

ATTACHMENT J

Potomac Yard Study Group Preliminary Review (June 2013)

2013



POTOMAC YARD STUDY GROUP PRELIMINARY REVIEW (JUNE 2013)

A preliminary review of the Ronald Reagan Washington National Airport airspace and the proposed Potomac Yard Development in the City of Alexandria, Virginia.

Purpose: The City of Alexandria, Virginia, and commercial developers plan to redevelop the Potomac Yard area of northern Alexandria. In addition to new commercial and residential construction, the Washington Metropolitan Area Transit Authority plans to construct a new METRO rail station to serve Potomac Yard. The City of Alexandria requested the Federal Aviation Administration's (FAA) participation (see Attachment 1) in an airspace review of the proposed re-development of the Potomac Yard area relative to the Ronald Reagan-Washington National Airport (DCA). The FAA reviewed the DCA development plans of the Metropolitan Washington Airports Authority (MWAA), the airspace required to protect airport approaches, navigation aids (NAVAIDs/VISAIIDs), communications and radar facilities. The proposed building locations and heights were discussed in advance of detailed designs to provide the City and MWAA preliminary airspace information prior to initiating a formal FAA airspace review.

Potomac Yard Development Plan: Potomac Yard is located southwest of DCA, between US Route 1 and the George Washington Parkway. Potomac Yard is located south of Four Mile Run, and within the City of Alexandria, Virginia. (The area was formerly a railroad yard for the Richmond, Fredericksburg and Potomac railroad, hence the name 'Potomac Yard.')

The proposed development plan includes demolishing existing buildings in the Potomac Yard area and constructing new, taller buildings. The construction of new buildings in Potomac Yard is projected to take place over many years.

Attachment 2 includes a sketch of the proposed buildings relative to DCA.

FAA Airspace Review Process: The process for filing and receiving a federal determination on the potential impact of structures near airports is contained in Title 14, Code of Federal Regulations (14 CFR) Part 77, Objects Affecting Navigable Airspace. This regulation requires proponents of certain structures in the vicinity of a public-use airport to file notice so the FAA can determine the effect on the safe and efficient use of the navigable airspace, air navigation facilities and equipment. Notice must be filed with the FAA for each individual planned structure or alteration.

The FAA evaluates any proposals relative to the 'plan on file' for a particular airport. The 'plan on file' can be the airport sponsor's approved Airport Layout Plan (ALP), an FAA plan for navigational aid improvements or other airport planning documents an airport provides to the FAA. The 'plan on file' for an airport is updated each time an airport submits a revised ALP, when the FAA updates navigational aid plans, or when the FAA changes its design standards. Because the 'plan on file' is affected by various factors, the FAA cannot make a definitive airspace evaluation that is valid for an extended period of time. In addition, 14 CFR Part 77 does not allow for a 'blanket' review of a large development such as Potomac Yard or issue any findings that would pre-determine the outcome of the aeronautical study process. Therefore individual proposals for each structure must be submitted to FAA for study under Part 77 to conclude in issuance of a final agency determination.

Notice for construction cranes and other temporary structures are also required under Part 77 for FAA study. However, because of their temporary nature, determinations may be issued for cranes and other

construction equipment at heights that are taller than normally allowed for permanent structures, provided appropriate mitigations to the airspace are put in place.

14 CFR Part 77 describes the standards used for determining obstructions to air navigation, navigational aids, or navigational facilities. Objects that are considered obstructions under these standards are presumed hazards to air navigation unless further aeronautical study concludes that the object is not a hazard. Initial Notices of Presumed Hazard are not final agency determinations, and any impacts identified should be resolved prior to conclusion of the aeronautical study process.

FAA airspace determinations are valid for a period of 18 months. At the end of that period, an extension request may be submitted to the FAA for review. If an extension is granted and construction is not started at the conclusion of the extension, then the airspace determination is terminated and a new filing must be submitted for that structure.

Summary of Potomac Yard Review findings: The Potomac Yard review group analyzed the proposed Potomac Yard development relative to existing and planned operation and development of DCA. Each of the three (3) DCA runways has multiple surfaces that must be clear of obstructions for safe operations by aircraft. Additionally, operational performance requirements are considered to protect the various navigation, radar and communication aids.

FAA Order 8260.3, U.S. Standards for Terminal Instrument Procedures (TERPS) describes the surfaces that must be clear of obstacles for safe aircraft approaches to and departures from a runway. Companion documents include FAA Order 8260.19 entitled Flight Procedures and Airspace, and AVN-160 TERPS Interpretations Letter. For the purposes of this Potomac Yard airspace study, these documents collectively are referred to as FAA 'TERPS.' The FAA uses the standards contained in TERPS to define the geometry (dimensional standards and slopes) of runway approach and departure surfaces that must be clear of obstacles to provide a safe operating environment for aircraft in instrument meteorological weather conditions.

In addition to the TERPS standards for instrument approach and departure procedures to runways, FAA also evaluates the surfaces that must be clear for visual flight operations as well as potential impacts to RADAR, NAVAIDS, VISAIDS and COMMUNICATION operational performance.

The FAA will evaluate the following elements when the proponent formally files FAA Form 7460-1, Notice of Proposed Construction or Alteration. Proponents must file sufficient points to define the outline and height of the building while accounting for all antennae and other appurtenances above the roof line.

