T.F. Green
Airport Improvement Program

Coordination Group Meeting #4:
Supplemental Alternatives Analysis

July 25, 2006

Agenda

10:45 – 11:00	Sign-in
11:00 – 11:15	Welcome and Introductions
11:15 – 11:20	Meeting Objective
11:20 – 11:30	Review of Coordination Agreement Principles and Process
11:30 – 12:00	Report Back - Supplemental Alternatives Analysis - Integrated Cargo Options - Terminal Roadways
12:00	Bag Lunch
12:00 – 12:30	Questions on Report Back
12:30 – 1:30	Feedback – Pluses and Minuses
1:30 – 1:45	Break
1:45 – 4:00	Consensus Discussion

Meeting Objective

- Report back on findings of Supplemental Alternatives Analysis and refined Alternatives
- Receive input from Coordination Group on Supplemental Alternatives Analysis
- Come to consensus on the Range of Alternatives to be analyzed in the T.F. Green DEIS

Consensus Process

- Consensus Entities:
  - USACE
  - FHWA
  - EPA
  - USFWS
  - NITHPO
  - RIDEM
  - RIHPHC
  - RIDOT
  - RICRMC

Coordination Agreement Principles

1. Commit to identify environmental agency priorities

2. Identify the individual roles and responsibilities and statutory authority of each agency

3. Commit each agency to mutually respect the mission, technical expertise, and statutory authority of the other agencies and to help each other fulfill their mandates

4. Identify mutually agreed upon time frames for review

Coordination Agreement Principles

5. Include a method for understandings and agreements reached along the way (consensus points)

6. Include a provision for ensuring that the consensus points will not be revisited, unless there is substantive information or a substantial change that warrants reconsideration

7. Include a mutually acceptable, collaborative problem solving and issue resolution process

Issue Resolution - *Principle 7*

Consensus Point/Document to Agencies/Tribe → Meeting to Discuss → Comments to FAA → Revised Document

1. Consensus Point/ Document to Agencies /Tribe → 2. Meeting to discuss FAA Requests Completed Consensus Form → *15 Calendar Days* → 3. Agency/Tribe Submits Consensus Form

3. Agency/Tribe Submits Consensus Form → Accept

3. Agency/Tribe Submits Consensus Form → *7 Calendar Days* → Rejection in writing → 4. FAA Reviews Consensus Form, Documents Disagreement, Issue goes to next management level → 5. If no Consensus is reached follow CEQ Procedures (Federal ONLY)

Comments Received on Alternatives Analysis

- Explore utility of different runway lengths
- Examine other on- and off- airport locations for the integrated cargo element
  - 3 on-airport
  - Quonset
- Include an alternative with EMAS on all 4 runway ends
- Reevaluate on-airport roadway configuration

Alternatives Screening Process

Supplemental Alternatives Analysis

- Runway Length Technical Determination
- Runway Length Utility Evaluation
- Preliminary Wetland and Stream Bed Review
- Refinement of Options

Supplemental Alternatives Analysis

- Purpose:
  - Further explain how Operationally Preferred RW length of 9,350 feet for RW 5-23 length was determined
  - Determine utility of 9 different RW lengths ranging from 8,100 feet to 10, 700 feet (including the Operationally Preferred RW length) – examined passenger and cargo impacts

Runway Length Determination

- Conducted in strict accordance with FAA Advisory Circular (AC) 150/5325-4B, Runway Length Requirements for Airport Design
- The application of the methods contained in the AC is **mandatory** for airport projects receiving federal funding
- Similar process to determining number of required highway lanes

Runway Length Determination

- Followed five step process
  - Step 1: Identify the critical design airplane
  - Step 2: Identify the airplanes requiring the longest runway length at Maximum Take-Off Weight (MTOW)
  - Step 3: Establish the recommended runway length
  - Step 4: Select the recommended runway length
  - Step 5: Apply necessary adjustments to the recommended runway length to identify the operationally preferred runway length

Runway Length Determination

- AC 150/5325-4B requires that RW length not be planned for aircraft that have < 500 annual operations, nor aircraft that have the most operations at an airport
- Consulted aircraft manufacturers' Airport Planning Manuals to identify aircraft performance characteristics
- Contacted airlines and aircraft manufacturers for specific operational requirements

Runway Length Determination

- Based on technical and operational requirements as mandated by the FAA, 9,350 ft is the minimum runway length that fully meets the Purpose and Need

Runway Length Utility Evaluation

- Evaluated in terms of ability to accommodate payload (Passengers, baggage, and cargo)
- According to airlines, if payload reductions are required, cargo would be the first to be removed, followed by passengers and baggage
- Airlines must fill nearly all available seats on any given flight to cover costs
- Cumulative annual passenger and cargo impacts determined at each runway length by a detailed analysis for all the forecasted West Coast capable aircraft in the fleet

Findings

5-23 Runway Length (feet)	Annual Passenger Payload Reduction 2012	Annual Passenger Payload Reduction 2020
8,100	99,840	213,359
8,300	83,235	165,239
8,600	43,824	108,109
8,800	24,794	57,235
9,000	14,082	25,899
9,350	---	---
9,600	---	---
10,700	---	---

- Runway lengths > 9,350 ft do not provide additional utility in terms of aircraft being able to accommodate passengers and baggage
- The operationally preferred runway length of 9,350 feet allows the forecast fleet to operate at T.F. Green with some cargo penalties, but without passenger payload penalties

