used at Kochel included supersonic wind tunnels, and the beginning of the design and construction of a hypersonic wind tunnel for Mach 10 wind experiments.

Following the war, two German supersonic wind tunnels (Supersonic Tunnels 1 and 2), along with the designs, reports and experiment data were sent to the NOL in White Oak. One tunnel, Wind Tunnel No. 1, is still on site, and the historic documents brought from Germany are still extant today in the NOL archives. Dr. Hermann and approximately 35 of his associates and engineers were also brought to the NOL to continue the work. Dr. Hermann Kurzweg, who had been Dr. Rudolph Hermann's Assistant Director in Germany, also came to NOL, and became the Director of the NOL Wind Tunnel Laboratories. Other German scientists who worked at NOL after the war were, Dr. Richard Lehnert (now retired from NASA), Dr. Gerhard Eber, Dr. Ernest Winkler (now retired from NSWC), Dr. Edmund Stollenwerk (now retired from Lockheed), Max Peucker, Dr. Peter Wegener (now a professor at Yale University), and Dr. Willi Heybey (now retired from NASA). Under project "Paperclip", Dr. Karl H. Grunewald, Dr. Eva Winkler, and Mr. Florian Geineder joined the NOL team during the years 1947 and 1948 (Hastings 1979; Sherman 1988).

Although the United States had a few other wind tunnels in operation or under construction after the war, such as the Lone-Star tunnel in Daingerfield, Texas, and one tunnel at the Aberdeen Proving Ground in Maryland, these tunnels were extremely limited in their capacity, leaving NOL as the primary research facility for flow experiments throughout the Cold War Era (Hastings 1979).

Since its creation the NOL's research and development mission has depended on a cooperative approach between military officers and many of the top scientists in the United States. Scientists of note whose research at NOL has resulted directly in the development of major scientific advances include Dr. John Bardeen, whose research resulted in the invention of transistors. Dr. Bardeen has been awarded two Nobel Prizes in Physics, one for the invention of the transistor in 1956, and one for the development of a theoretical explanation for superconductivity in terms of quantum theory (Hamlin 1985). Dr. Bardeen is the only one to have received two Nobel Prizes in the same subject.

The basic operating principles for all modern computers were invented in the early 1940s by Dr. John Vincent Atanasoff, who worked at NOL until moving on to establish his own business in 1952. Although Dr. Atanasoff has not always been recognized for his great contribution to our society due to others who originally took credit for his work, in 1973, the courts ruled that the invention of the electronic digital computer was the work of Dr. John Vincent Atanasoff. Today, Atanasoff is recognized worldwide for his achievement (Hamlin, 1984). Experience with early computers at the NOL reportedly inspired the term "de-bugging" for fixing computer problems; the term originated because moths frequently got into computers causing faulty circuitry.

Other well known scientists at the NOL include Dr. Donna Price, whose work in 310A (Chemical Laboratory) resulted in major advances in the field of plastic explosives (Caudle 1996; DeSavage 1996). Dr. Price is revered as a national expert in the field of plastic explosives. Dr. Kathryn Shipp, who worked at NOL during the 1950s and 1960s, discovered several complex organic compounds, the best known of which is HNS, which was developed at NOL and used on the moon by the Apollo 14 astronauts in active seismic experiments upon the request of NASA. HNS was also used to deploy the landing gear of the lunar module, and to effect the separation of different stages. Dr. Shipp received a Presidential award for her work on this project. Other chemists involved with the Apollo program at NOL were Dr. Jerome Rosen, Harry Heller, and Eugene Kilmer (NOL 1971).

Ceramics research and development was undertaken by former Soviet scientist Dr. Talmy Inna at the NOL. A widely used application of this research is the production of ceramic tiles and brick from fly-ash generated by coal fired electric plants [this technology is currently being used by Montgomery County, Maryland] (Caudle, et al. 1997).

The research and weapons development which took place at the NOL are of exceptional importance in our Nation's waging of the Cold War. Most of our most innovative weapons systems were developed in their entirety at this site, and many other NOL research products have become essential to American commercial products. In addition, many of the Nation's top scientists worked on these studies at NOL. Some specific achievements include:[1]

AERODYNAMICS

Eventually, seven wind tunnels were built at NOL between 1946 and 1972, many of which are still operational. Most of these tunnels were also designed at NOL. Early work on the tunnels was performed at a frenetic pace, with three shifts working through the night. Tests performed in the original German Tunnels 1 and 2 included those on, guided missiles, mines, depth bombs, sonobouys, aircraft and reentry bodies. Hardware produced as a result of these experiments included 20mm and 40mm antiaircraft projectiles, the MK-80 series bombs, Sidewinder and Bumblebee missiles, SUBROC, the F-102 Fighter aircraft, Jupiter and the MK-1 and MK-2 Polaris (Hastings 1979).

Tunnel 3, built in 1949, was used primarily for supersonic diffuser research, which became the basis for future diffuser research at Tullahoma, Tennessee. In 1955, this tunnel was given to the Aerospace Engineering Department of the University of Maryland. Tunnel 4 was built in 1950. In this tunnel was demonstrated the first air-liquification-free hypersonic tunnel flows at Mach speeds up to 10. This tunnel made the first Mach 10 static force tests on the Polaris MK-1, the Jupiter, Pershing, and Minuteman missiles. Tunnel 6, also completed in 1950, was used to research supersonic turbulence and shock wave phenomena. The first Schlieren photographs of jet aircraft creating a shock wave (sonic boom) were taken at NOL during wind tunnel experiments. Important new measurement techniques such as color Schlieren and Laser Holographic Interferometry were developed as well. Tunnels 5 and 7, although designed and partially constructed, were never completed. Hypervelocity Research Tunnel 8A, was installed in 1974. It has been used for high altitude testing of various re-entry bodies and the space shuttle orbiter (Hastings 1979).

