December 9th, 2011

Ms. Peggy Gilligan
Associate Administrator for Aviation Safety
Federal Aviation Administration
800 Independence Avenue,
S.W. Washington, D.C. 20591

Dear Peggy:

The Performance Based Aviation Rulemaking Committee (PARC) is pleased to submit the recommendations of the Performance Based Navigation (PBN) Procedure Naming Action Team in the attached report. The current PBN procedure naming convention that is applied to charts for instrument flight procedures does not adequately communicate the performance and functional requirements of PBN procedures. The Action Team was directed to determine what would be a possible solution and to develop a set of recommendations. PBN procedure naming is a critical operational component of NextGen and the limitations inherent to the current naming convention needed to be addressed.

The Action Team consisted of 31 Subject Matter Experts (SMEs) covering avionics, aeronautical databases, air traffic (ATC), aeronautical information services (AIS), charting, flight operations, and original equipment manufacturers (OEMs).

In overview, the Action Team and PARC recommendations to the FAA are:

1. That at all PBN Approach procedure titles: begin with 'RNAV'; contain a suffix used to differentiate when there is more than one RNAV procedure to the same runway end; include only a single Navigation Specification (e.g. RNP AR) in parentheses; and, contain the runway and number/letter.
2. That all PBN Departure Procedure (DP) and STAR procedure titles: include 'RNAV'; and, include only a single Navigation Specification (e.g. RNP 1, RNAV 1) in parentheses.
3. That all PBN procedures (Approach, DP and STAR) contain a PBN information 'box'. The 'box' would contain PBN-related information.

The PARC Action Team, led by Pedro Rivas, did an outstanding job is addressing this complicated and sensitive area. Their proposals were the result of a consensus agreement that addressed the various stakeholders concerns, objectives and limitations.

The PARC appreciates your continued support of our activities and invites you to join us in a discussion of these recommendations at your convenience. Please call me if you have any questions or would like to set up a discussion.

Sincerely,

Dave Nakamura
Chairman
Performance-based operations
Aviation Rulemaking Committee

PARC Procedure Naming Action Team Report

September 27, 2011

1. BACKGROUND

The PARC established a Procedure Naming Action Team (AT) to address the issue of a naming convention for PBN procedures. The Terms of Reference, established by the PARC for the AT, stated that the current procedure naming convention does not adequately communicate the performance and functional requirements of PBN procedures and that an updated convention to address this should be developed. The expected deliverables from the AT were:

- Procedure naming convention for PBN and hybrid (PBN-Conventional) SIDs, STARs and Approaches with both near and far term solutions
- Recommendations on the information requirements associated with PBN and hybrid PBN procedures, i.e., additional information that should be communicated to the user but is not conveyed in the procedure title
- A summary report providing the rationale and reasons behind the AT's recommendations

We believe this AT Final Report and attached Appendix meet the expected deliverables.

2. EXECUTIVE SUMMARY

The PARC AT, hosted by Boeing at their Seattle, WA facilities, met August 15-17, 2011. The AT was comprised of 31 Subject Matter Experts, who were divided into three Breakout Groups (Database & Avionics, Charting & AIS, and Air Traffic & Flight Ops) to more efficiently and effectively progress the work. The SMEs met each day in multiple Plenary and Breakout Group Sessions. The AT proposals are a result of consensus agreements. Background, rationale and explanations of the AT proposals are contained in the Appendix.

PROPOSAL: It is recommended that all PBN Approach procedure titles: begin with 'RNAV'; contain a suffix used to differentiate when there is more than one RNAV procedure to the same runway end; include only a single Navigation Specification (RNP APCH, RNP AR, RNP ADV, etc.) in parentheses; and, contain the runway and number/letter.

PROPOSAL: It is recommended that all PBN Departure Procedure (DP) and STAR procedure titles: include 'RNAV'; and, include only a single Navigation Specification (RNP 1, RNAV 1, etc.) in parentheses.

PROPOSAL: It is recommended that all PBN procedures (Approach, DP and STAR) contain a PBN information 'box'. The 'box' would contain PBN-related information, e.g., supporting sensors, specific functionality not mandatory within the Navigation Specification (RF legs for an RNP APCH), RNP accuracy values for DPs/STARs if not evident from the Navigation Specification, and operational authorization required, as applicable.