Findings

- A RW length of 9,350 feet accommodates all passenger payloads for the entire fleet mix
- A 9,350-foot RW results in payload reductions for cargo only for the critical design aircraft
- Reducing RW length < 9,350 feet begins to reduce passenger carrying capability of the aircraft and compromises the Airport's ability to serve its own market area, an FAA goal
- A RW length of 9,350 feet can accommodate:
  - majority of the total aircraft fleet (92 %)
  - majority of the most common air carrier (88 %)
  - majority of the critical aircraft (66 %) at MTOW traveling 2,300 NM

Preliminary Wetland and Stream Bed Review

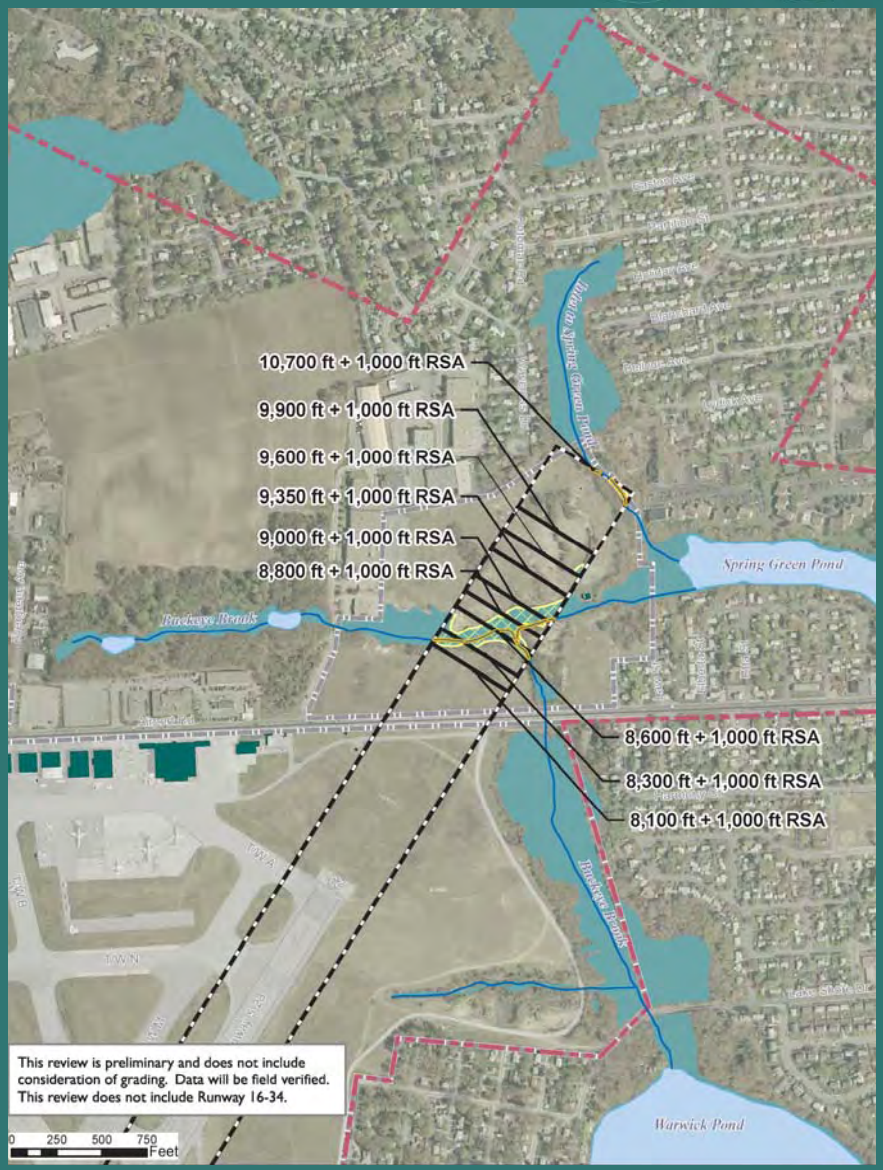
- To specifically respond to questions raised by the US EPA, US Army Corps of Engineers
  - Identify wetland and stream bed impacts associated with nine different runway length ranging from 8,100 feet to 10, 700 feet
  - Identify wetland and stream bed impacts associated with the five 9,350-foot runway length and roadway alternatives identified in March 2006 (Options A through E)

Preliminary Wetland and Stream Bed Review

- Analysis is preliminary; does NOT constitute a thorough assessment of environmental impacts
- Focused on north end of Runway 5-23
- Does not include RW 16-34 or taxiways