Hypervelocity Tunnel 9 was authorized by Congress in 1966, and essentially completed in 1972. This tunnel is the only one of its kind in the United States, and is unique for having the highest speed, longest flow time, and largest object capacity of any such tunnel in the Unites States. It has a significantly greater productivity per run than other tunnels,

[1] The information on NOL research and development was obtained from unpublished information available at the NSWC in White Oak unless otherwise noted.

thus reducing the cost of data. While other hypervelocity tunnels were limited to run times on the order of tens of milliseconds, Tunnel 9 provided, and still provides, one second run times. Furthermore, this tunnel can accommodate full size models. This tunnel has been invaluable for research and development for all three armed services, and the National Aeronautics and Space Administration (NASA), and it is expected that this tunnel will remain in use at its current site by the U.S. Air Force (Hastings 1979).

Parachutes (Retardation Devices) have been designed, tested, and produced at NOL for dozens of applications including those used on the Space Shuttle, and the Mars Pathfinder.

NUCLEAR WEAPONS

Scientists at the NOL designed and developed many of the Navy's first nuclear weapons. Among these were:

ELSIE I: the Navy's first nuclear weapon for use against land targets, and ELSIE II.
BETTY (Bomb M90): the Navy's first nuclear depth bomb.
LULU: the Navy's second nuclear depth bomb.
HOTPOINT (Mk105): a parachute retarded design similar to LULU.
SUBROC: the Navy's first submarine launched anti-submarine nuclear weapon.

NOL employees also designed and developed arming and fuzing devices for the POLARIS, MINUTEMAN, and TERRIER nuclear weapons. NOL also designed and installed the test equipment to collect shock pressure information on the BIKINI underwater shock and air blast nuclear test conducted in 1947, as well as those of the SANDSTONE tests started in 1948, WIGWAM, WAHOO, & UMBRELLA underwater tests in 1955, and the development of nuclear test simulators.

EXPLOSIVES

NOL scientists invented 9 of the 10 new energetic molecules (explosives) developed since World War II that are now used by the Department of Defense (DOD) for practical use in explosive and propellant devices. For example, the substance labeled PBXW-100 which was developed at NOL, has come into use in all underwater explosives used in defense.

DEGAUSSING

NOL scientists developed the technology and system designs for all the degaussing (demagnetizing) systems for all Navy ships and all magnetic calibration facilities in the United States.

ALTERNATING MAGNETIC (AM) FIELDS

In the 1960s and 1970s, the NOL ran experiments to determine the cause of AM signatures on large naval targets. As a result, the NOL developed AM signature reduction systems which reduced the vulnerability of U.S. and NATO ships and submarines.

METAL ALLOYS

The NOL was the nation's leading research facility in non-magnetic and soft-magnetic alloys after World War II. All of these alloys are easily identified as having been developed at the NOL by the last three letters of their names, "NOL". The products developed included, most significantly, NITINOL, a corrosion resistant, high electrical resistance, strong, "metal with a memory." It has found widespread applications in weapons systems, but is also used commercially in thousands of products, including: eyeglass frames, dentistry products, blood vessel stent, bra underwiring, anti-scald devices for showers, flow regulators in autos, catheter guidewires, ligament and bone attachments, etc. Also developed were NITINOL-60, PYRONOL, WAGONOL, which are all used mainly for defense purposes.

The NOL has also developed a number of soft magnetic metal alloys which have laid the foundation for the soft magnetic materials industry in the United States. Many of these developments were made for use in the Vietnam War, for such devices as magnetic sensors to detect mines, but this research, which began as military research, has spawned many industries in the Unites States. Some of these applications include magnetic traffic light/highway sensors and weapons detectors at airline gates (developed by agreement with American Airlines). These alloys are also used in transformers, motors, signal processors, memories, recorders (including video tape recorder heads), actuators, etc. Among the alloys

developed were: PARABANOL, ORTHONOL, ALFENOL, APHONOL, and TERFENOL. One of the NOL scientists, Dr. Arthur Clark, worked on magnetic materials which are currently being used by Ikea corporation for use in the manufacture of a new cashier and inventory control system (Caudle, et al. 1997).

BATTERY MATERIALS

The NOL developed many of the battery systems which are widely used today, including improvements to Lithium thermal batteries, and a thermally stable form of silver oxide for use in high-rate silver oxide batteries.

More recent facilities related to nuclear and environmental testing were added to the site during the 1970s and 1980s, including refinements to systems for detection of low observable targets. Reflecting this expanded mission, in 1974 the Naval Ordnance Laboratory was consolidated with the Naval Weapons Laboratory at Dahlgren, Virginia, to become the Naval Surface Weapons Center. The White Oak facility's name was changed to Naval Surface Warfare Center in 1987. Since 1974 (until recent preparations for base closure begun in 1995), the Center's programs have changed in focus from individual weapons design and testing to broader weapons systems, demonstrating "leadership in all aspects of surface ship combat systems engineering and integration analysis" (Greenhorne & O'Mara, Inc. 1992a; Rosenzweig 1995).

There were two major changes in the size of the NOL White Oak land parcel since its creation in the mid-1940s. In 1969, 137 acres at the south-central edge of site were transferred to the Department of the Army for construction of the Harry Diamond Laboratories; there were no buildings related to the NOL on this site when it was transferred (Building Technology Incorporated 1984). The other reduction occurred in 1995, when 22 acres of vacant land in the southeastern corner were transferred to the U.S. Army (Whiteford 1996).