3. GENERAL RATIONALE

The Action Team's Subject Matter Experts identified constraints and impacts associated with the proposals. The information within this section is general in nature; however, specific and detailed rationales for the proposals, along with supporting discussion material and examples are provided in the Appendix. While numerous aspects to the issues drove the final proposals, two aspects were very significant.

First, the proposals had to be implementable in the near as well as far term and be able to address future Navigation Specifications. This meant it had to be cost effective immediately. Many current avionics displays, that according to the SMEs will be in inventory for the next couple of decades, display 'RNV' for the procedure title for RNAV approaches and a single character for a suffix (i.e., Z). Changing 'RNV' to some other designator (such as 'RNP') or increasing the numbers of characters to be displayed (such as the Navigation Specification) would be cost prohibitive and not acceptable to the user community. While there will be training costs, there will be no avionics costs to implement the proposals and no impact on in-service avionics systems. This was the most supportable business case.

Second, Air Traffic did not want to include additional phraseology in procedure clearances. This meant that the title had to be no longer than its current phraseology structure and that pronouncing the Navigation Specification would not be accepted by ATC. That meant that if the Navigation Specifications were to be in the title, then they had to be in parentheses. This would be no change to current Air Traffic Control guidance and also be a clear synchronization between the clearance, the avionics depiction, and the charted title.

The consensus of the SMEs was that, in addition to the above two aspects, the inclusion of the Navigation Specification in parentheses in the title would bring international harmonization and clearly identify aircraft certification/operational approval and PBN requirements required by the procedure. An example of this would be as follows: The Clearance states 'Cleared RNAV Zulu Runway 15 Left'. The avionics box displays 'RNV Z 15L'. The paper/electronic chart title is 'RNAV Z RWY 15L (RNP APCH)'.

The location of the parentheses and Navigation Specification within the paper/electronic chart title, e.g., after 'RNAV' or at the end of the title line (as in the example above), should be determined by a Human Factors Study. This should be done as soon as possible so that final formal proposals can be promulgated.

The PBN information 'box' contains PBN-related information for the procedure and provides a consistent and convenient location for the user to determine if there are additional requirements or information for the procedure.

4. SUMMARY

Additional rationale, examples and points of discussion are contained in the Appendix.

The Co-Chairs of the PARC Procedure Naming Action Team recognize and appreciate the significant amount of time and expertise devoted by the SMEs that brought about these proposals and wish to thank all those involved in the effort.

Questions and comments on the Report and the Appendix should be addressed to the Co-Chairs, Pedro Rivas and John Moore.

APPENDIX

1. TASK FORCE COMPOSITION

The Action Team consisted of 31 Subject Matter Experts (SMEs) covering avionics, aeronautical databases, air traffic (ATC), aeronautical information services (AIS), charting, flight operations, and original equipment manufacturers (OEMs). Additionally, several of the SMEs were also members of the ICAO Instrument Flight Procedures Panel, Operations Panel, or Performance Based Navigation Study Group (PBNSG). The full participant list is provided at the end of this Appendix.

The Action Team participants were divided into three Breakout Groups (Database & Avionics, Charting & AIS, and Air Traffic & Flight Ops) to more efficiently and effectively progress the work. The SMEs met each day in multiple Plenary and Breakout Group Sessions.

2. TERMINOLOGY USED IN THE REPORT

Instrument Approach Procedure (IAP) Naming Terminology

Procedure names can be divided into four separate elements (See figure 1). The first element (called the "title" in this report) defines the system used for lateral guidance in the final approach segment e.g. VOR, NDB, MLS, ILS or LOC, RNAV, GPS, GNSS, etc.

The second element of the procedure name only exists in RNAV procedures and is enclosed in parenthesis e.g. (GPS), (GNSS), (RNP), (RNP 0.3), etc. This element is referred to as the "parentheses" in this report. NOTE: Some RNAV procedures do not use the parentheses element.

The third element is the suffix. It consists of an alphabet letter or numeral e.g. A, X, Z, 1, 2, etc.