Wetland and Stream Resources

Analysis looks at wetland and stream impacts at different runway lengths

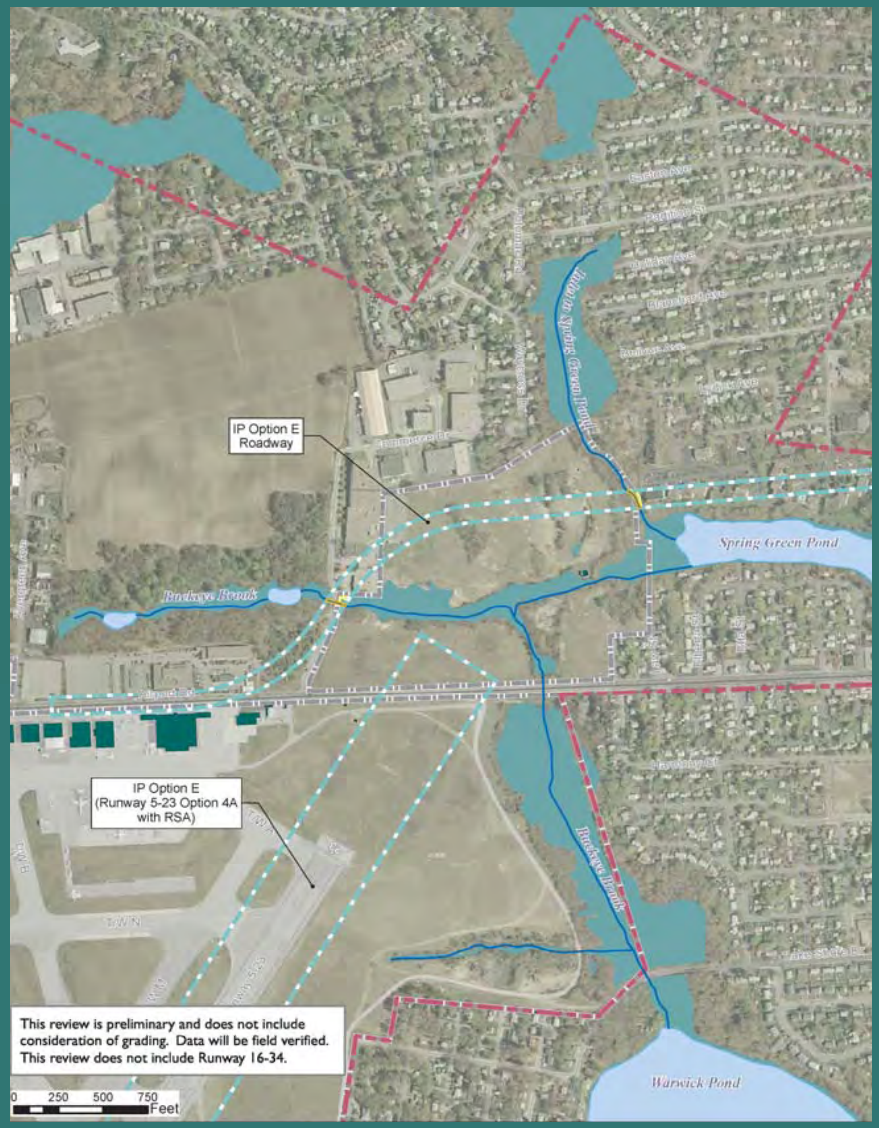


Runway 5-23 Resource Impacts Comparison

Runway Length (feet)	Approx. Stream Bed Impacts (linear feet)	Approx. Wetland Impacts (acres)
8,100	0	0.0
8,300	160	0.2
8,600	457	0.9
8,800	725	1.3
9,000	860	1.7
9,350	901	1.9
9,600	901	1.9
9,900	901	2.0
10,700	1,128	2.1

Comparing Program Options

Analysis compares the Program Options



Program Options - Preliminary Impacts

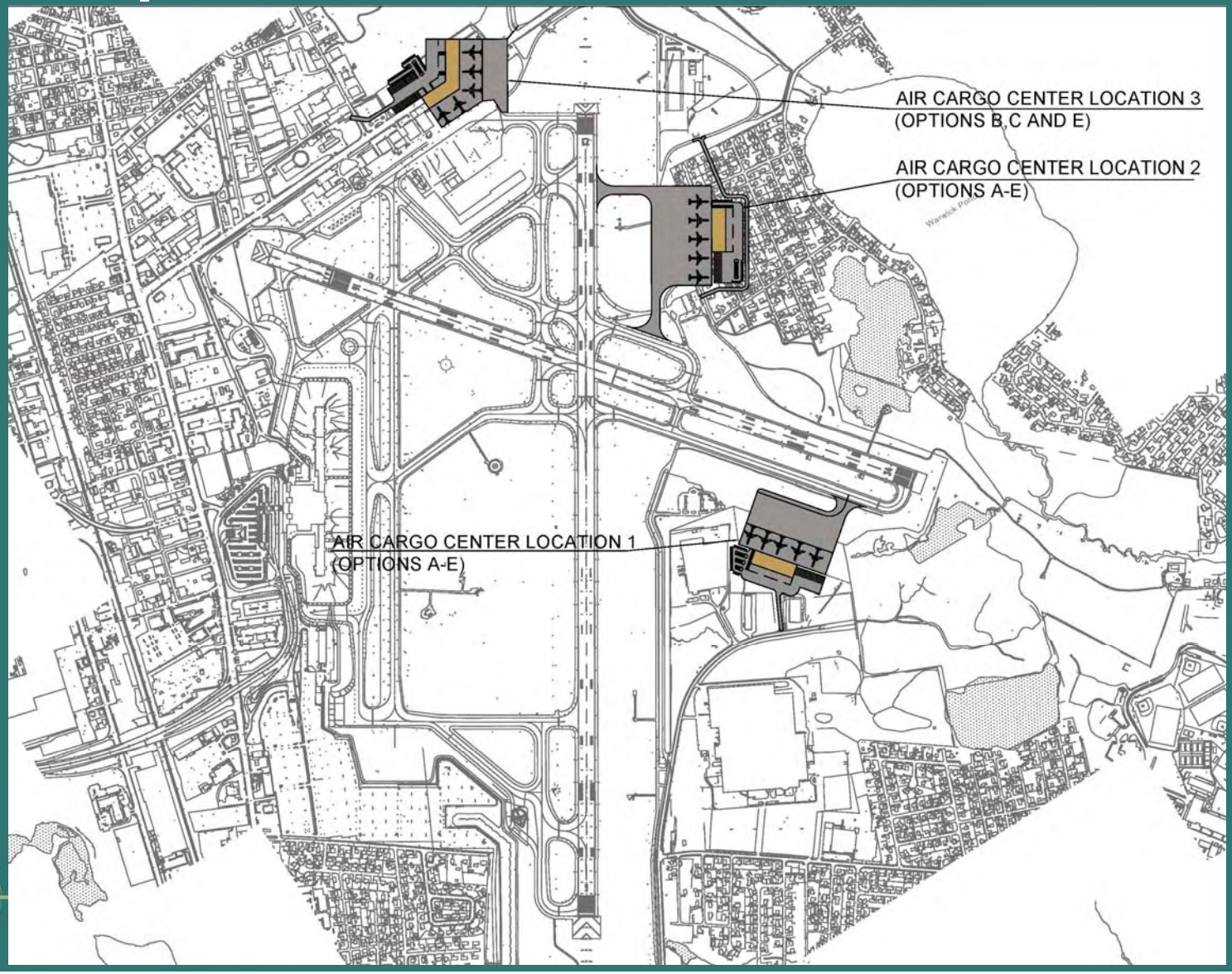
IP Option	Stream Bed Impacts (linear feet)	Wetland Impacts (acres)
IP Option A Total	0	0.0
Runway	0	0.0
Roadway	0	0.0
IP Option B Total	1,531	3.7
Runway	1,478	3.4
Roadway	53	0.3
IP Option C Total	435	0.3
Runway	0	0.0
Roadway	435	0.3
IP Option D Total	0	0.0
Runway	0	0.0
Roadway	0	0.0
IP Option E Total	220	0.1
Runway	0	0.0
Roadway	220	0.1

