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RSA Alternatives Analysis

Renton Airport Advisory Committee (RAAC), August 2015

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Master Plan

Renton Municipal Airport/ Clayton Scott Field

Consultant Team

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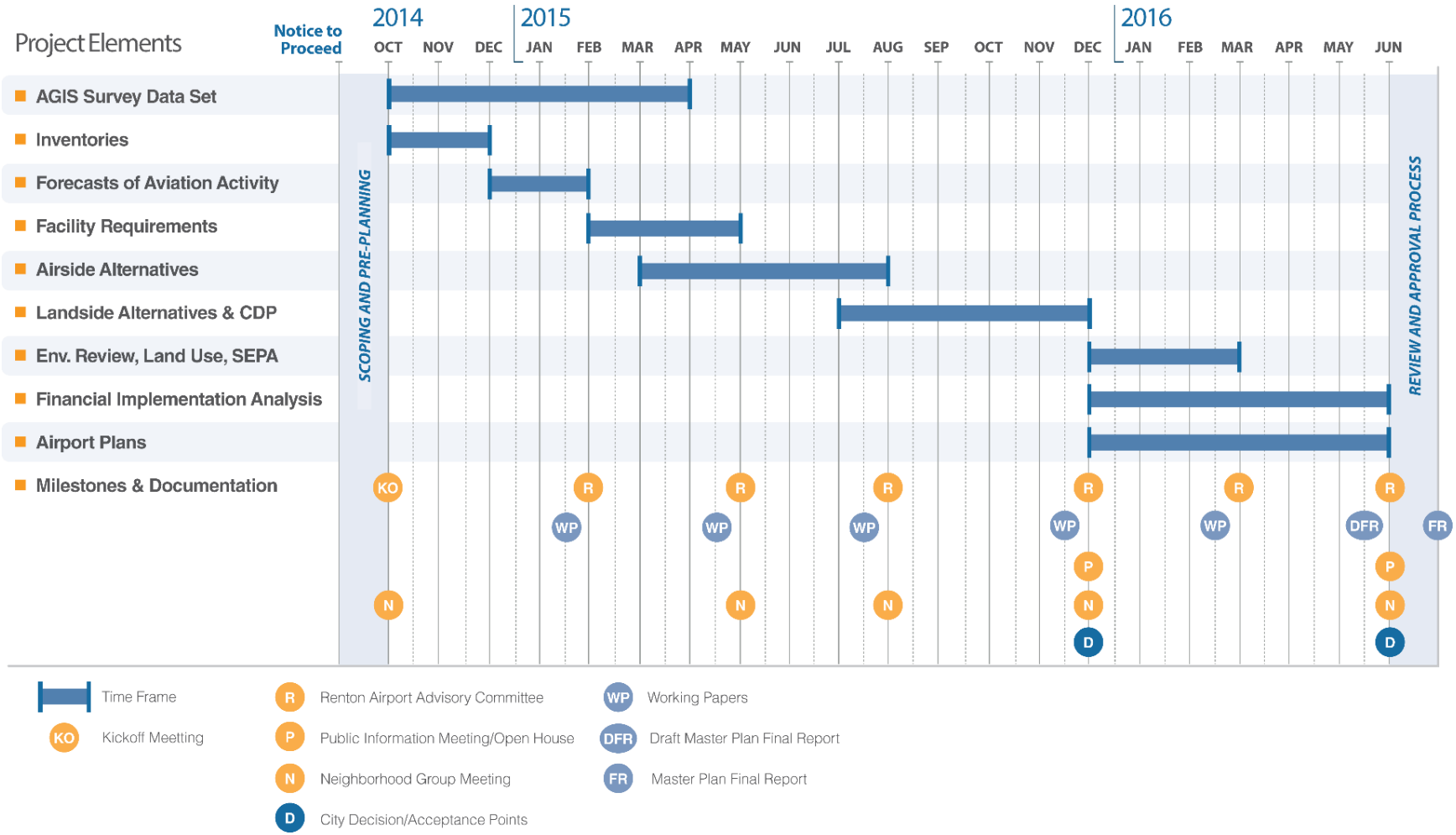
- Mary Vigilante, Synergy Consultants

Agenda

- Schedule Review
- Design Aircraft/Design Standards Review
- RSA Alternatives
  - Assumptions and Goals for Development
  - Screening Criteria
  - RSA Alternatives 1 through 5
- Screening Exercise
- Next Steps