Runway 4/22, 1/19 and Runway 15/33 impacts: The Potomac Yard buildings sit within the DCA TERPS airspace, which protects the existing and planned instrument approach and departure procedures to all three runways at DCA. The FAA will evaluate each 7460-1 and assess impacts on each runway.

VISUAL Aids - Runway 4 visual glide slope indicator (PAPI) : The DCA ALP includes a Precision Approach Path Indicator (PAPI) supporting Runway 4 as detailed on Attachment 3. The PAPI location and siting standards are defined in FAA Order 6850.2, Visual Guidance Lighting Systems. The Runway 4 PAPI location at DCA is limited because the equipment must be located adjacent to the runway, but cannot be located on taxiways or other aircraft operational surfaces. The PAPI has a defined obstacle clearance surface (OCS) that must be clear of all penetrations.

Areas within Potomac Yard lie within the footprint of the protected PAPI OCS. Attachment 2 shows a plan view of the PAPI obstacle clearance surface. Proponents should consider the Runway 4 PAPI OCS in their planning.

FAA Airport Surveillance Radar (ASR): The FAA operates and maintains an ASR at DCA for air traffic control purposes. Other federal agencies use the DCA ASR for security surveillance of the area. Preliminary study of the Potomac Yard development identified two potential adverse impacts to the DCA radar - reflection and shadowing.

Reflection - Individual structures having a large radar cross section, such as buildings, can result in radar signal reflections. The propensity for reflection signal problems is dependent on various parameters such as, building height, surface material, exterior geometry and orientation. Attachment 4 contains recommended 'guidelines' developers should incorporate into their building designs to reduce the risk of radar interference.

Shadowing - In addition to potential adverse radar impacts from individual buildings, when completed, the Potomac Yard development will result in a "wall" of buildings which will block or "shadow" the radar view in the area southwest of DCA. Upon formal airspace study review, the projected primary radar shielding/shadowing effects will be presented to both the FAA users (Ronald Reagan-Washington National Airport (DCA) and POTOMAC (PCT) TRACON ATC) and other federal agencies to ascertain if the predictive coverage loss at the proposed building heights will cause an adverse operational impact.

FAA Communications Systems impacts: FAA has various voice and data communications equipment at DCA. This includes air to ground and ground to ground remote communication facilities which provide communications between aircraft and controllers and remote communication links for data transmission between various facilities and equipment on the ground. The communication systems generally require 'line of sight' between the transmission source and receiver.

Similar to the radar discussion above, the FAA is not able to provide a comprehensive assessment of potential communication impacts from the planned Potomac Yard development at this time. Individual buildings must be filed for FAA study, which will include analysis of potential impact to the FAA's communication systems.

Noise: Noise is not evaluated under the Part 77 process. Aircraft arriving and departing Runway 4/22 will overfly the Potomac Yard area. MWAA conducted an aircraft noise study under 14 CFR Part 150 and

the FAA approved the noise exposure map for DCA in January 2008. In addition, MWAA completed an environmental assessment study in April 2012 that depicts anticipated aircraft noise impacts over the area surrounding DCA. The federal government defines aircraft noise levels of 65 day-night average level (DNL) and greater as not consistent with residential land use. The MWAA Part 150 noise exposure map and 2012 environmental assessment showed the projected aircraft noise level of 65 DNL will not reach the Potomac Yard area. The FAA recommends the City of Alexandria work with the developers to ensure residential or other buildings in the Potomac Yard development include sound insulation to reduce potential aircraft noise levels.

We encourage the City to work with developers to design the buildings considering the potential impacts outlined above and attempt to eliminate or mitigate potential impacts prior to filing notice for proposed construction with the FAA. The FAA will evaluate buildings individually through the formal Part 77 airspace review as they are proposed by developers.

Attachments:

1. March 9, 2012 Letter from City of Alexandria to FAA Requesting Study
2. Proposed Potomac Yard Development Exhibit – February 28, 2013
3. DCA Airport Layout Plan Excerpt (Runway 4 Approach)
4. Guidelines for Structures in the Radar Environment
5. List of Study Participants

ATTACHMENT 1

March 9, 2012 Letter from City of Alexandria to FAA
Three (3) Pages



OFFICE OF THE CITY MANAGER

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Alexandria, Virginia 22314-3211

RASHAD M. YOUNG
City Manager

703.746.4300
Fax: 703.838.6343

March 9, 2012

Ms. Diane Crean
Deputy Regional Administrator
Federal Aviation Administration
Eastern Region
159-30 Rockaway Boulevard
AEA2
Jamaica, NY 11434-4848

Dear Ms. Crean:

The City of Alexandria, Virginia is requesting Federal Aviation Administration (FAA) participation in a joint study to conduct a comprehensive analysis of airspace requirements and procedures for the planned development of Potomac Yard due to its close proximity to Ronald Reagan Washington National Airport. In addition to the City, participants in this collaborative effort would include the Metropolitan Washington Airports Authority (MWAA) and several major landowners within the Potomac Yard development area. This effort is envisioned to be a similar approach to the study in which the FAA participated with Arlington County, Virginia as part of the 2009 Arlington County *Crystal City Sector Plan*. It is our understanding that the process was briefly discussed at a meeting held in November 2011 between MWAA and your office.