On-Airport Cargo Options

- Adjacent to Runway 16-34
- West of Warwick Pond
- North Ramp Area
- Quonset

On-Airport Cargo Locations

3 Options



Feasibility of Integrated Cargo at Quonset

- TF Green Airport site visit
  - Met with Federal Express officials
  - Existing off-site facility analysis (sort facility and transportation routes)
  - Existing on-site cargo facility analysis (aircraft parking apron, ramp access, security, future aircraft options)
- Quonset Airport site visit
  - Off-site facility analysis (potential sort facility locations and transportation routes analyzed)
  - Identification of potential on-site cargo facility development

Terminal Roadways

- Issues:
  - Gateway/Entrance
  - On-Airport Circulation
  - Impacts to hotels
  - Impacts to Post Road
  - Intermodal Station

Programs to be Carried Forward into Environmental Consequences Analysis

- **Common Program Elements**
  - Relocate Taxiway C
  - Demolish Hangar No. 1
  - Expanded Terminal
  - Improved Terminal Area Roadways

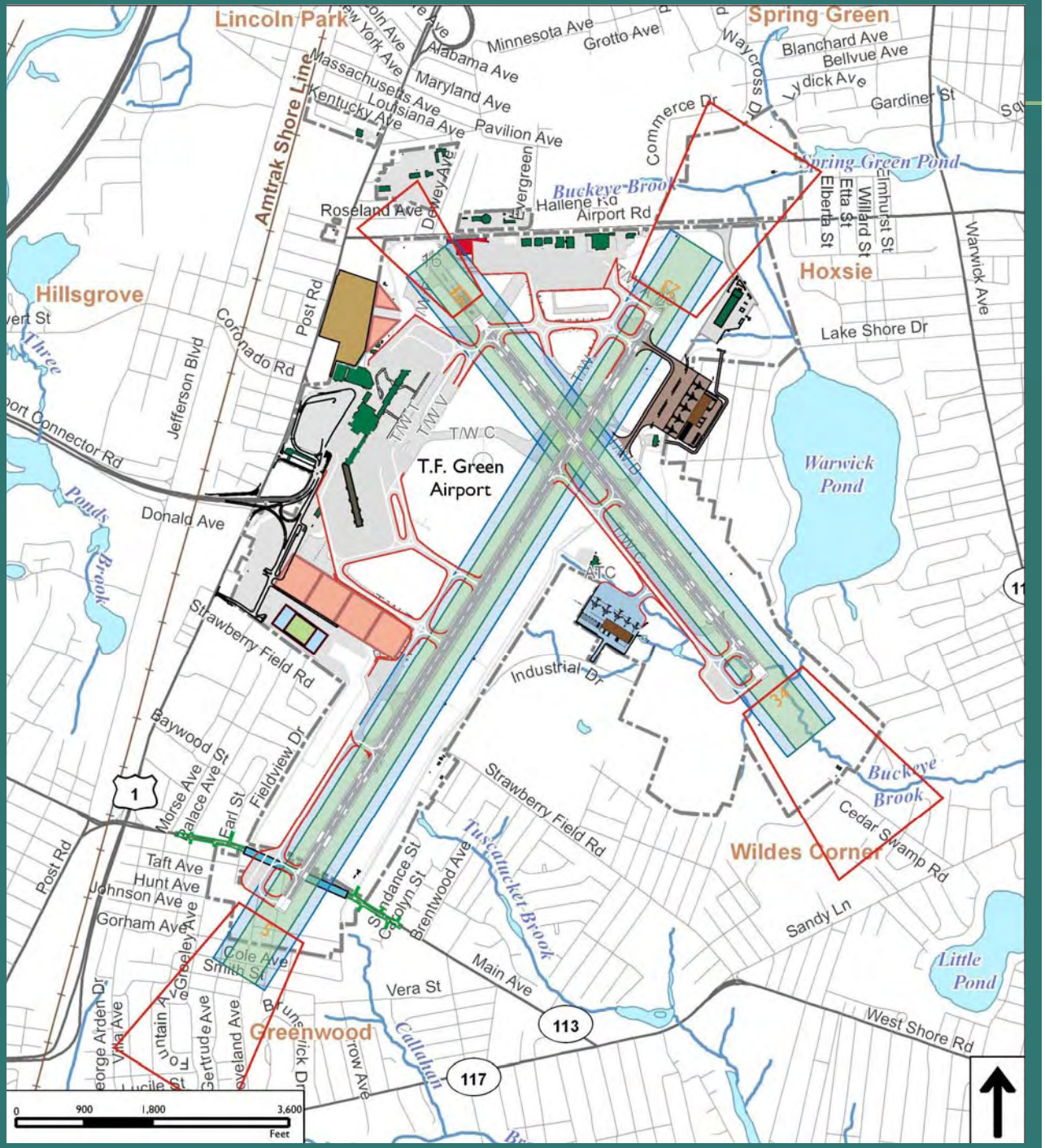
Programs to be Carried Forward into Environmental Consequences Analysis