Project Schedule



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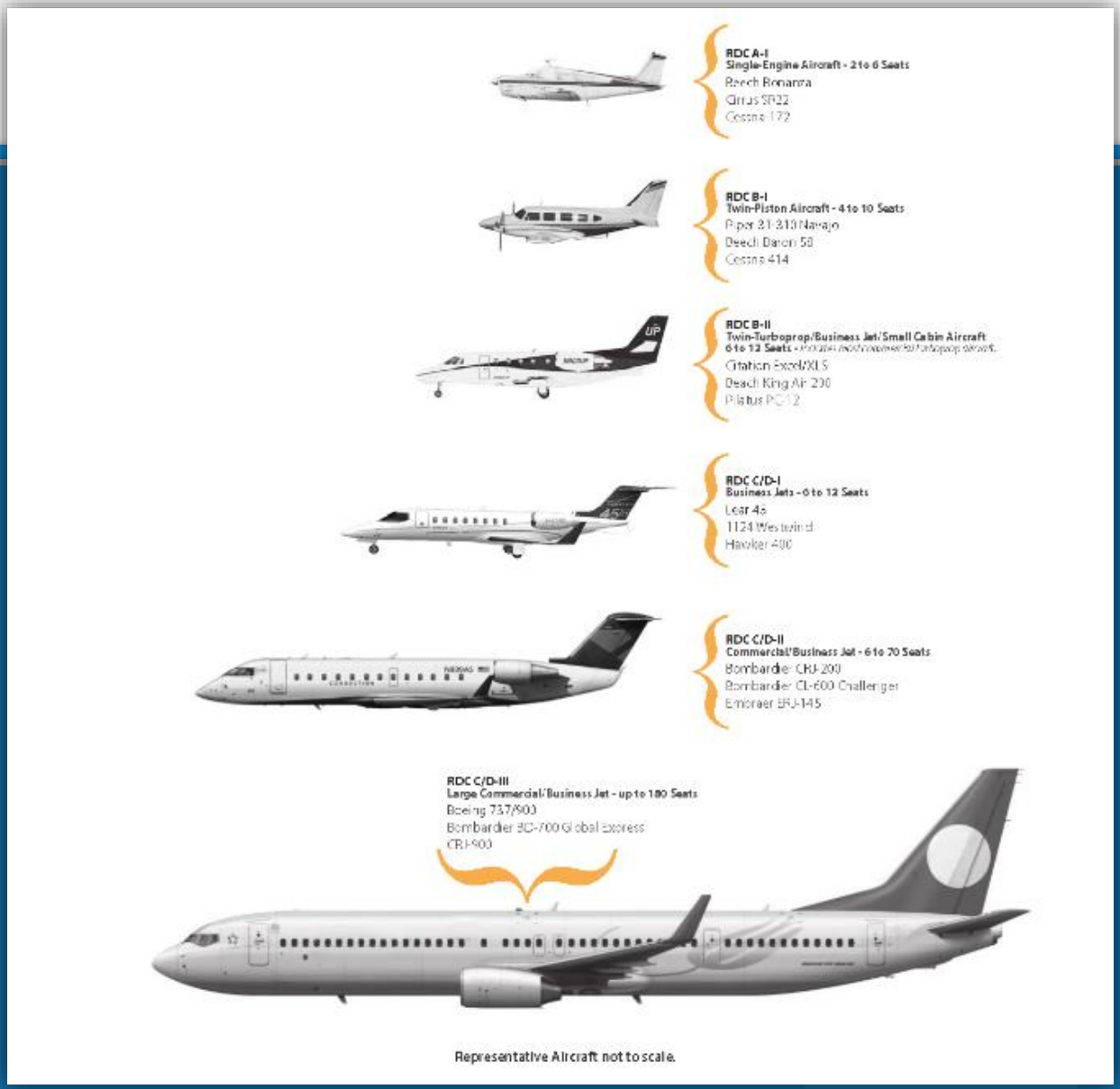
Representative Aircraft by Runway Design Code (RDC)



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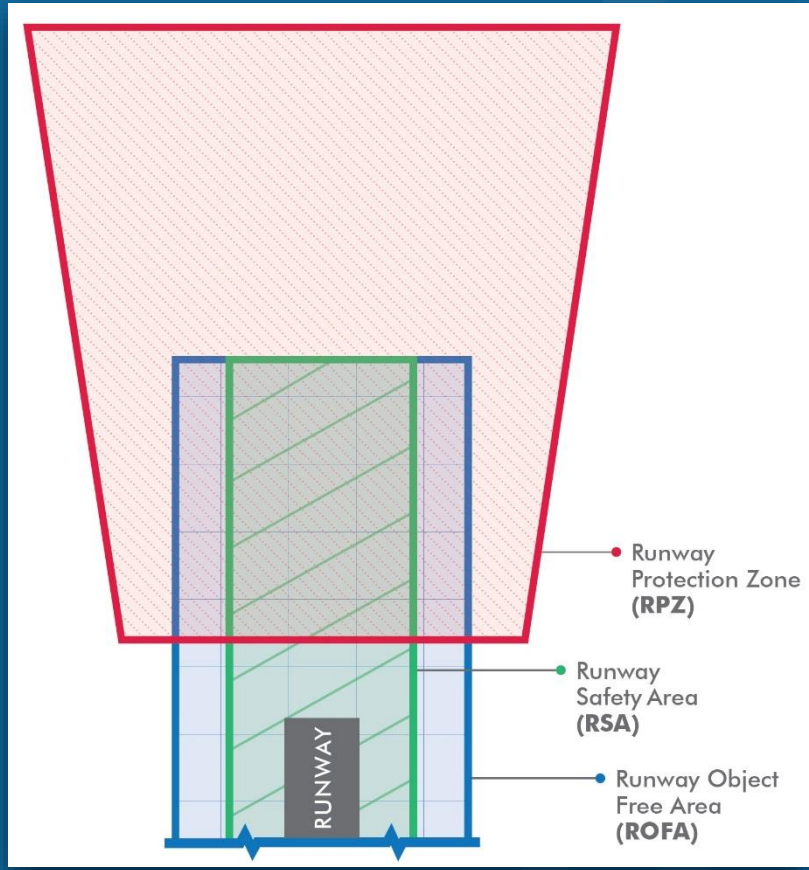
Summary of Operations by RDC