A map of Potomac Yard is enclosed. Potomac Yard is a linear tract of land located in the northeast area of Alexandria directly south of Crystal City and the Ronald Reagan Washington National Airport. The planned development for Potomac Yard includes heights ranging from 45 feet to 250 feet and a potential new Metrorail station. The map highlights the proposed area that will be the focus of the proposed comprehensive analysis study.

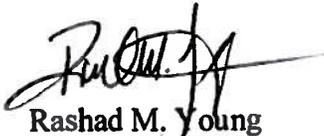
The purpose of the study is to determine any airspace and operational impacts the cumulative development may have on Ronald Reagan Washington National Airport and to identify potential options to mitigate the impacts. We recognize that the study will not supersede the FAA obstruction evaluation process. This effort, however, would provide MWAA, the FAA, the City, and the developers additional certainty regarding the planned development, provide future building-by-building review efficiencies for all parties, while also protecting the integrity of

Ms. Diane Crean
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existing and future operations at Ronald Reagan Washington National Airport. The City and MWAA are committed to providing resources to assist in this endeavor.

Thank you for your attention to this matter. The City looks forward to receiving your response to this request for a commitment of the FAA to join efforts to participate as part of the evaluation of the planned development in Potomac Yard. If you would like to discuss this in more detail prior to responding, I am sure a meeting or conference call between our staffs could be easily arranged. In the meantime, if you or your staff have any immediate questions regarding Potomac Yard, or this letter, please feel free to contact Nancy J. Williams, Principal Planner, Planning and Zoning Department, at 703.746.3851 or nancy.williams@alexandriava.gov

