

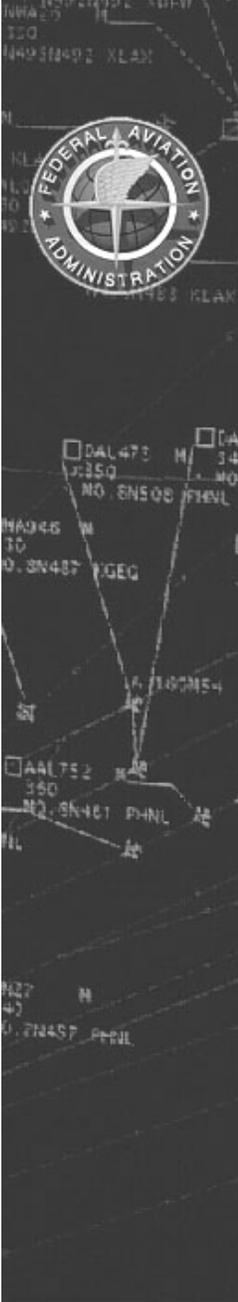
BRIEFING FOR FEDERALLY-FUNDED ATCT BUILD PROCESS

January 20, 2005

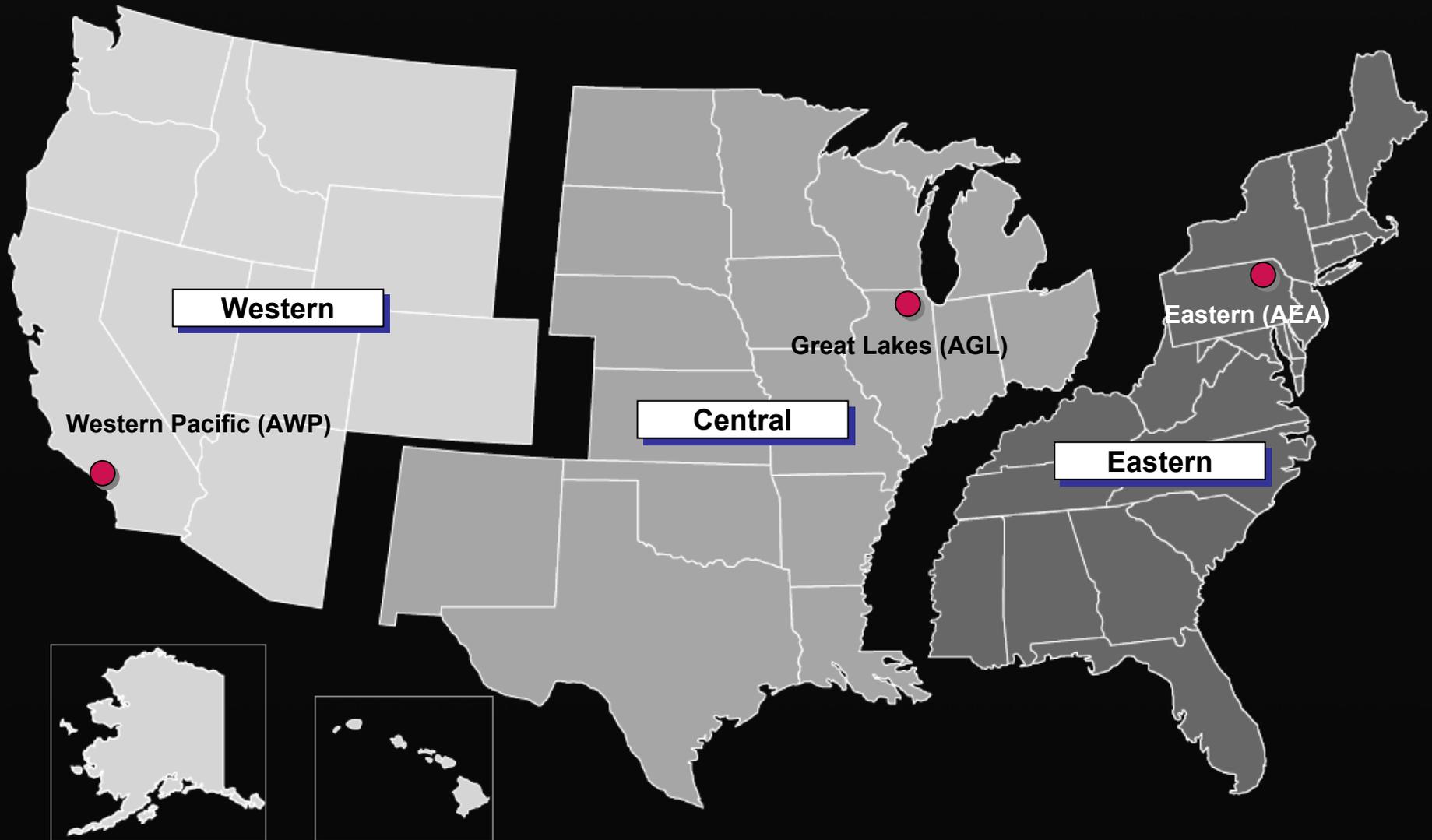


From ATB to ATO . . .

- The original effort to document the process of a tower project began during the early days of the Terminal Business Service realignment. Since that time, the Air Traffic Organization came into being with a national effort to standardize the work surrounding ATCT siting, construction, etc. Fortunately for the Great Lakes Region (now part of the Central Service Area in ATO), the methods and practices used in AGL are similar to the standards being implemented within the