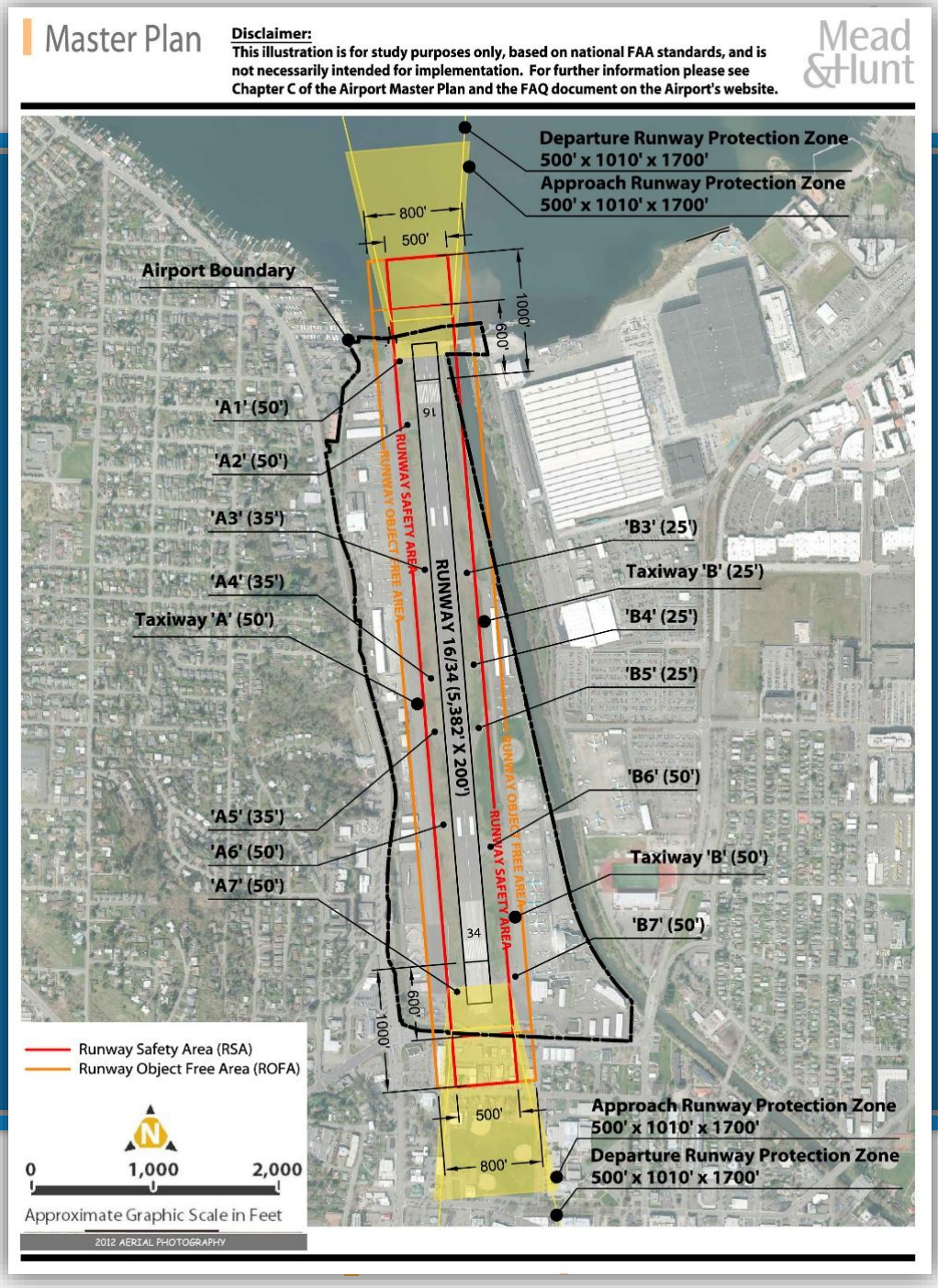
RDC	2014	2019	2024	2029	2034
A-I, B-I	92,087	97,256	102,728	108,510	114,620
A-II, B-II	4,405	4,965	5,245	5,538	5,482
C-I, C-II (Business Jets)	1,285	1,358	1,435	1,515	1,600
D-I, D-II (Business Jets)	494	522	555	584	615
C-III, D-III (737s)	485	624	624	624	624
C-III, D-III (Business Jets)	21	21	22	23	25
Total	98,816[1]	104,486	110,329	116,501	123,022

Airfield Conclusions

- Priority 1 – RSA standards (can't be modified)
- Priority 2 – RPZ standards
- Priority 3 – Other non-standard conditions



RDC D-III
Design Standards



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Assumptions

- Airport's role will remain the same
- Airport will be developed/operated consistent with federal rules/regs
- RDC D-III standards
- Maintain runway length
- Maximize landside developable property
- Promote economic development/growth
- Promote land use compatibility
- Incorporate goals/objectives of Sustainability Management Plan (SMP)

Goals for Development

- **1- Airport Finance**
  - a. Providing an economically stable asset that contributes to the community; and,
  - b. Balance expenditures with revenue to remain financially self-sufficient in the long- term.
  - c. Improve revenue to provide for future development opportunities.
  - d. Provide financial capacity that will enable the Airport to pursue sustainability initiatives in the future.
- **2- Airport and Local Economic Values**
  - a. Attract airport tenants and aircraft operations that add economic value to the local economy.
  - b. Continuously improve as a tier one supplier for Boeing aircraft manufacturing.
  - c. Diversify tenants and aviation services for land and sea based operations.
  - d. Increase employment.
- **3- Community Outreach and Education**
  - a. Continuously improve the airport's relations with the surrounding neighborhoods and with airport tenants.
  - b. Raise community awareness of airport services and value to regional employment.