- **Program Elements with Location Options**
  - RW 16-34 RSA Improvements
  - RW 5-23 Runway Extension
  - Expanded Fuel Farm
  - Integrated Cargo Facility
  - Parking
  - Replacement Belly Cargo and GSE Facilities

Program Option A

Avoid Airport Road

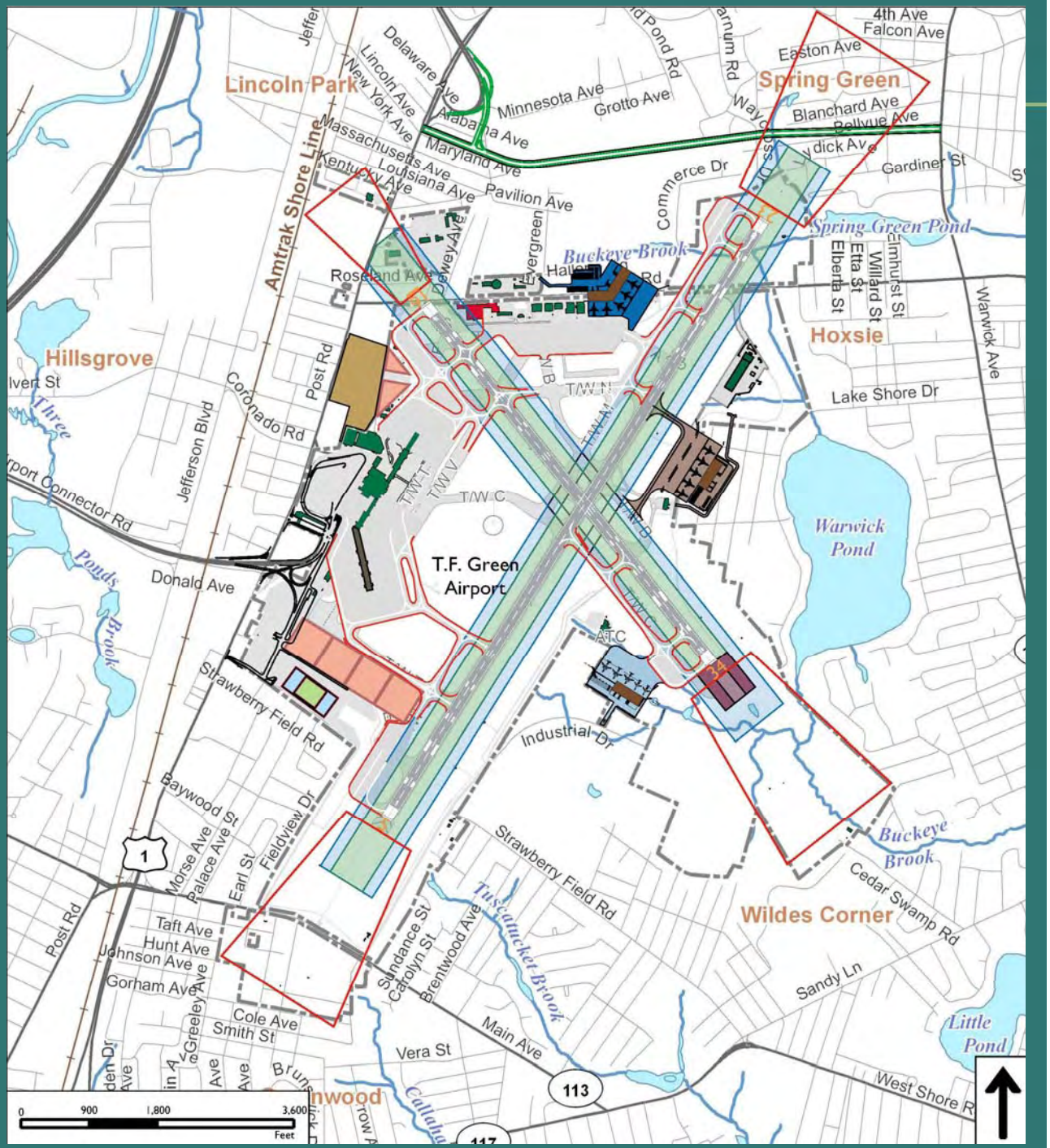
- Tunnels Main Ave
- Avoids impacts to Airport Road
- Impacts to residential land to south and commercial land to north
- Impacts Buckeye Brook (south)
- Impacts wetlands (south)