Sincerely,



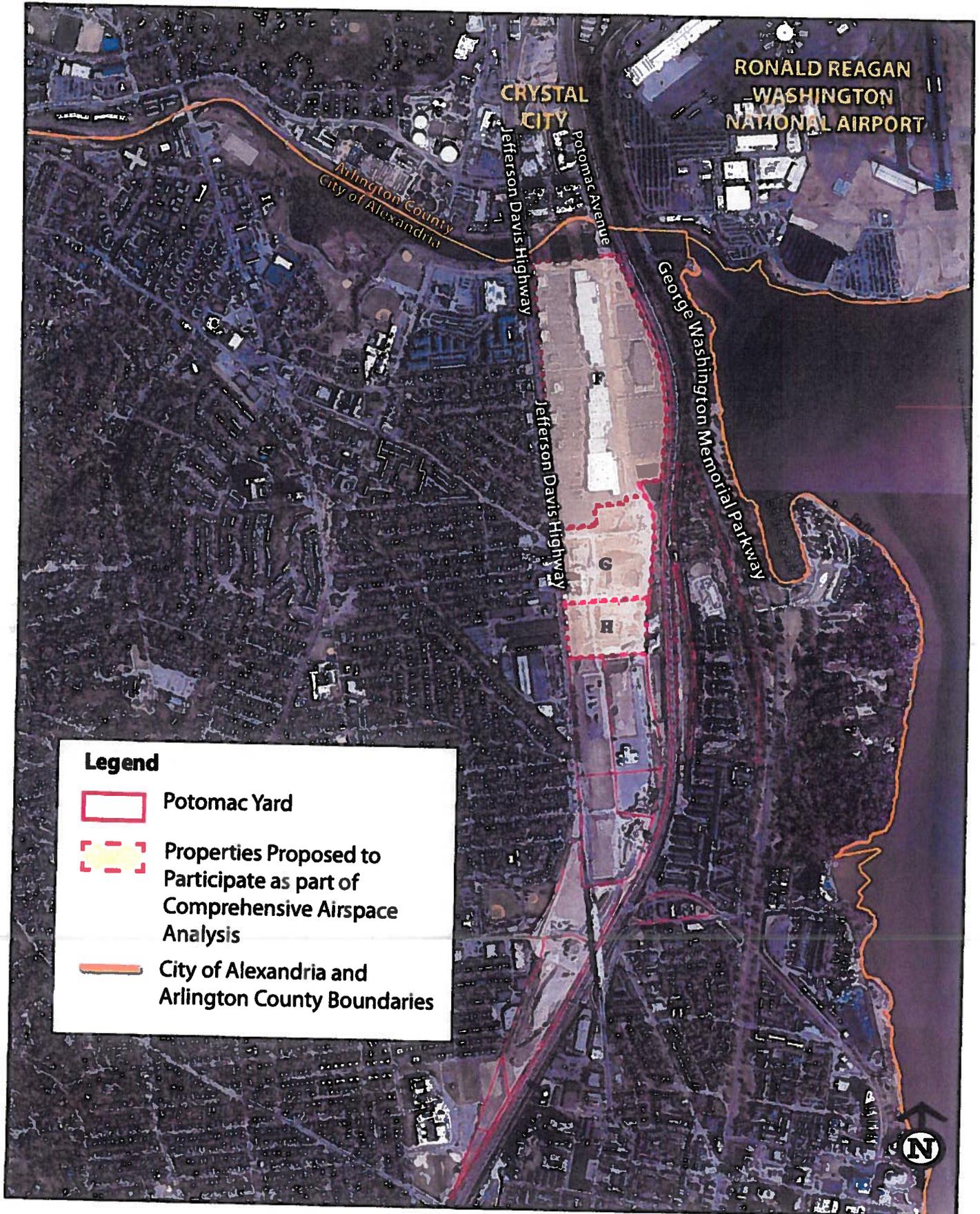
Rashad M. Young
City Manager

Enclosure

cc: Mark Jinks, Deputy City Manager
Bernard Caton, Legislative Director
Faroll Hamer, Director, Planning and Zoning
Jeffrey Farner, Deputy Director, Planning and Zoning
Christopher Spera, Deputy City Attorney
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John E. Potter, President and Chief Executive Officer,
Metropolitan Washington Airports Authority
Michael Hines, Project Manager, Metropolitan Washington Airports Authority
Frederick W. Rothmeijer, Founding Principal, MRP Realty
Catherine M. Puskar, Esq., Walsh Colucci Lubeley Emrich & Walsh PC
Kenneth W. Wire, Esq., McGuire Woods, LLP
Edmund Woodbury, President, McCaffery Interests

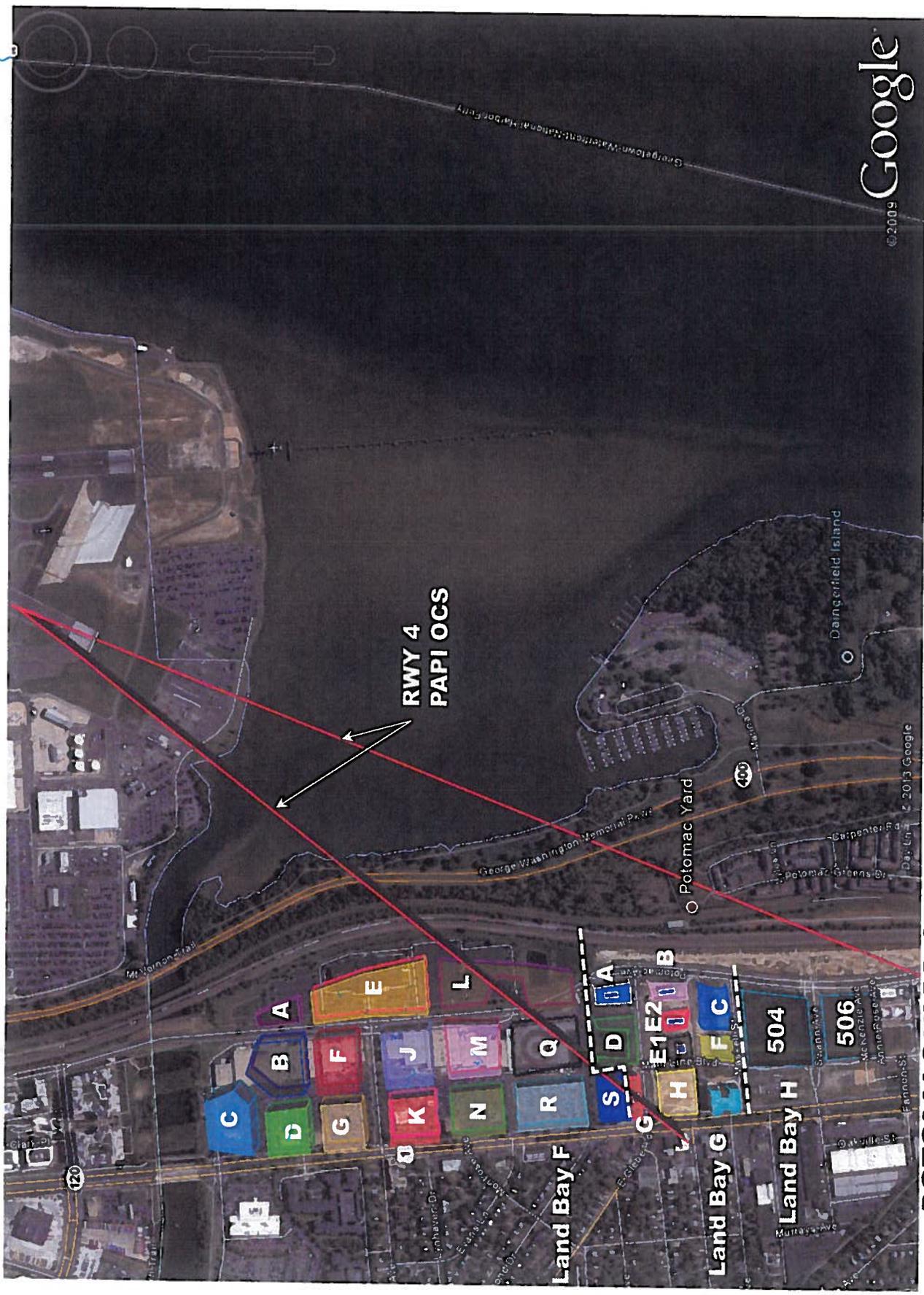


POTOMAC YARD, CITY OF ALEXANDRIA



ATTACHMENT 2

**Proposed Potomac Yard Development Exhibit - One (1) Page
Building Coordinate Data - Four (4) Pages**



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POTOMAC YARD STUDY GROUP PRELIMINARY REVIEW – ATTACHMENT 2

Ronald Reagan Washington National Airport (DCA) – February 28, 2013

Attachment 2. Potomac Yard Development Exhibit - February 28, 2013
 Coordinate Data (NAD 83)