Goals for Development, cont.

- **4- Energy Consumption /Greenhouse Gases**
  - a. Reduce energy consumption without adversely affecting the Airport or its tenants.
  - b. Reduce Airport owned greenhouse gas emissions.
- **5- Noise from Aircraft Operations**
  - a. Maintain 65 DNL noise contour on airport property.
  - b. Minimize aircraft noise over neighborhoods.
- **6- Operations, Maintenance, Capital Improvements of Airport Facilities**
  - a. Maintain a safe airport on a daily basis.
  - b. Maintain airport and seaplane infrastructure in good condition.
- **7- Water Quality**
  - a. Reduce stormwater runoff quantity.
  - b. Improve stormwater quality.

Alternatives Screening Criteria

EONS Category	Screening Criteria	SMP Goal/Objective from SMP *(see page 3)*
(E) Economic	Construction cost	1-b/c/d
(E) Economic	Land acquisition cost	1-b/c/d
(O) Operational	Effect on Airport operations	2-a/b/c/d
(O) Operational	Land acquisition requirements	3-a
(O) Operational	Safety/RSA standards	6-a
(O) Operational	Safety/RPZ standards	6-a
(O) Operational	Road closures/relocation	3-a
(O) Operational	Seaplane pull out/dock impacts	6-b
(N) Natural resources	Energy	4-a
(N) Natural resources	Impervious surface/Fill into Waters of US	7-a/b
(S) Social	Subsistence resource impacts	3-a
(S) Social	Displacement of businesses/residences	3
(S) Social	Noise change	3
(S) Social	Recreation/parks	3-a

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RSA Alternatives

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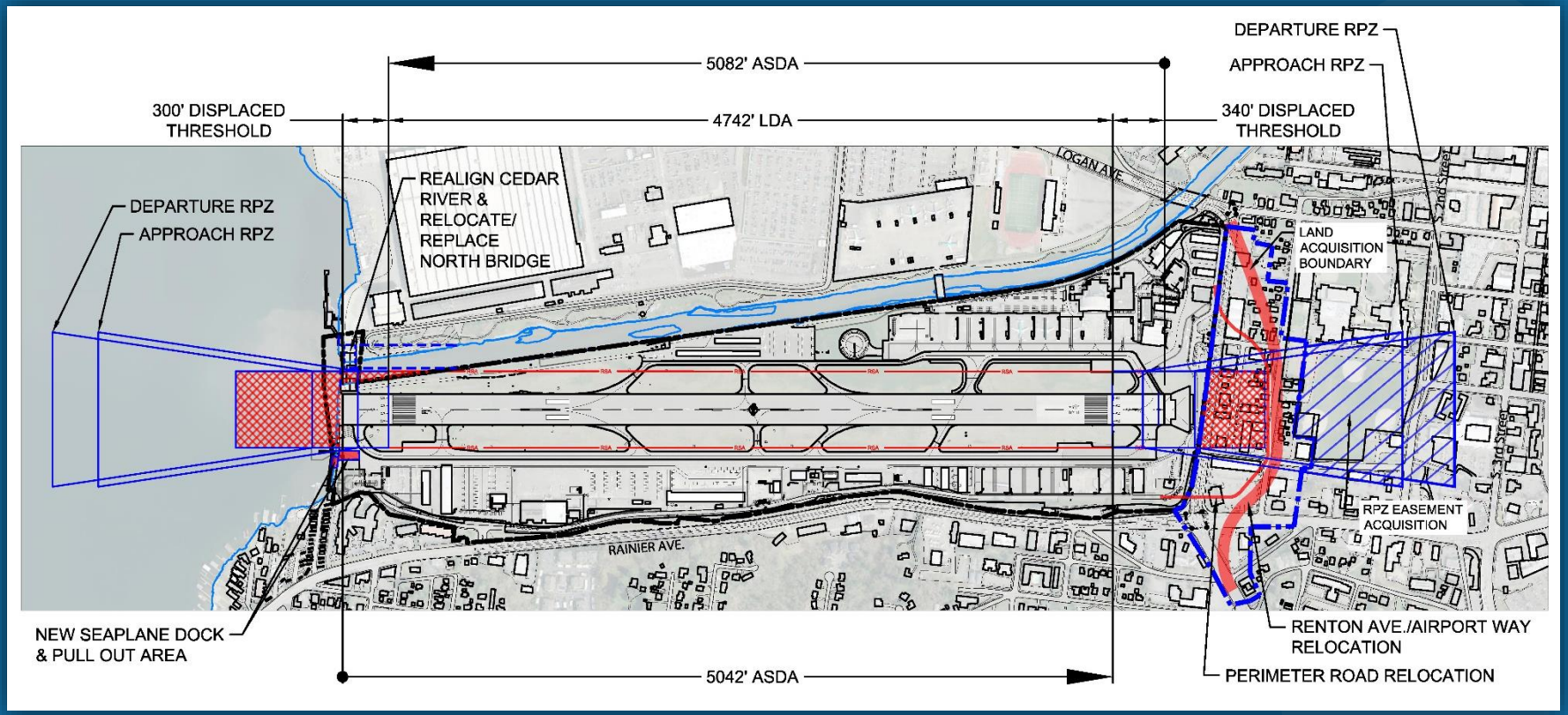
FAA Order 5200.8 *Runway Safety Area Program*

- **Traditional Graded RSA first, then:**
  a. Relocation, shifting, or realignment of the runway.
  b. Reduction in runway length where the existing runway length exceeds that which is required for the design aircraft,
  c. A combination of runway relocation, shifting, grading, realignment or reduction,
  d. Declared distances,
  e. Engineered Materials Arresting Systems (EMAS).