Program Option B

Avoid Main Avenue & Buckeye Brook South

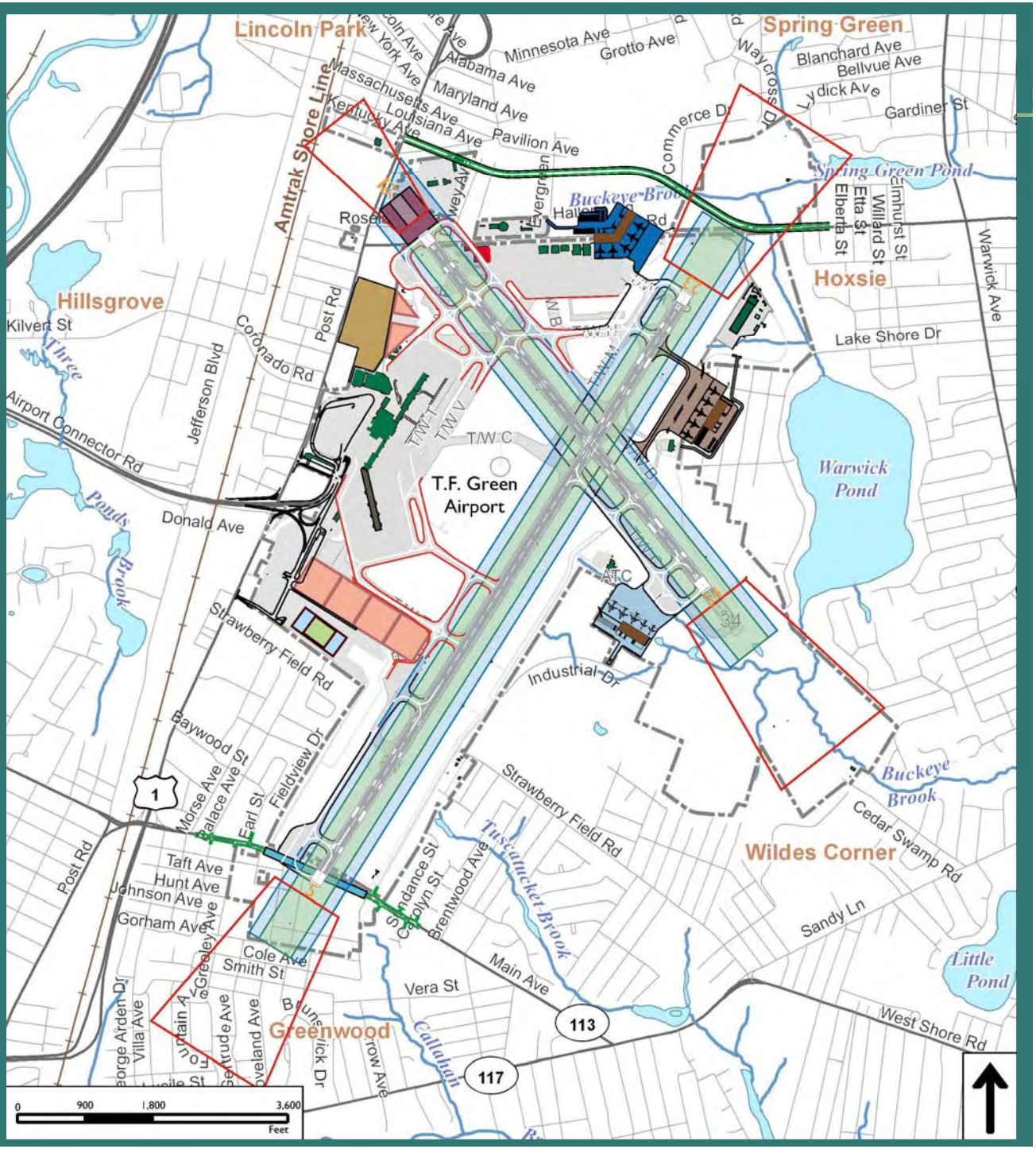
- Avoids impacts to Main Avenue
- Relocates Airport Road
- Impacts residential land commercial and to north
- Impacts Buckeye Brook (north)
- Impacts to wetlands (north)