The fourth element is the runway designator (and this is used when the IAP is not a circling approach) e.g. Rwy 14, Rwy 18C, etc.

Title	Parentheses	Suffix	Runway Designator
RNAV	(RNP)	Y	RWY 31
RNAV	(GPS)		RWY 9L
RNAV	(GNSS ou/or DME/DME)		RWY 9L
RNAV	(RNP 0.3)		RWY 9L
ILS		Z	RWY 31

Figure 1
(Examples taken from State AIPs)

Departure and Arrival Procedure Naming Terminology

Departure Procedures (DPs), Standard Instrument Departures (SIDs), and Standard Terminal Arrivals (STARs) naming conventions vary significantly between States. The first element consists of the DP/SID/STAR name which may include for charting purposes in parentheses the abbreviation used to identify the procedure in an FMS e.g. "BOB4" represents the BOBCAT FOUR DEPARTURE in the FMS. A second element, in additional parentheses may be depicted by some chart producers when the procedure requires PBN functionality and typically uses the acronym "RNAV" (see Figure 2).

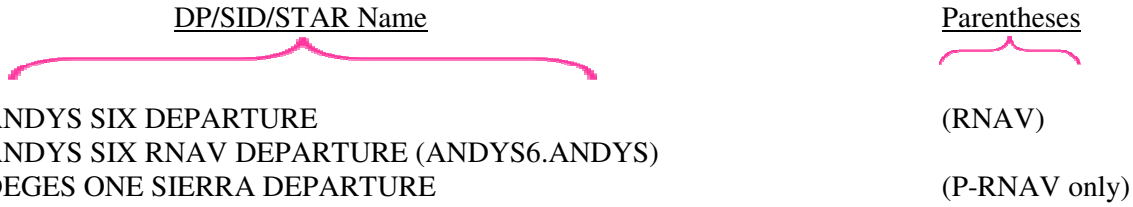

Figure 2
(Examples taken from State AIPs and Commercial Charts)

3. SCOPE

The Action Team participants were briefed on the PARC Terms of Reference and scope. The briefing included the following clarification and elaboration on scope.

In-Scope

IAPS:	Title & parentheses
DPs, SIDs, STARs:	Parentheses when used to convey PBN information e.g. (RNAV)

Out-of-Scope

IAPS:	Suffix & runway designator
DPs, SIDs, STARs:	Name & (when used) FMS abbreviation

NOTE: During a breakout group report to plenary, the issue was raised of whether or not the IAP suffix should be considered out-of-scope. This is further described in Plenary Group Discussions at the end of this Appendix.

4. BREAKOUT GROUP TASKS AND REPORTS

Breakout Group Task #1 – Constraints

It was necessary to fully understand and capture all the constraints associated with any proposed PBN procedure naming convention change. Each breakout group was tasked to: "Identify constraints applicable to any Procedure Naming change applicable to your Breakout Group".

The intent was that candidate solutions could then be assessed against the identified constraints.

Synopsis of Breakout Group reports to plenary and discussion

"Training" was identified as a universal constraint because pilots, air traffic controllers, AIS providers, ANSPs, chart & database manufacturers, regulators, etc would require training to understand and correctly implement any new procedure naming convention.

The following constraints were not prioritized and their place in the following list does not denote relative importance, cost, or degree of difficulty for implementation.

Identified constraints were:

1. International and National Policy guidance – Changes to the naming convention may require incorporation into ICAO and national policy guidance before implementation could begin e.g. changes may be required to ICAO PANS OPS, ICAO Annex 4, U.S. TERPS, Air Traffic and Flight Operations guidance material, etc.
2. Database standards – Changes to the naming convention may require changes to industry database standards. Currently, the ARINC 424 communications protocol and DOD's Digital Aeronautical Flight Information File (DAFIF) specification use a predefined format that is limited in its flexibility. The timeline for accomplishing changes is 3 – 7 years.
3. Database editions – The development of a new database edition to support a procedure naming change (ARINC 424 or DAFIF) increases the number of editions that a database manufacturer must support.
4. Charting – Individual manufacturer's standards on chart composition, chart heading size/location, etc., will most likely require changes.
5. Production Systems and Process – After the policy and standards changes have been published, changes to AIS, charting, EFB and database production software may be required to implement the changes. Previously coordinated agreements with subcontractors may require modification.
6. Resource limitations – The rate at which AIS providers could amend procedures, and chart producers publish the newly amended procedures, is a function of resources available.
7. Synchronization of chart & database production – Chart and navigation database production and release must be synchronized.
8. Procedural changes – A procedure naming and/or PBN information change may require changes to operators' procedures, e.g., checklists and procedures, operations specifications, etc.
9. Compliance – Non uniform timing on implementation and deviation from an ICAO standard could be a constraint.
10. Cost & cost justification – The cost is related to the magnitude of the change and its implementation timeline. Any proposed change must be justified (business model).
11. Certification – A proposed change may impact OEM and/or avionics certification.
12. IAP parentheses – Some business and military aircraft use the information contained in the parentheses for function.
13. Retrofit – A procedure naming change that requires upgrading or retrofitting avionics to display the new procedure title is expensive and would probably take years to accomplish.
14. Safety Management System (SMS) and Risk Hazard Assessments – A proposed change may require a formal SMS and/or risk assessment in some States prior to implementation.
15. Flight Deck avionics – In addition to flight deck avionics (FMS, Navigation Displays & associated signal generators, EFBs), a procedure naming change may impact mission/flight planning systems, simulator & other training systems, and flight control systems.
16. DO-200A – The database process and approval may be impacted. This would be particularly problematic if during database processing additional steps needed to be introduced to enable an avionics system to recognize or accept a PBN procedure with a new naming convention.

Breakout Group Task #2 – Assumptions

It was necessary to document the assumptions and goals associated with any proposed PBN procedure naming convention change. Each of the three SME groups was tasked with documenting the assumptions and goals underlying a procedure naming convention change.

Assumptions and goals for a procedure naming and information convention change are that it:

1. Must align with the ICAO PBN Manual (ICAO Doc 9613)
2. The convention must accommodate the development of new "flavors" of PBN procedures
3. Should classify the level of capability/performance associated with the procedure
4. Must meet the needs of paper and electronic formats
5. Must be simple to communicate and understand during pilot-controller interactions, i.e., it must use easily recognizable terminology
6. Must allow the pilot to easily pick the procedure from the Flight Management or RNAV system based on the clearance issued. That is, naming in the FMC should match ATC clearance to avoid human factors issues.
7. Should be consistent across all phases of flight, i.e., any naming changes to one phase of flight should carry across all phases of flight
8. The chart (paper or electronic displayed information) must include the applicable specific PBN information requirements, e.g., sensor, performance, and ground-air requirements
9. Avionics manufacturers and ATC need information on the sensor requirement for a procedure when applicable, e.g., GNSS required
10. The chart (paper or electronic displayed information) must provide a tie between the operator's database and the authorization, and convey information to ATC on who can fly the procedure
11. Retrofit of current avionics should not be required. Some avionics are incapable of growth/change
12. Operators should not lose access to current available procedures if chart title changes, e.g., in FMS or EFB
13. Current avionics and/or displays must be able to accept and process procedures if the naming convention changes.

Breakout Group Task #3 – Develop Candidate Solutions

Each breakout group was tasked with developing a candidate solution that accommodated, addressed or mitigated the identified constraints and attempted to satisfy as many of the goals and assumptions as possible. The breakout groups were briefed that the candidate solution should have a clear underlying rationale and that the candidate solution must accommodate future PBN growth, e.g., how would the candidate solution title a PBN procedure based on the "RNP 0.3" or "Advanced RNP" Navigation Specification.

Additionally, to provide focus, the breakout groups were asked to answer the following questions:

1. Are parentheses required for PBN procedures and if they are required, then what information should they contain and why?
2. What should the title of PBN Instrument Approach Procedures be and why?
3. What guidance/harmonization/standardization is recommended for PBN information requirements that are not contained in the procedure title and its parentheses and why?

NOTE: Due to time constraints on the first breakout session for Task #3, the groups were not able to fully map the candidate solutions back to the constraints, goals and assumptions and a second breakout session was scheduled to complete Task #3.