| Land Bay | Point | Latitude | | | Longitude | | | Ground | Structure | Overall |
|----------|-------|----------|-----|-------|-----------|-----|-------|--------|-----------|---------|
| | | Deg | Min | Sec | Deg | Min | Sec | AMSL | AGL | AMSL |
| F | A1 | 38 | 50 | 21.51 | 77 | 2 | 55.65 | 24 | 110 | 134 |
| F | A2 | 38 | 50 | 18.85 | 77 | 2 | 54.26 | 28 | 110 | 138 |
| F | A3 | 38 | 50 | 18.69 | 77 | 2 | 56.18 | 26 | 110 | 136 |
| F | A4 | 38 | 50 | 21.31 | 77 | 2 | 56.62 | 23 | 110 | 133 |
| F | B1 | 38 | 50 | 21.27 | 77 | 2 | 57.57 | 23 | 220 | 243 |
| F | B2 | 38 | 50 | 18.53 | 77 | 2 | 57.22 | 26 | 220 | 246 |
| F | B3 | 38 | 50 | 18.20 | 77 | 3 | 1.40 | 28 | 220 | 248 |
| F | B4 | 38 | 50 | 20.20 | 77 | 3 | 1.65 | 26 | 220 | 246 |
| F | B5 | 38 | 50 | 21.86 | 77 | 2 | 59.94 | 23 | 220 | 243 |
| F | C1 | 38 | 50 | 24.30 | 77 | 3 | 2.10 | 24 | 250 | 274 |
| F | C2 | 38 | 50 | 22.56 | 77 | 3 | 1.14 | 24 | 250 | 274 |
| F | C3 | 38 | 50 | 21.61 | 77 | 3 | 2.30 | 25 | 250 | 275 |
| F | C4 | 38 | 50 | 21.52 | 77 | 3 | 4.00 | 24 | 250 | 274 |
| F | C5 | 38 | 50 | 21.36 | 77 | 3 | 5.41 | 22 | 250 | 272 |
| F | C6 | 38 | 50 | 21.33 | 77 | 3 | 6.10 | 21 | 250 | 271 |
| F | C7 | 38 | 50 | 23.97 | 77 | 3 | 6.31 | 20 | 250 | 270 |
| F | C8 | 38 | 50 | 24.00 | 77 | 3 | 5.61 | 22 | 250 | 272 |
| F | C9 | 38 | 50 | 24.12 | 77 | 3 | 4.41 | 24 | 250 | 274 |
| F | D1 | 38 | 50 | 20.68 | 77 | 3 | 2.95 | 25 | 200 | 225 |
| F | D2 | 38 | 50 | 18.12 | 77 | 3 | 2.50 | 28 | 200 | 228 |
| F | D3 | 38 | 50 | 17.97 | 77 | 3 | 4.43 | 26 | 200 | 226 |
| F | D4 | 38 | 50 | 17.91 | 77 | 3 | 5.13 | 25 | 200 | 225 |
| F | D5 | 38 | 50 | 17.84 | 77 | 3 | 6.03 | 24 | 200 | 224 |
| F | D6 | 38 | 50 | 20.41 | 77 | 3 | 6.36 | 20 | 200 | 220 |
| F | D7 | 38 | 50 | 20.49 | 77 | 3 | 5.46 | 22 | 200 | 222 |
| F | D8 | 38 | 50 | 20.54 | 77 | 3 | 4.76 | 22 | 200 | 222 |
| F | E1 | 38 | 50 | 17.94 | 77 | 2 | 53.65 | 29 | 180 | 209 |
| F | E2 | 38 | 50 | 14.68 | 77 | 2 | 52.14 | 33 | 180 | 213 |
| F | E3 | 38 | 50 | 10.91 | 77 | 2 | 51.06 | 36 | 180 | 216 |
| F | E4 | 38 | 50 | 10.64 | 77 | 2 | 55.21 | 34 | 180 | 214 |
| F | E5 | 38 | 50 | 14.42 | 77 | 2 | 55.45 | 32 | 180 | 212 |
| F | E6 | 38 | 50 | 17.72 | 77 | 2 | 56.07 | 27 | 180 | 207 |
| F | F1 | 38 | 50 | 17.67 | 77 | 2 | 57.11 | 27 | 250 | 277 |
| F | F2 | 38 | 50 | 15.12 | 77 | 2 | 56.78 | 30 | 250 | 280 |
| F | F3 | 38 | 50 | 14.89 | 77 | 3 | 1.00 | 33 | 250 | 283 |
| F | F4 | 38 | 50 | 17.34 | 77 | 3 | 1.28 | 29 | 250 | 279 |
| F | G1 | 38 | 50 | 17.25 | 77 | 3 | 2.38 | 29 | 180 | 209 |
| F | G2 | 38 | 50 | 14.76 | 77 | 3 | 2.12 | 33 | 180 | 213 |
| F | G3 | 38 | 50 | 14.44 | 77 | 3 | 5.58 | 28 | 180 | 208 |
| F | G4 | 38 | 50 | 16.97 | 77 | 3 | 5.90 | 24 | 180 | 204 |
| F | J1 | 38 | 50 | 13.55 | 77 | 2 | 56.58 | 32 | 250 | 282 |
| F | J2 | 38 | 50 | 10.56 | 77 | 2 | 56.20 | 34 | 250 | 284 |
| F | J3 | 38 | 50 | 10.23 | 77 | 3 | 0.37 | 40 | 250 | 290 |