ATO. From siting a new facility at AFTIL (example: looking at multiple sites and not a single location), to standard design and safety concepts, the intent is to standardize towers thus reducing capital as well as life-cycle costs over the life-span of the facility. The following pages document a process with the intent of explaining the many nuances of successfully commissioning a new air traffic control tower. . .

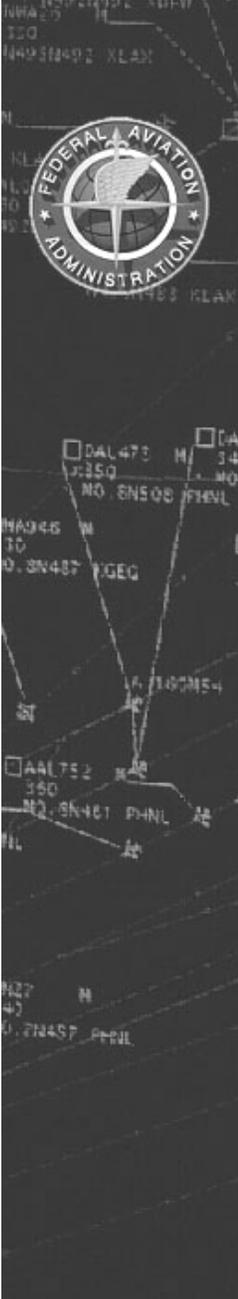


Terminal Service Areas



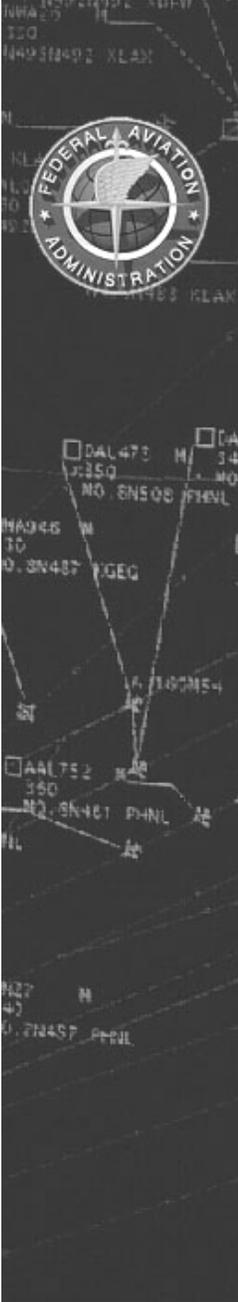
Process Overview:

- Flowchart Development Team (FDT)
Background/Purpose
- FDT Time Line
- Phase Descriptions/Highlights