A synopsis of the proposed candidate solutions developed during the Breakout Group sessions devoted to Task #3 is provided below. After the first Task #3 session and the ensuing plenary discussion, some of the initial candidate solutions were modified and discussed at the subsequent plenary. Plenary discussions are described in a separate section below.

Air Traffic & Flight Operations – Candidate Solution

Title
The Air Traffic and Flight Operations Breakout Group proposed that "RNAV" should be used as the title for all PBN IAPs. "RNAV" should not be included in the name of SIDs/STARs.

Parentheses
Their proposal recommended that the parentheses should either be deleted or it could be retained as "(AR)" to indicate that authorization was required for an operator to use the procedure.

Charting & AIS - Candidate Solution

Title
The Charting and AIS Breakout Group initially proposed that "RNAV" should be used as the title "for any IAP which does not utilize a Ground-Based navaid for lateral guidance on the Final Approach Segment". After the second Task #3 session, the group amended their position to propose that the title should be "RNAV", "RNP" or "RNP AR" dependent on whether the procedure required onboard monitoring and alerting (for RNP) or required special authorization (for RNP AR).

Parentheses
Their initial candidate solution included the use of parentheses, with two different options on the content that should be provided in the parentheses.

After the second Task #3 session, the group amended their proposal to eliminate the parentheses and their content.

Database & Avionics – Candidate Solution

Title
The Database and Avionics Breakout Group proposed that the title for all PBN procedures should be based on the navigation specification upon which the procedure was based, e.g., RNAV, RNP AR, etc.

Parentheses
The Breakout Group recommended that the parentheses should be deleted from the procedure name.

5. PLENARY DISCUSSIONS

During the plenary sessions, each Breakout Group provided the rationale for their candidate solution including, in some cases, the pros and cons. Recounting each Breakout Group's rationale and subsequent detailed plenary discussion is not practical in this report due to the large number of issues covered. However, a recap of salient points discussed in plenary that resulted in the final recommendation is provided below.

Title

1. There was considerable debate over whether the PBN procedure title should be "RNAV" or "RNP". It was pointed out that most current avionics systems (including those on the Boeing 787 and Airbus 350) could not display "RNP" in their FMS menu options. Retrofit and/or upgrade to enable the system to display "RNP" would be costly and unlikely to satisfy business cost-benefit analysis. Therefore, a significant number of avionics systems would be unable to display "RNP" as an IAP menu option for 20+ years. This would result in the chart and ATC clearance "RNP" not matching the avionics approach menu option (e.g. "RNAV", "RNV") and this was considered undesirable by the plenary.
2. If IAPs were changed from "RNAV" to "RNP", then additional database processing to "convert" the procedure into a form acceptable to the avionics system would be required for many systems. This would introduce additional complexity because of the RTCA DO-200A approval process.
3. Transition issues between the current convention and a future convention were a concern to most stakeholders. The Charting &AIS group made it clear that a "big bang" revision of all applicable PBN procedures (numbering in the thousands in the U.S.) was not practical and that the two naming conventions would have to coexist for several years. Flight Operations were concerned over the human factors issues associated with two different sets of IAP titles (representing the same type of procedure) coexisting for several years. ATC was concerned over the training and human factors issues associated with having two different sets of phraseology for clearance verbalization i.e. "Cleared the RNAV ..." or "Cleared the RNP ..."
4. Air Traffic indicated that additional phraseology in a clearance would be unacceptable. This meant that the title had to be no longer than its current phraseology structure and that verbalizing additional elements, e.g., "AR", "Advanced RNP", etc., would not be accepted by ATC. The Flight Operations SMEs concurred with this assessment.
5. There was a concern that changing procedure titles from "RNAV" to "RNP" would generate a lot of work for AIS, charting, database, and for avionics (that implemented the change) for relatively little apparent benefit to the end users (ATC and pilots).

During the final plenary session it was decided that PBN procedure titles would be "RNAV" and that this was still consistent with the PBN concept and would satisfactorily accommodate many of the constraints identified by the Breakout Groups.

Parentheses

The deletion of the IAP parentheses and their information content was discussed.