Attachment 2. Potomac Yard Development Exhibit - February 28, 2013

Coordinate Data (NAD 83)

| | | | | | | | | | | |
|---|-----|----|----|-------|----|---|-------|----|-----|-----|
| F | J4 | 38 | 50 | 13.12 | 77 | 3 | 0.78 | 35 | 250 | 285 |
| F | K1 | 38 | 50 | 13.02 | 77 | 3 | 1.89 | 35 | 180 | 215 |
| F | K2 | 38 | 50 | 10.15 | 77 | 3 | 1.48 | 40 | 180 | 220 |
| F | K3 | 38 | 50 | 10.00 | 77 | 3 | 4.41 | 40 | 180 | 220 |
| F | K4 | 38 | 50 | 9.94 | 77 | 3 | 4.08 | 39 | 180 | 219 |
| F | K5 | 38 | 50 | 9.87 | 77 | 3 | 4.99 | 38 | 180 | 218 |
| F | K6 | 38 | 50 | 12.81 | 77 | 3 | 5.37 | 30 | 180 | 210 |
| F | L1 | 38 | 50 | 9.98 | 77 | 2 | 51.27 | 35 | 110 | 145 |
| F | L2 | 38 | 50 | 6.21 | 77 | 2 | 51.51 | 35 | 110 | 145 |
| F | L3 | 38 | 50 | 4.24 | 77 | 2 | 51.62 | 31 | 110 | 141 |
| F | L4 | 38 | 50 | 1.60 | 77 | 2 | 52.04 | 30 | 110 | 140 |
| F | L5 | 38 | 50 | 1.40 | 77 | 2 | 54.59 | 32 | 110 | 142 |
| F | L6 | 38 | 50 | 4.28 | 77 | 2 | 54.87 | 34 | 110 | 144 |
| F | L7 | 38 | 50 | 4.71 | 77 | 2 | 52.72 | 32 | 110 | 142 |
| F | L8 | 38 | 50 | 6.28 | 77 | 2 | 52.53 | 34 | 110 | 144 |
| F | L9 | 38 | 50 | 7.05 | 77 | 2 | 54.72 | 36 | 110 | 146 |
| F | L10 | 38 | 50 | 9.77 | 77 | 2 | 55.13 | 35 | 110 | 145 |
| F | M1 | 38 | 50 | 9.68 | 77 | 2 | 56.08 | 36 | 160 | 196 |
| F | M2 | 38 | 50 | 6.19 | 77 | 2 | 56.00 | 36 | 160 | 196 |
| F | M3 | 38 | 50 | 6.04 | 77 | 2 | 59.79 | 38 | 160 | 198 |
| F | M4 | 38 | 50 | 9.26 | 77 | 3 | 0.24 | 40 | 160 | 200 |
| F | N1 | 38 | 50 | 9.22 | 77 | 3 | 1.40 | 40 | 140 | 180 |
| F | N2 | 38 | 50 | 5.96 | 77 | 3 | 0.94 | 39 | 140 | 179 |
| F | N3 | 38 | 50 | 5.81 | 77 | 3 | 2.87 | 41 | 140 | 181 |
| F | N4 | 38 | 50 | 5.76 | 77 | 3 | 3.54 | 41 | 140 | 181 |
| F | N5 | 38 | 50 | 5.68 | 77 | 3 | 4.45 | 42 | 140 | 182 |
| F | N6 | 38 | 50 | 9.00 | 77 | 3 | 4.88 | 40 | 140 | 180 |
| F | Q1 | 38 | 50 | 5.36 | 77 | 2 | 56.24 | 36 | 110 | 146 |
| F | Q2 | 38 | 50 | 1.25 | 77 | 2 | 55.63 | 32 | 110 | 142 |
| F | Q3 | 38 | 50 | 0.96 | 77 | 2 | 59.28 | 36 | 110 | 146 |
| F | Q4 | 38 | 50 | 5.11 | 77 | 2 | 59.55 | 38 | 110 | 148 |
| F | R1 | 38 | 50 | 5.05 | 77 | 3 | 0.93 | 40 | 130 | 170 |
| F | R2 | 38 | 50 | 0.86 | 77 | 3 | 0.39 | 36 | 130 | 166 |
| F | R3 | 38 | 50 | 0.48 | 77 | 3 | 3.78 | 37 | 130 | 167 |
| F | R4 | 38 | 50 | 2.37 | 77 | 3 | 3.96 | 39 | 130 | 169 |
| F | R5 | 38 | 50 | 4.87 | 77 | 3 | 4.31 | 42 | 130 | 172 |
| F | S1 | 38 | 49 | 59.93 | 77 | 3 | 0.13 | 36 | 90 | 126 |
| F | S2 | 38 | 49 | 58.26 | 77 | 2 | 59.92 | 39 | 90 | 129 |
| F | S3 | 38 | 49 | 57.79 | 77 | 3 | 3.42 | 37 | 90 | 127 |
| F | S4 | 38 | 49 | 59.66 | 77 | 3 | 3.66 | 37 | 90 | 127 |
| G | A1 | 38 | 50 | 0.11 | 77 | 2 | 54.44 | 38 | 112 | 150 |
| G | A2 | 38 | 50 | 0.22 | 77 | 2 | 53.16 | 38 | 112 | 150 |
| G | A3 | 38 | 49 | 57.98 | 77 | 2 | 52.68 | 38 | 112 | 150 |
| G | A4 | 38 | 49 | 58.80 | 77 | 2 | 53.36 | 38 | 130 | 168 |
| G | A5 | 38 | 49 | 58.74 | 77 | 2 | 53.76 | 38 | 130 | 168 |