Flowchart Development Team Background/Purpose

- Created in February 2003 to develop/document a comprehensive flowchart reflecting the entire FAA ATCT build process
- Participation by over 20 FAA Program Offices
- Final Product intended for both **internal** and **external** (Sponsors) customers



Flowchart Development Team: Time Line

- **February 2003-February 2004**

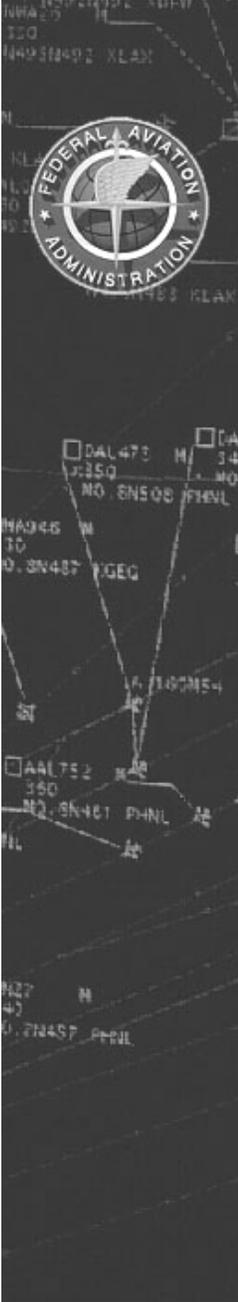
Developed the 6 identified phases of the ATCT build process

- **May 5, 2004**

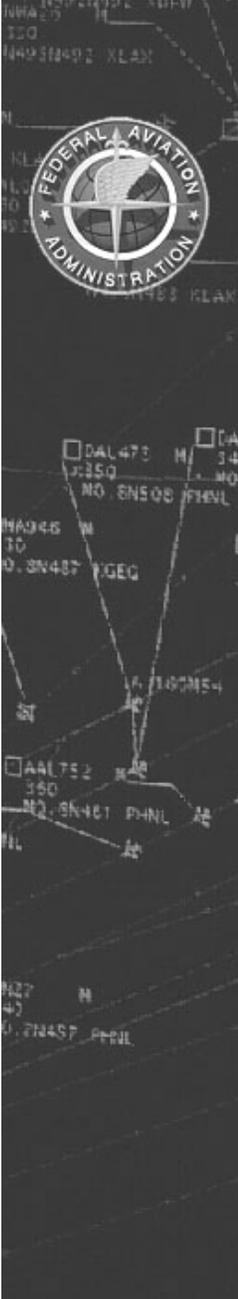
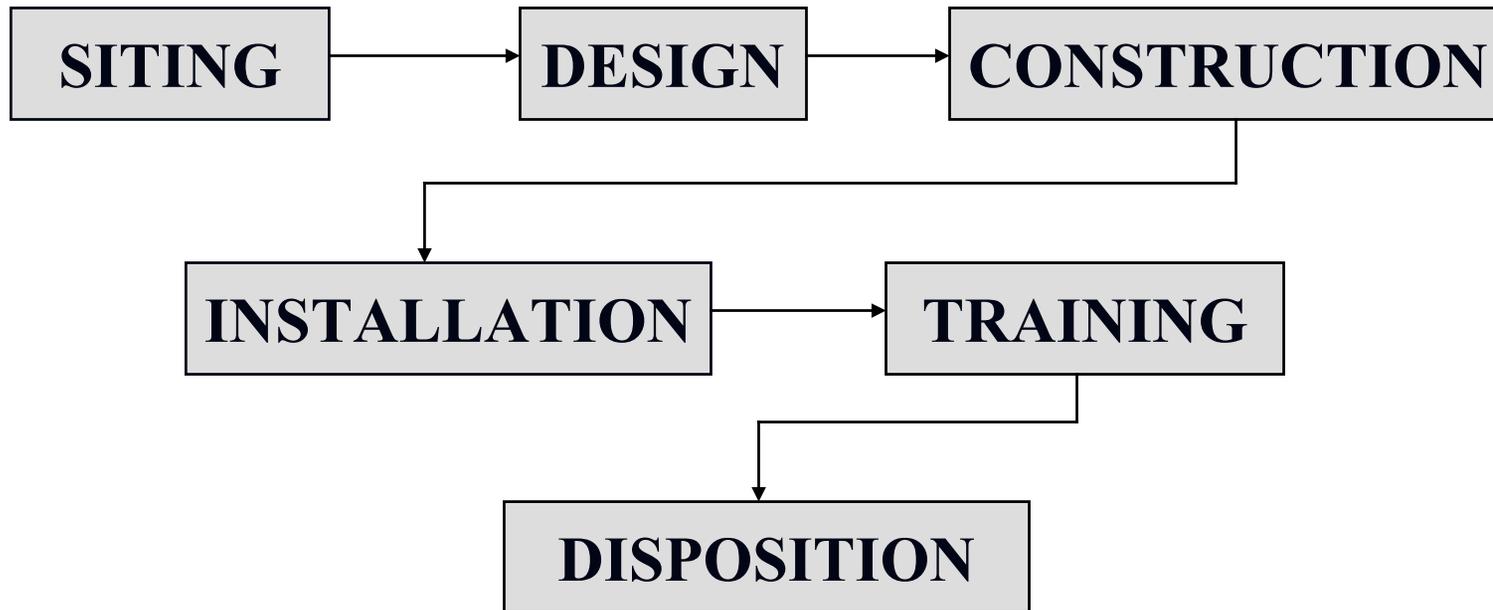
Final Review Meeting