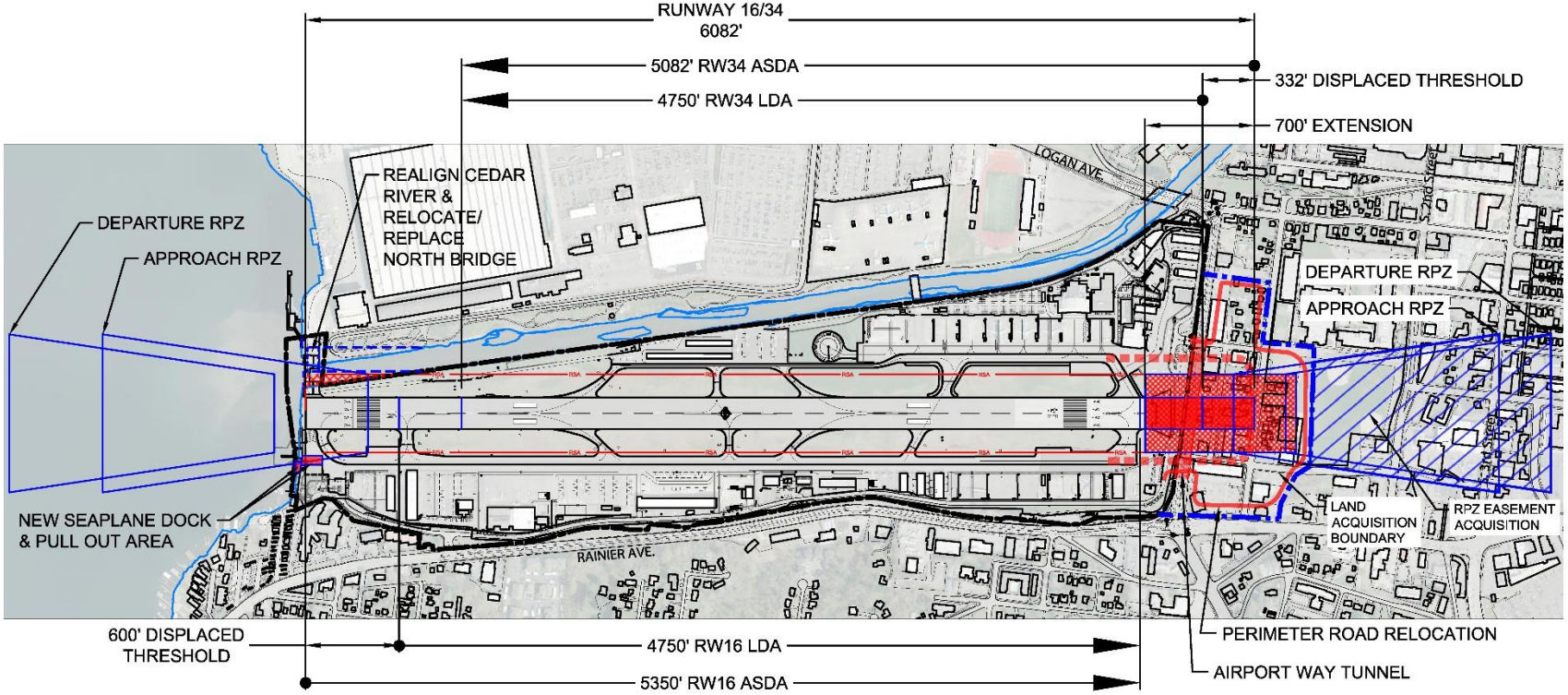
Runway Safety Area (RSA) Alternatives

- Alternative 1 – Traditional Graded RSA
- Alternative 2 – Declared Distances w/South Shift
- Alternative 3 – Declared Distances w/North Shift
- Alternative 4 – EMAS w/South Shift
- Alternative 5 – EMAS w/North Shift