Attachment 2. Potomac Yard Development Exhibit - February 28, 2013

Coordinate Data (NAD 83)

| | | | | | | | | | | |
|---|------|----|----|-------|----|---|-------|----|-----|-----|
| G | A6 | 38 | 49 | 59.60 | 77 | 2 | 53.54 | 38 | 130 | 168 |
| G | A7 | 38 | 49 | 59.55 | 77 | 2 | 53.86 | 38 | 130 | 168 |
| G | A8 | 38 | 49 | 57.88 | 77 | 2 | 54.25 | 38 | 112 | 150 |
| G | B1 | 38 | 49 | 56.50 | 77 | 2 | 54.03 | 38 | 112 | 150 |
| G | B2 | 38 | 49 | 56.82 | 77 | 2 | 52.65 | 38 | 112 | 150 |
| G | B3 | 38 | 49 | 55.20 | 77 | 2 | 53.04 | 38 | 130 | 168 |
| G | B4 | 38 | 49 | 55.17 | 77 | 2 | 53.37 | 38 | 130 | 168 |
| G | B5 | 38 | 49 | 56.13 | 77 | 2 | 53.55 | 38 | 130 | 168 |
| G | B6 | 38 | 49 | 56.18 | 77 | 2 | 53.24 | 38 | 130 | 168 |
| G | B7 | 38 | 49 | 54.47 | 77 | 2 | 52.65 | 38 | 112 | 150 |
| G | B8 | 38 | 49 | 54.38 | 77 | 2 | 53.92 | 38 | 112 | 150 |
| G | C1 | 38 | 49 | 53.27 | 77 | 2 | 56.25 | 38 | 82 | 120 |
| G | C2 | 38 | 49 | 53.48 | 77 | 2 | 55.86 | 38 | 82 | 120 |
| G | C3 | 38 | 49 | 53.58 | 77 | 2 | 52.84 | 38 | 82 | 120 |
| G | C4 | 38 | 49 | 52.51 | 77 | 2 | 53.13 | 38 | 82 | 120 |
| G | C5 | 38 | 49 | 52.50 | 77 | 2 | 52.96 | 38 | 82 | 120 |
| G | C6 | 38 | 49 | 51.83 | 77 | 2 | 53.19 | 38 | 82 | 120 |
| G | C7 | 38 | 49 | 51.81 | 77 | 2 | 53.00 | 38 | 82 | 120 |
| G | C8 | 38 | 49 | 51.51 | 77 | 2 | 56.27 | 38 | 82 | 120 |
| G | C9 | 38 | 49 | 52.44 | 77 | 2 | 56.04 | 38 | 82 | 120 |
| G | C10 | 38 | 49 | 52.44 | 77 | 2 | 56.20 | 38 | 82 | 120 |
| G | D1 | 38 | 49 | 59.97 | 77 | 2 | 59.20 | 38 | 112 | 150 |
| G | D2 | 38 | 50 | 0.24 | 77 | 2 | 55.61 | 38 | 112 | 150 |
| G | D3 | 38 | 49 | 57.70 | 77 | 2 | 55.22 | 38 | 130 | 168 |
| G | D4 | 38 | 49 | 58.14 | 77 | 2 | 56.52 | 38 | 130 | 168 |
| G | D5 | 38 | 49 | 57.58 | 77 | 2 | 56.39 | 38 | 130 | 168 |
| G | D6 | 38 | 49 | 58.05 | 77 | 2 | 57.73 | 38 | 130 | 168 |
| G | D7 | 38 | 49 | 57.47 | 77 | 2 | 57.64 | 38 | 130 | 168 |
| G | D8 | 38 | 49 | 57.43 | 77 | 2 | 58.88 | 38 | 130 | 168 |
| G | E1_1 | 38 | 49 | 55.43 | 77 | 2 | 58.70 | 38 | 115 | 153 |
| G | E1_2 | 38 | 49 | 55.67 | 77 | 2 | 56.99 | 38 | 115 | 153 |
| G | E1_3 | 38 | 49 | 54.15 | 77 | 2 | 56.69 | 38 | 115 | 153 |
| G | E1_4 | 38 | 49 | 54.01 | 77 | 2 | 58.52 | 38 | 115 | 153 |
| G | E1_5 | 38 | 49 | 55.03 | 77 | 2 | 57.41 | 38 | 133 | 171 |
| G | E1_6 | 38 | 49 | 54.56 | 77 | 2 | 57.36 | 38 | 133 | 171 |
| G | E1_7 | 38 | 49 | 54.48 | 77 | 2 | 57.99 | 38 | 133 | 171 |
| G | E1_8 | 38 | 49 | 54.97 | 77 | 2 | 58.07 | 38 | 133 | 171 |
| G | E2_1 | 38 | 49 | 55.76 | 77 | 2 | 56.36 | 38 | 115 | 153 |
| G | E2_2 | 38 | 49 | 56.13 | 77 | 2 | 55.01 | 38 | 115 | 153 |
| G | E2_3 | 38 | 49 | 54.31 | 77 | 2 | 54.75 | 38 | 115 | 153 |
| G | E2_4 | 38 | 49 | 54.36 | 77 | 2 | 56.09 | 38 | 115 | 153 |
| G | E2_5 | 38 | 49 | 54.64 | 77 | 2 | 55.70 | 38 | 133 | 171 |
| G | E2_6 | 38 | 49 | 54.67 | 77 | 2 | 55.36 | 38 | 133 | 171 |
| G | E2_7 | 38 | 49 | 55.61 | 77 | 2 | 55.79 | 38 | 133 | 171 |
| G | E2_8 | 38 | 49 | 55.64 | 77 | 2 | 55.44 | 38 | 133 | 171 |