- **TBD**

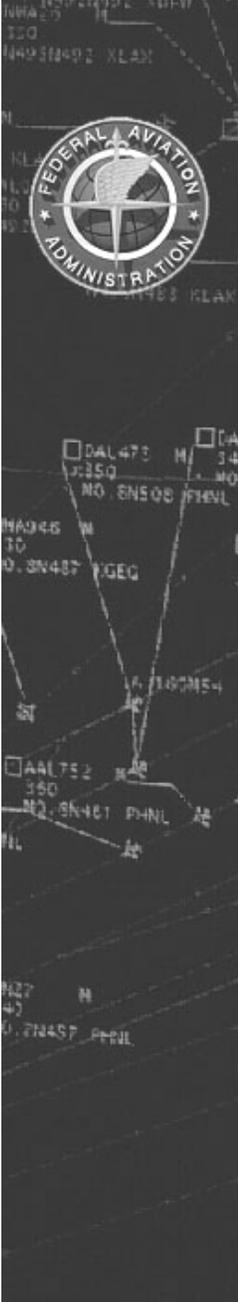
Incorporation of Sponsor-driven activities into the ATCT build process



ATCT Build Process: 6 PHASES of Significant Effort



SITING PHASE



FAA ATCT BUILD PROCESS FLOWCHART: SITING PHASE

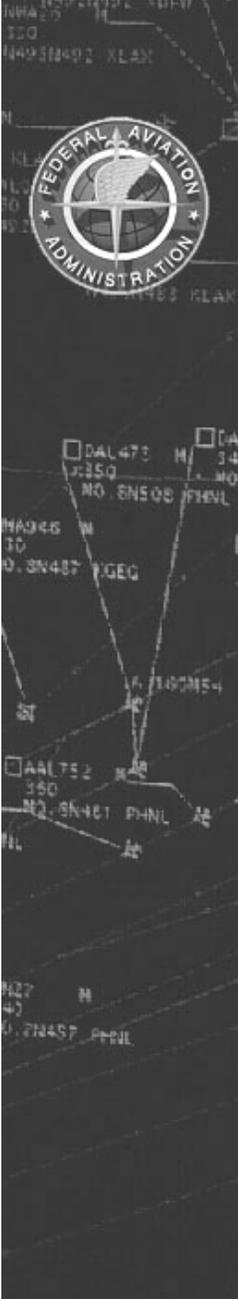


FAA / INTERNAL		SPONSOR / EXTERNAL		ACTIVITY
PROCESS	DELIVERABLE	PROCESS	DELIVERABLE	
(1) Call for Requirements (projects) sent to local AT/AF (2) Joint Requirements Submission by local AF/AT routed through SMO and then back to AGL-420 (ACTION ITEMS 1, 2)	(1) Call for Requirements Memo (AGL-420) sent to Field AF/AT (2) Joint Projects Submission (local AF/AT) sent back to AGL-420			BUDGET CALL ↓
Joint Requirements Submission reviewed by AGL-510/AGL-473 for completeness (Staff Studies) and accuracy (Scope of Work) (ACTION ITEMS 3, 4)	(1) Validated list of submitted requirements (AGL-510, AGL-473) sent to AGL-420			BUDGET VALIDATION ↓
ANI-440 reviews Validated Joint Requirements Submission and prepares Cost Estimates for each project based on internal data (ACTION ITEM 5)	(1) Cost Estimates for each submitted requirement (ANI-440) sent to AGL-420			ANI COST ESTIMATES ↓
AGL-420 enters all submitted Requirements information into PRS. (ACTION ITEMS 6, 7)	None			BUDGET CYCLES 1-6 & PROJECT AUTHORIZATION ↓