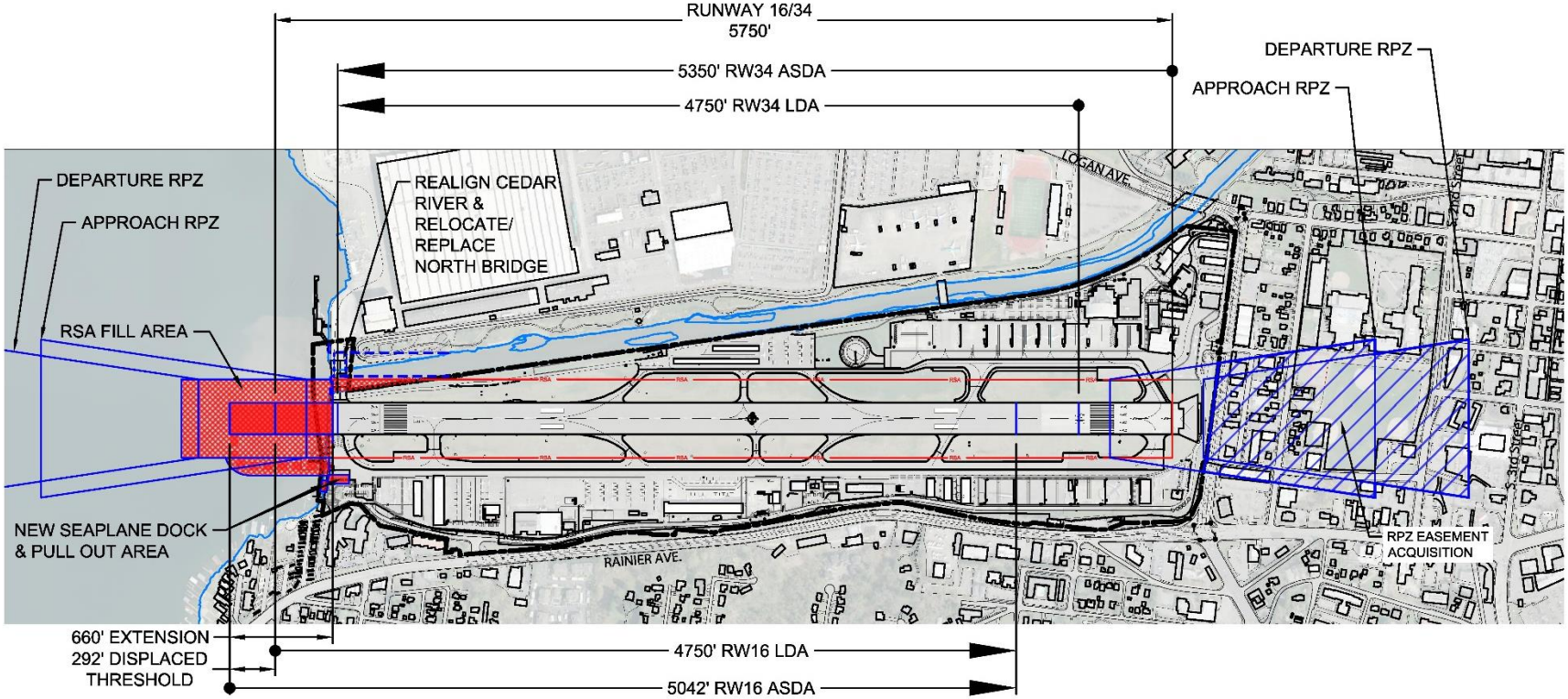
Alt 1 – Traditional Graded RSA



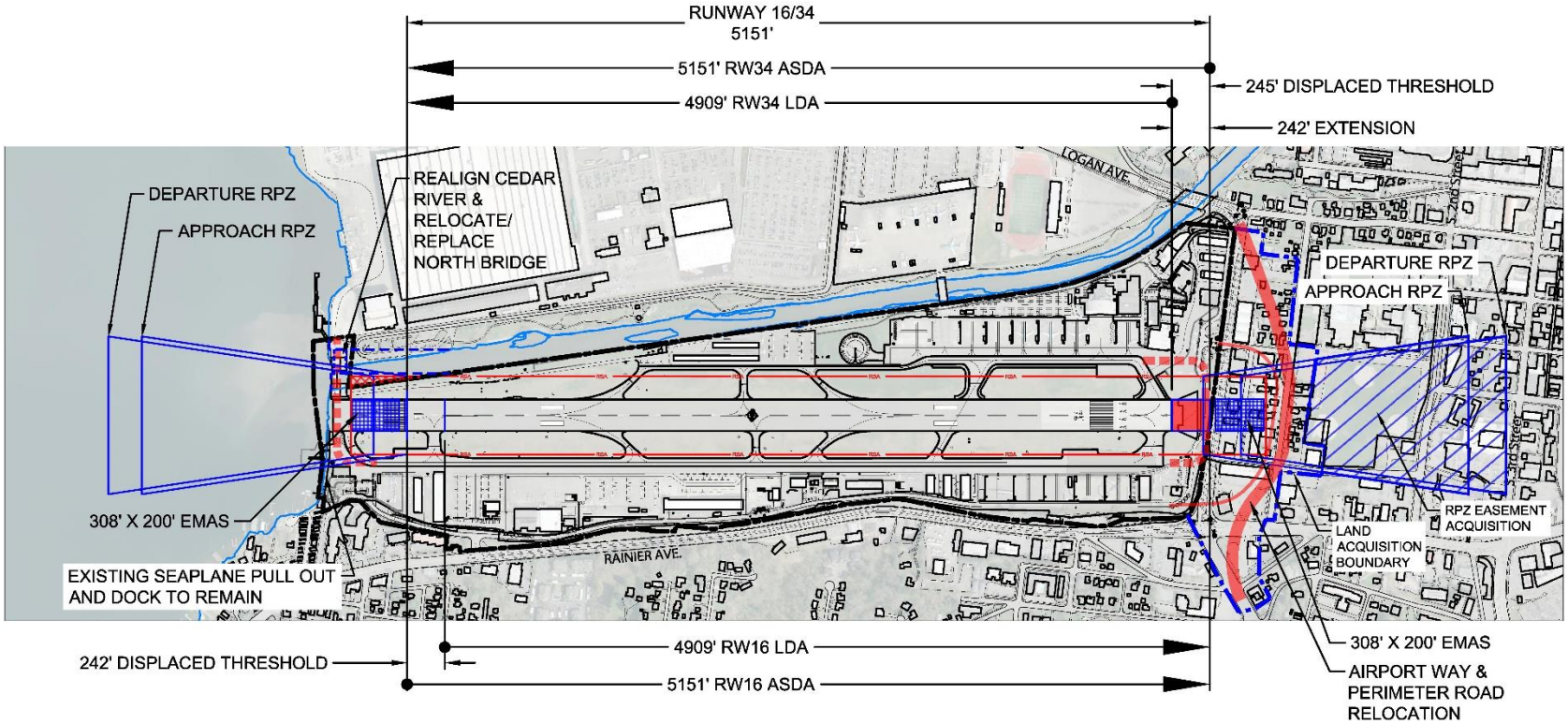
Alt 2 – Declared Distances w/South Shift