1. The rationale for deleting the parentheses was that this solution provided "relative simplicity for use in avionics displays" and that it "would improve chart and database compatibility".
2. Deleting the parentheses would eliminate information currently in the procedure name and this would need to be moved to elsewhere on the chart. One Breakout Group stated that: "The omission of parenthetical information would result in the over-generalization about [RNAV] terminal procedures available at a given location, and would eliminate pilot's ability to easily identify and retrieve a specific or desired terminal procedure" from an EFB or some avionics systems.
3. The retention of the parentheses was discussed and considered acceptable because the content of the parentheses is not verbalized by ATC in a clearance. Avionics systems that do not display the parentheses or their content when offering the menu of approaches would be unaffected by retaining the parentheses or changing the current parentheses content. It was noted that deleting the parentheses and their content would impact some avionics systems. If the parentheses contained useful information it was clear that their retention could provide benefit.
4. A number of different information goals for the content of the parentheses were discussed. A common convention for parentheses content between IAPs and SID/STARs was deemed beneficial.

During the final plenary session it was decided that the inclusion of the Navigation Specification in parentheses in the procedure name would bring international harmonization, clearly identify aircraft certification/operational approval and clarify the PBN requirements required by the procedure. After further off-line discussions, the co-chairs assume that, in the case of an Instrument Approach procedure, the content of the parentheses indicates only the Navigation Specification that is required for the final segment.

NOTE: The location of the parentheses in the procedure name was discussed. The current location of parentheses was critiqued because it separates the title "RNAV" from the suffix and designated runway and the Air Traffic clearance does not pronounce it, creating a 'mismatch'. Because many avionics do not display the parentheses it complicates the procedure identification and selection in the FMS. It was noted that, for some pilots, comparing the FMS (and ATC clearance) with the chart would require mentally 'stitching together' the first and last elements of the chart title and ignoring the parenthesis in the middle of the title. This may be used as a rationale for placing the parentheses at the end of the procedure name. (See Table 1)

Conversely, a change to the current location of the parentheses would incur costs for some AIS providers (and chart producers) because it would require changes (some contractual) to software used in their processes. The Action Team determined that they did not have the requisite expertise or data to make a formal recommendation on the placement of the parentheses and recommended that a Human Factors Study be accomplished as soon as possible so that a final formal proposal can be promulgated.

Information-Communication Media	Information Provided
FMS Display [1]	RNV Z 15L
ATC Clearance [2] (verbal)	"Cleared RNAV Zulu Runway 15 Left Approach"
Chart Parentheses placement – Option	RNAV Z RWY 15L (RNP APCH)
Chart Parentheses placement – Current convention	RNAV (RNP APCH) Z RWY 15L

Table 1

[1] FMS and RNAV displays vary. The example illustrates the Honeywell and GE Aerospace FMS display provided on several Boeing aircraft types e.g. 737, 757, 767

[2] Approach clearance phraseology may vary. The example provided conforms to FAA Order 7110.65 (paragraph 4-8-1)

The PBN information 'box'

The Action Team recommended that procedure charts (paper or electronic) should provide a consistent and convenient location for the user to determine additional PBN requirements or information associated with the procedure.

1. It was recognized that the procedure title, parentheses, suffix and runway would not convey sufficient information in many cases, e.g., whether an RF leg capability is required, or whether a DME/DME based navigation solution is permitted. Similar concerns apply to PBN SIDs/STARs. The provision of this additional PBN information in a standardized manner (a 'box') is considered beneficial.
2. The Plenary discussed the type of PBN-related information that might be displayed in the 'box', e.g., supporting sensors, specific functionality not mandatory within the Navigation Specification (RF legs for an RNP APCH), RNP accuracy values for DPs/STARs if not evident from the Navigation Specification, and operational authorization required, as applicable
3. Electronic systems (whether EFB or part of the on board avionics suite) were discussed. The ability of a system to display, use, filter or otherwise leverage the PBN elements not included in

the procedure name is dependent on the PBN information being provided in a clearly defined and standardized manner.