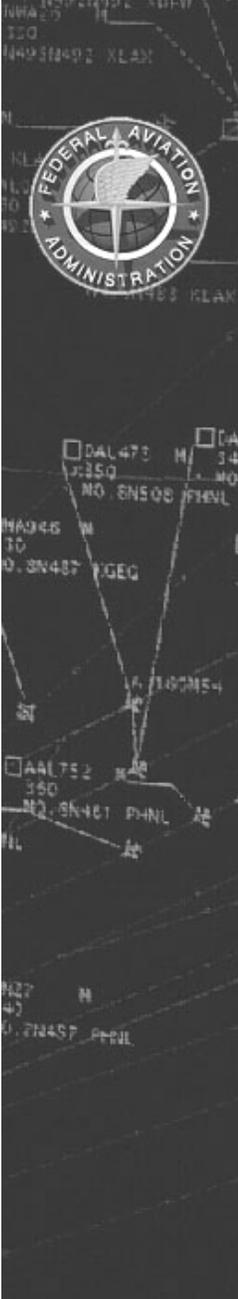


FAA ATCT BUILD PROCESS FLOWCHART: SITING PHASE

FAA / INTERNAL		SPONSOR / EXTERNAL		ACTIVITY
PROCESS	DELIVERABLE	PROCESS	DELIVERABLE	
<p>Siting Includes Siting Kick-off Meeting and review meetings to review all potential sites based on siting criteria (FAA Order 6480.4A, approved ALP, and documented ALP changes).</p> <p>Note: the Siting Report is no longer done ahead of time. (ACTION ITEMS 8-11)</p>	(1) None.			<p>ATCT SITING</p>
<p>The siting team identifies initial sites, runs TERPS, NASWATCH and performs visibility analysis. A minimum of three sites are chosen. An SMS assessment is also conducted on the sites. (ACTION ITEM 12)</p>	<p>(1) Siting Team selects at least three sites</p> <p>(2) SMS comparative safety assessment is conducted on three preferred sites.</p>			<p>AT SITING VALIDATION VIA AFTIL</p>
<p>Airspace submittal consists of an NR Study, which is used to establish NAVAIDS and other high-impact systems simultaneously. (ACTION ITEM 14)</p>	<p>(1) Airspace Case (ANI-440) initiated at AFTIL</p> <p>(2) Airspace Case Study (AGL-520) forwarded to appropriate LOB's for review and comment</p>			<p>FULL AIRSPACE SUBMITTED</p>