Program Option C

Avoid Buckeye Brook

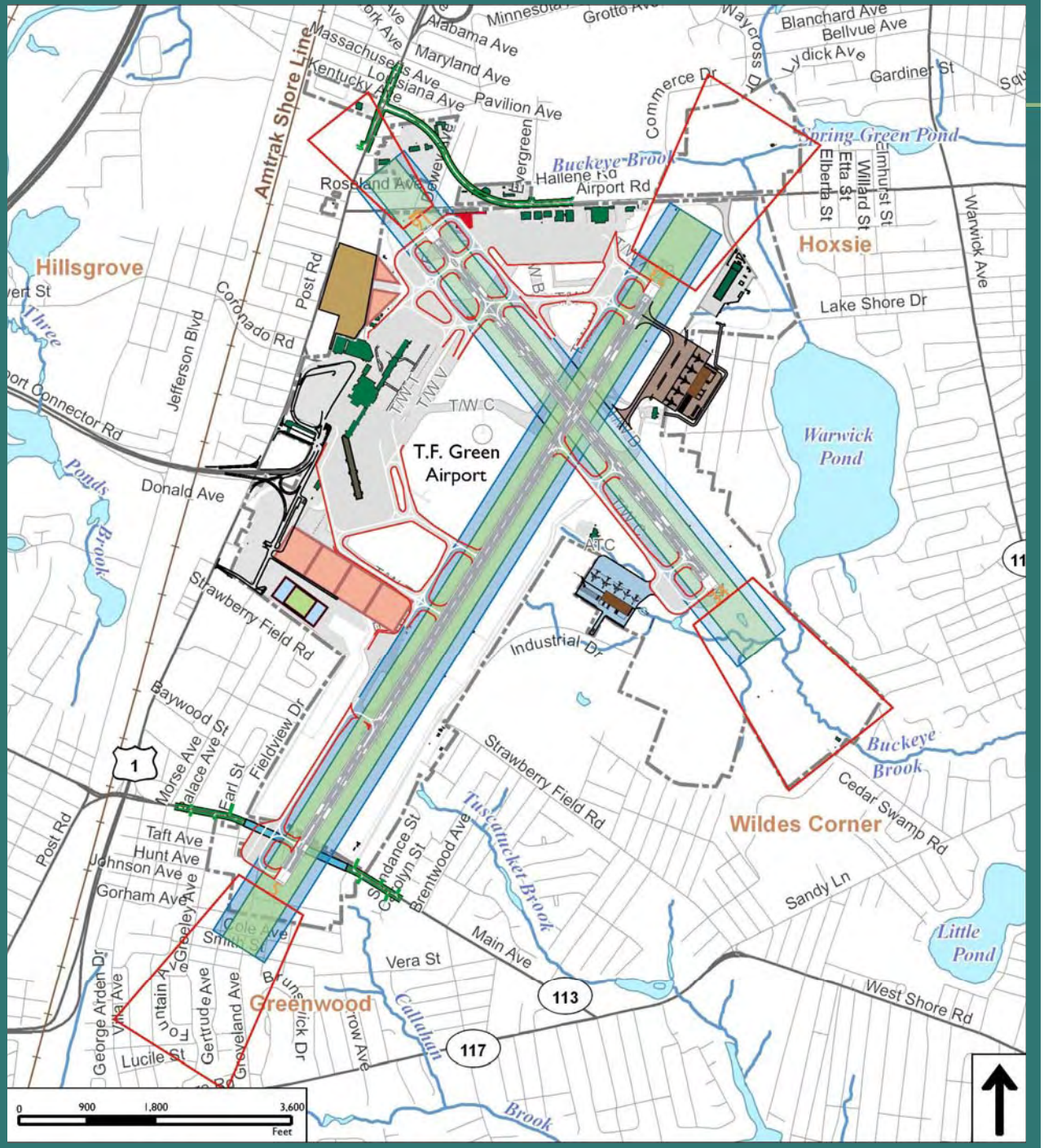
- Tunnels Main Ave
- Relocates west end of Airport Road
- Impacts residential land to south and commercial land to north
- Avoids Buckeye Brook



Program Option D

Avoid Buckeye Brook/ Minimize Airport Road Relocation

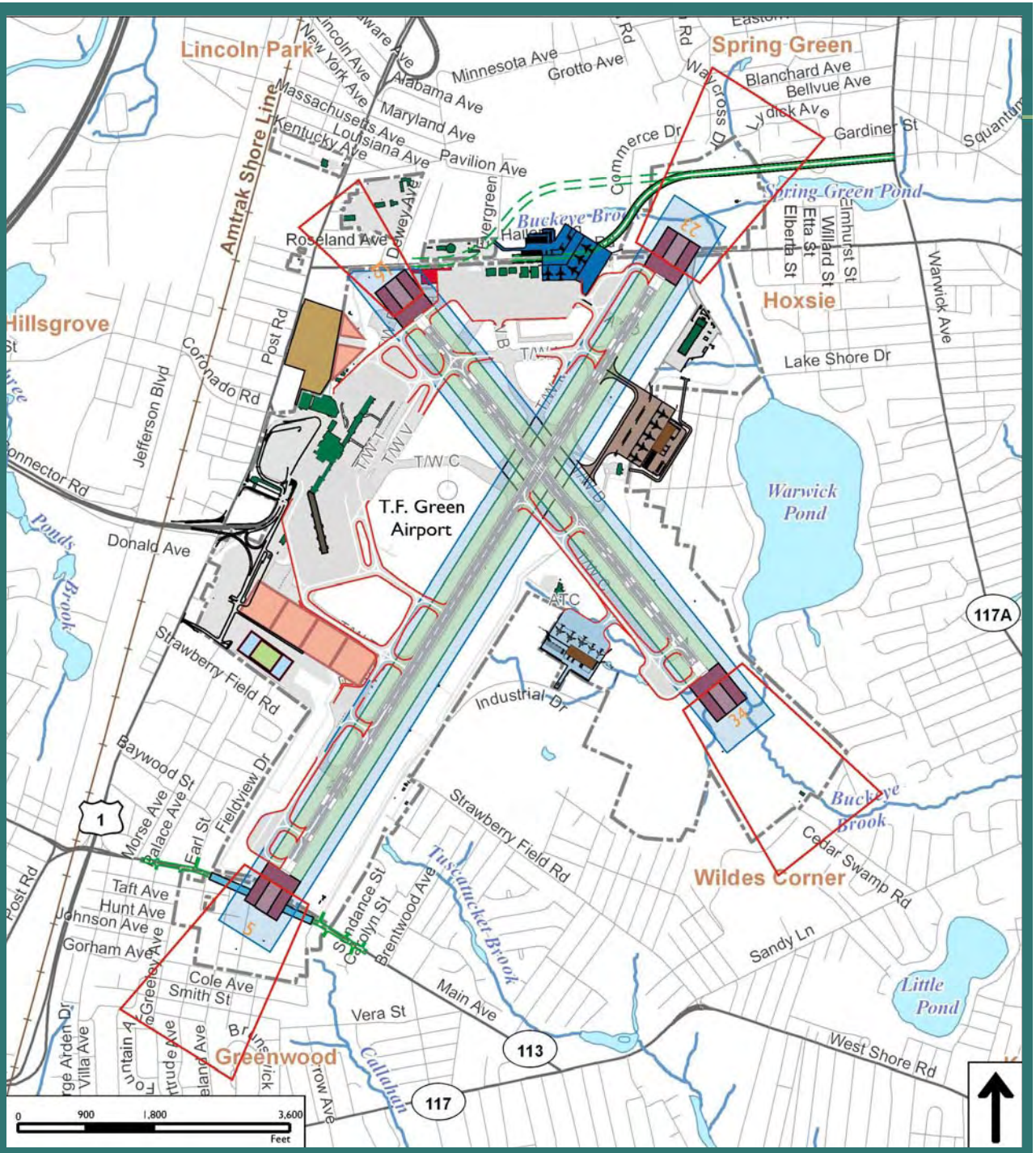
- Tunnels Main Ave
- Relocates east end of Airport Road
- Impacts residential land to south and commercial land to north
- Avoids Buckeye Brook
- Impacts wetlands (north)