4. Paper and pre-composed electronic charts should provide the additional PBN information in a consistent and convenient location for the user to simply and quickly determine the additional PBN requirements.
5. The display of IAP, SID and STAR additional PBN information should be harmonized for the end user to provide consistency.
6. The PBN information 'box' should be provided anytime there is a PBN component for a procedure, including hybrid procedures, e.g., RNAV transition to an ILS, ILS to an RNP missed approach, etc.
7. It was noted that the PBN information did not have to be in an outlined 'box', but could be grouped as the first set of notes within an existing notes area/section or box. However, the PBN information should be separated and easily distinguished from other procedural and non-procedural notes and information.

NOTE: The Action Team determined that the exact content of the PBN information 'box' should be determined as a follow on activity.

Approach Suffix

During a breakout group report to plenary, the issue of whether the IAP suffix should be considered out-of-scope was raised. The ability to tie a unique suffix, e.g., "Z", to a specific attribute or requirement in a PBN procedure was proposed. For example, the "Z" could always indicate that this PBN approach had the lowest minima of all the PBN approaches to that specific runway, or "Z" could always indicate that the procedure was "RNP AR", etc.

While this proposal offered the possibility of increased information content for a procedure through the use of the suffix, significant drawbacks were noted. If the "Z" were to always represent the procedure with the lowest minimums, then the introduction of a new procedure with lower minimums for that runway would require re-suffixing all the procedures to maintain the convention, which would impose an additional burden on AIS and chart producers. There were also Human Factors issues associated with the proposal because pilots may have become accustomed to always flying the "Z" or the "Y" approach at an airfield based on equipage limitations and they would need to recognize the change. If the "Z" were always used to indicate an RNP AR procedure then the issue was raised as to whether the convention should be applied to conventional "authorization required" procedures e.g. CAT III ILS? Additionally, it was noted that some FMS' do not display the suffix letter.

Because of the above complexities, the overlap and interface with conventional procedure suffixing and long standing guidance and criteria associated with suffixing, the co-chairs determined that this topic should remain out-of-scope for the Seattle meeting.

6. SUBJECT MATTER EXPERTS ATTENDING

The following 31 participants attended the PARC Procedure Naming Action Team meeting in Seattle

Name	Expertise	Company/Organization
Abbott, Kathy	Flight Deck Human Factors	FAA
Allen, Aaron	Navigation Databases	NGA
Arrighi, Jim	Air Traffic and PBN	FAA
Barnett, Tracy	Flight Operations	CNS Task Force
Camara, Jeff	Air Traffic Control (ATC)	FAA
Chandra, Divya	Human Factors - Charting	USDOT Volpe Center
Cochrane, Jeff	Air Traffic and PBN	NAVCANADA
Crocker, Reggie	Avionics Design	Honeywell
Digiantonio, Joanne	Avionics Design	Rockwell-Collins
Hess, Dick	Avionics Design	Universal
Kasten, John	ARINC 424 and database production	Jeppesen
Leconte-Dabin, Brigitte	Flight Management Systems	Airbus
McGaughy, Ellen	Avionics Design	Rockwell-Collins
McKenzie, Bill	Avionics and manufacturing interests	Boeing
McMullin, Gary	Flight Operations and PBN procedure design	Southwest Air Lines
McStravick, Leo	Flight Operations - Business/GA	Gulfstream
Miller, Barry	Certification	FAA
Moore, John (Co-chair)	Chart Production	FAA
Nakamura, Dave	Avionics Design and PBN	Boeing
Price, Tim	All Weather Ops (AWO)	British Airways
Renk, Ron	Flight Operations	United
Rivas, Pedro (Co-chair)	Flight Operations	ALPA
Rush, Brad	Procedure Design & Information Requirements	FAA
Steinbicker, Mark	Approvals process and guidance material	FAA
Tallman, Nick	Air Traffic and PBN	FAA
Ten Pas Bell, Kimberly	Avionics Design and Database Requirements	Honeywell
Terpstra, Jim	Charting & Procedure Naming	Jeppesen
Thompson, Ted	Chart Information Requirements & Production	Jeppesen
Tree, Jonathan (Jon)	International Operations	IATA
White, Doug	Chart and Navigation Database Requirements	Delta Air Lines
Yates, Monique	Military Interests - Charting/Database/Ops	NGA