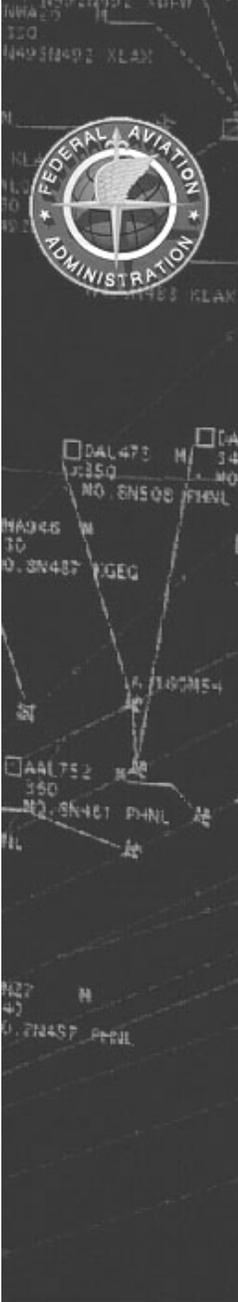


FAA ATCT BUILD PROCESS FLOWCHART: SITING PHASE

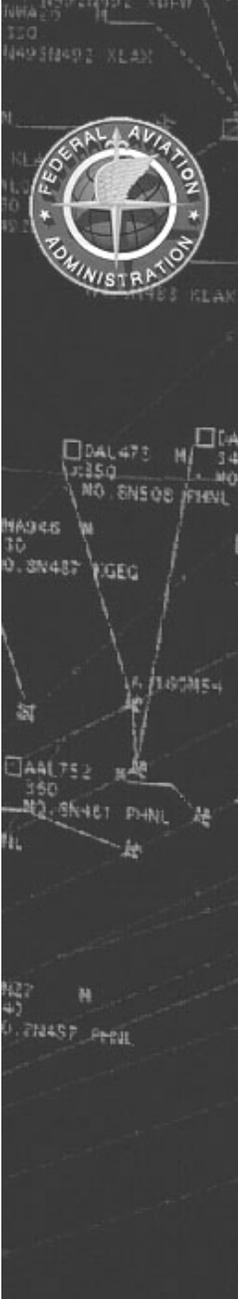


FAA / INTERNAL		SPONSOR / EXTERNAL		ACTIVITY
PROCESS	DELIVERABLE	PROCESS	DELIVERABLE	
The Phase I EDDA is typically considered the Liability Assessment. This includes a site visit, records search, regulatory review, geologic/hydroelectric review and title search (ACTION ITEM 15)	(1) Completed Phase I EDDA (ANI-430) provided to ANI-440, AGL-470 and AGL-55R			INITIATE & COMPLETE PHASE I EDDA
Approved (signed by ANI-400 and AGL-400) Phase I EDDA needed by AGL-55R to initiate Land Lease negotiations. Legal Land Survey is also required. (ACTION ITEMS 21, 22)	(1) Land Survey and Leasing PR (ANI-440) forwarded to AGL-55R			INITIATE LAND LEASE PR
The NEPA evaluates the impacts of proposed federal action or use, and the effects of future land use. Note: Cannot complete NEPA until 100% Siting Report is completed. (ACTION ITEM 23)	None			INITIATE NEPA DRAFT
Favorable Airspace Determination is needed to complete the 100% Siting Report, as well as a current ALP. ANI-440 notifies ADO of Favorable Airspace Determination, which prompts the ADO to update the ALP. (ACTION ITEMS 16-29)	(1) Copy of Favorable Airspace Determination (ANI-440) forwarded to ADO (2) ALP is updated (ADO)			100% SITING REPORT

DESIGN PHASE



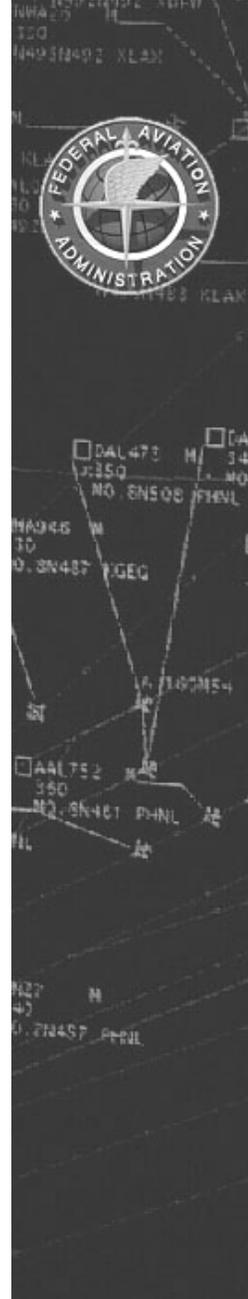
FAA ATCT BUILD PROCESS FLOWCHART: DESIGN PHASE