Program Option E

Avoid Buckeye Brook/Minimize Airport Road Relocation/ Use EMAS on 5-23

- Revised to include EMAS at all 4 RW ends
- Tunnels Main Ave
- Relocates east end of Airport Road
- Impacts residential land to south & north
- Avoids Buckeye Brook
- Impacts wetlands (south)

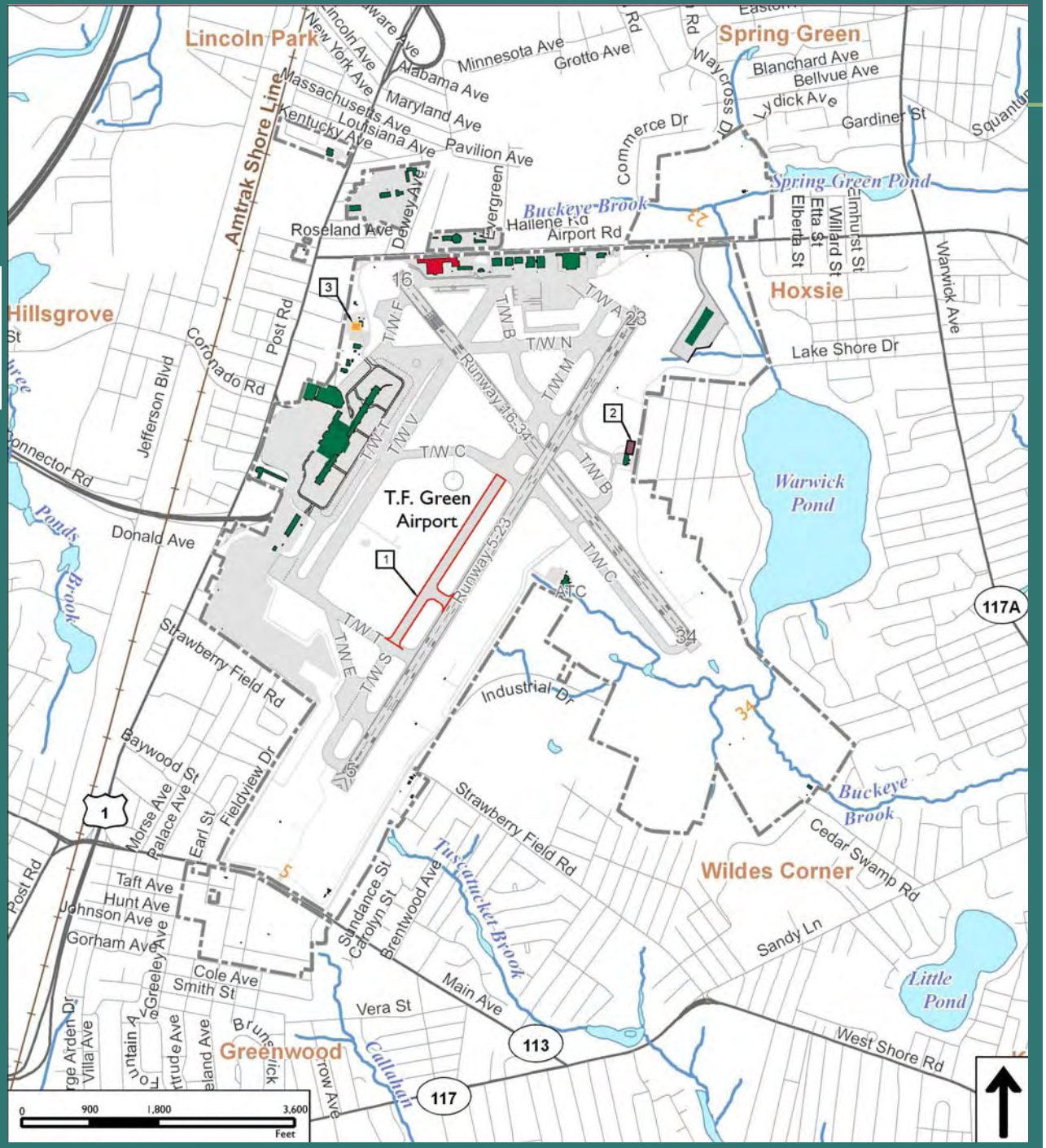


No-Action Alternative

- Projects:
  - Internal Terminal Improvements
  - ARFF Upgrade
  - New Maintenance Facilities
  - Fuel Farm Upgrade
  - Routine Maintenance & Improvements

No-Build Option

1	Taxiway S-M Connections
2	ARFF Station Expansion
3	150,000 Gallon Fuel Farm Storage Expansion



Consensus Discussion

- Pluses and Minuses
- Discussion

Alternatives Screening Process: Next Steps

Agency / Tribe and Public Input

Evaluate Environmental Consequences

Refine Alternatives Identify Preferred Alternative

Determine Appropriate Mitigation

Upcoming Meetings

- Environmental Consequences & Mitigation
  - Spring 2007
- Preferred Alternative & Mitigation
  - Summer 2007
- DEIS Filing & Public Hearings
  - Fall 2007