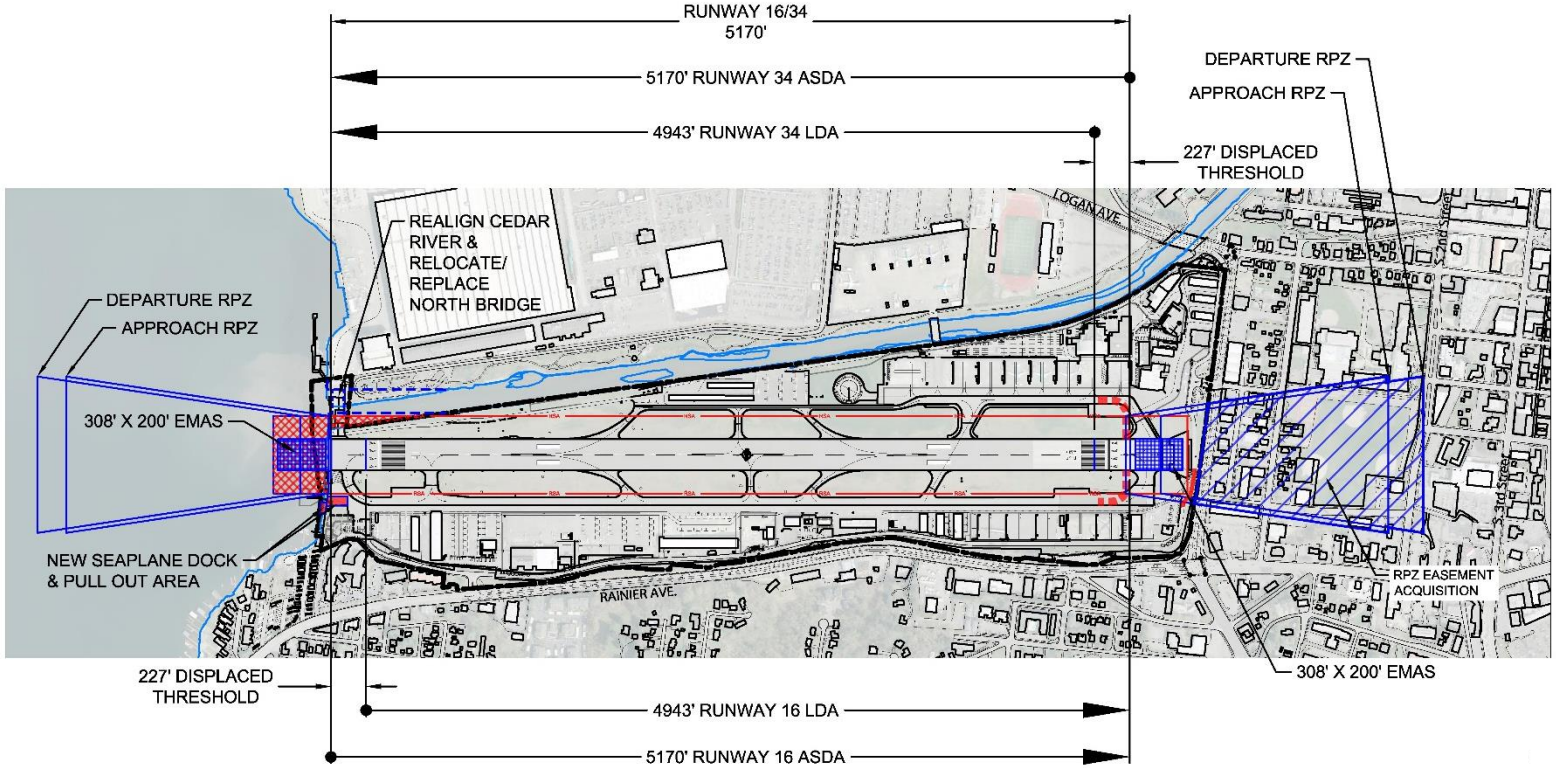
Alt 3 – Declared Distances w/North Shift



Alt 4 – EMAS w/South Shift



Alt 5 – EMAS w/North Shift



RSA Alternatives Cost Comparison

RSA Alternative	Land Acquisition Cost	Construction Cost	Total Cost
RSA Alternative 1 – Traditional Graded RSA	$23,402,200	$36,697,800	**$60,100,000**
RSA Alternative 2 – Declared Distances w/South Shift	$20,439,900	$93,460,100	**$113,900,000**
RSA Alternative 3 – Declared Distances w/North Shift	$0[1]	$56,900,000	**$56,900,000**
RSA Alternative 4 – EMAS w/South Shift	$20,061,900	$50,538,100	**$70,600,000**
RSA Alternative 5 – EMAS w/North Shift	$0[1]	$51,300,000	**$51,300,000**

[1] Alternatives 3 and 5 may require property acquisition and/or a long term easement from the Washington Department of Natural Resources. Costs for such an acquisition are unknown at this time.