Attachment 2. Potomac Yard Development Exhibit - February 28, 2013

Coordinate Data (NAD 83)

| | | | | | | | | | | |
|---|-----------------------|----|----|-------|----|---|-------|----|-----|-----|
| G | F1 | 38 | 49 | 53.24 | 77 | 2 | 58.45 | 38 | 82 | 120 |
| G | F2 | 38 | 49 | 53.37 | 77 | 2 | 57.00 | 38 | 82 | 120 |
| G | F3 | 38 | 49 | 51.48 | 77 | 2 | 56.90 | 38 | 82 | 120 |
| G | F4 | 38 | 49 | 51.33 | 77 | 2 | 58.72 | 38 | 82 | 120 |
| G | G1 | 38 | 49 | 57.66 | 77 | 3 | 3.37 | 38 | 102 | 140 |
| G | G2 | 38 | 49 | 57.93 | 77 | 3 | 0.08 | 38 | 102 | 140 |
| G | G3 | 38 | 49 | 57.33 | 77 | 2 | 60.00 | 38 | 102 | 140 |
| G | G4 | 38 | 49 | 57.07 | 77 | 3 | 3.36 | 38 | 102 | 140 |
| G | G5 | 38 | 49 | 57.32 | 77 | 3 | 1.91 | 38 | 112 | 150 |
| G | G6 | 38 | 49 | 57.38 | 77 | 3 | 1.35 | 38 | 112 | 150 |
| G | G7 | 38 | 49 | 57.70 | 77 | 3 | 1.45 | 38 | 112 | 150 |
| G | G8 | 38 | 49 | 57.70 | 77 | 3 | 1.93 | 38 | 112 | 150 |
| G | H1 | 38 | 49 | 55.95 | 77 | 3 | 3.04 | 38 | 96 | 134 |
| G | H2 | 38 | 49 | 56.16 | 77 | 2 | 59.74 | 38 | 82 | 120 |
| G | H3 | 38 | 49 | 53.83 | 77 | 2 | 59.43 | 38 | 82 | 120 |
| G | H4 | 38 | 49 | 53.59 | 77 | 3 | 2.88 | 38 | 82 | 120 |
| H | Parcel 504 Corner NW | 38 | 49 | 50.60 | 77 | 2 | 58.89 | 46 | 130 | 176 |
| H | Parcel 504 Corner NE | 38 | 49 | 51.05 | 77 | 2 | 53.04 | 36 | 140 | 176 |
| H | Parcel 504 Corner SE | 38 | 49 | 46.97 | 77 | 2 | 53.52 | 38 | 138 | 176 |
| H | Parcel 504 Corner SW | 38 | 49 | 46.53 | 77 | 2 | 58.72 | 42 | 134 | 176 |
| H | Parcel 506A Corner NW | 38 | 49 | 45.42 | 77 | 2 | 58.57 | 42 | 73 | 115 |
| H | Parcel 506A Corner NE | 38 | 49 | 45.81 | 77 | 2 | 53.56 | 37 | 78 | 115 |
| H | Parcel 506A Corner SE | 38 | 49 | 42.58 | 77 | 2 | 53.33 | 26 | 89 | 115 |
| H | Parcel 506A Corner SW | 38 | 49 | 42.18 | 77 | 2 | 58.12 | 45 | 70 | 115 |

ATTACHMENT 3

DCA Airport Layout Plan Excerpt – One (1) Page

ATTACHMENT 4

**Guidelines for Structures in the Radar Environment
One (1) Page**

STRUCTURE CONSIDERATIONS

IN THE RADAR ENVIRONMENT

When consideration is given to ensuring that building/construction projects provide minimal impact to existing radar performance, the following guidelines are provided:

1. Design and orient the building/structure to provide the smallest, visible cross-sectional area with respect to radar transmissions. In other words, the "small side" of the structure facing the radar antenna is preferred.
2. While the typical building would be square or rectangular in nature, orient the building with respect to the radar antenna such that only one of the four vertical surfaces is illuminated by the radar transmissions. This limits/minimizes the reflected radar energy to one vertical surface and, primarily, one direction.
3. Avoid flat/smooth exterior surfaces, as radar transmissions reflected from this surface can be of greater intensity than the energy reflected from a building surface with an "offset" face or with angular displacements. Offset or angular sections "break-up" the reflected radar transmissions.
4. Metal exteriors have a greater "coefficient of reflection" when compared to brick and mortar, therefore, avoid to the maximum extent possible.

ATTACHMENT 5

List of Study Participants
One (1) Page

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