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Screening Exercise

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Screening Exercise Instructions

Please visit each of the 5 stations

- At each station, consider the pros and cons of each alternative relative to the screening criteria.
- Use a dot to indicate, relative to the criteria, which alternative performs well (green) and which alternative does not perform well (red) relative to the criteria. For example you may decide at Station C (Off Airport Operational) to place a red dot on Alternative 1 because it requires the most land acquisition and a green dot on Alternative 5 because it requires no land acquisition.
- Note your thoughts about the alternatives on the flip charts that indicate why you placed your dots where you did. Either have the person stationed at the flip chart record your comment or use the Post It Note. At 4 of the 5 stations, please use your green/red dots.

Report Out and Group Discussion

- Placement of green dots observations
- Placement of red dots observations
- General comments/discussion

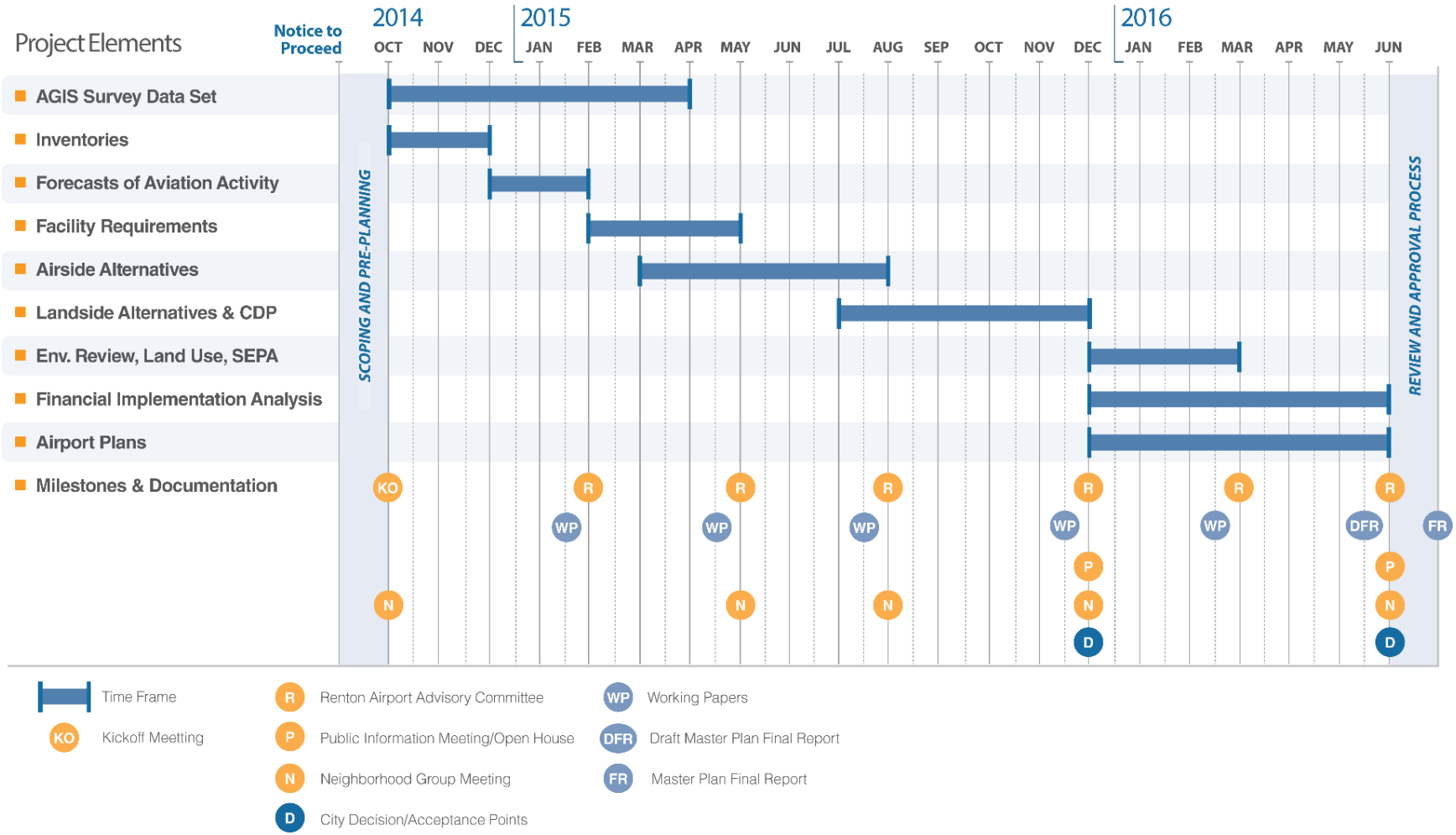
Important Take Aways

- RSA standards cannot be modified
- FAA must determine whether or not RSA can be improved to meet standards (practicability)
- There may be a financial threshold that determines practicability

Next Steps

- Analysis RPZ Alternatives
- Analysis of other non-standard conditions
- Working Paper and RAAC Meeting (November 2015)

Project Schedule



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Thank You!

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