FAA / INTERNAL		SPONSOR / EXTERNAL		ACTIVITY
PROCESS	DELIVERABLE	PROCESS	DELIVERABLE	
<p>Design Kick-Off Meeting begins the design work by the A/E firm. Milestone design packages are submitted to ANI-440 to distribute for review.</p> <p>Note: The date of the Design Kick-Off meeting is coordinated between the A/E firm and the ANI-440 Programs Manager. Once a date has been reached, then the A/E firm has XX days after the meeting to begin Design. (ACTION ITEMS 31-38)</p>	<p>(1) A/E firm submits design package to ANI-440 at milestone intervals</p> <p>(2) ANI-440 distributes A/E design package to relevant LOB's (AGL-471, AGL-474, AGL-510, local AT/AF, Security) for review and comment</p>			<p>DESIGN BY A/E</p>
<p>Comments to the A/E design packages from the internal review are consolidated by the project manager. If substantial comments exist, then a Design Review meeting is called.</p> <p>Note: It is around the 35% design level when AGL-474 meets with the local telco to establish Routes and also meets with local AF to determine what equipment is going into the telco room. (ACTION ITEMS 39-44)</p>	<p>(1) AGL-474 provides list of equipment that will be placed in telco room to the ANI-400 electronics engineer</p>			<p>DESIGN REVIEW BY FAA</p>

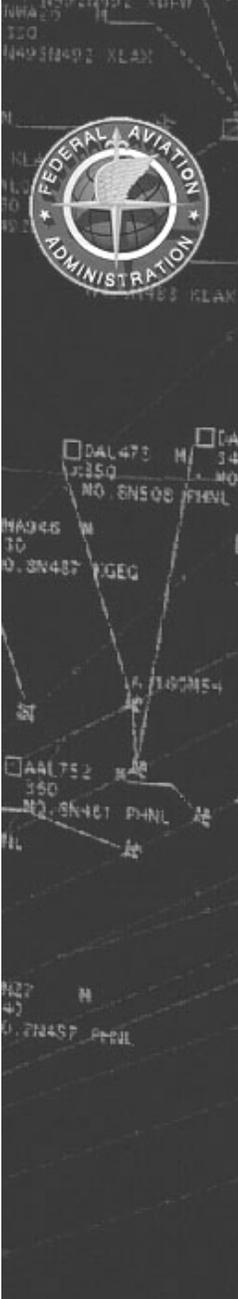
FAA ATCT BUILD PROCESS FLOWCHART: DESIGN PHASE

FAA / INTERNAL		SPONSOR / EXTERNAL		ACTIVITY
PROCESS	DELIVERABLE	PROCESS	DELIVERABLE	
<p>This visit represents the second trip to AFTIL (the first one was conducted during the Siting Phase) and is considered the "re-validation" visit. Participants should all agree on size and orientation. A second video is also created. (ACTION ITEM 31)</p>	<p>(1) ANI-440 initiates design contract PR which is forwarded to AGL-55A once approved by ANI-400 and HQ</p>			<p>CAB SIZE/ORIENTATION MOCK-UP</p>
<p>Reviewed by Logistics (Scope of Work, Engineering). Design contract PR is submitted to Logistics at the same time. Note: A signed FONSI or ROD and signed EIS is required prior to solicitation/advertising. (ACTION ITEMS 32-34)</p>	<p>(1) ANI-440/AGL-55A initiate Award and Notice to Proceed</p>			<p>DESIGN CONTRACT SOLICITATION/AWARD</p>
<p>Prepared by either ANI-440 or A/E firm. This package consists of the profile of what the ATCT will look like, along with its elevations and orientations. (ACTION ITEM 35)</p>	<p>(1) A/E firm provides preliminary design package to ANI-440 for review</p>			<p>10% CONCEPTUAL DESIGN/FLOORPLANS</p>
				<p>↓</p>

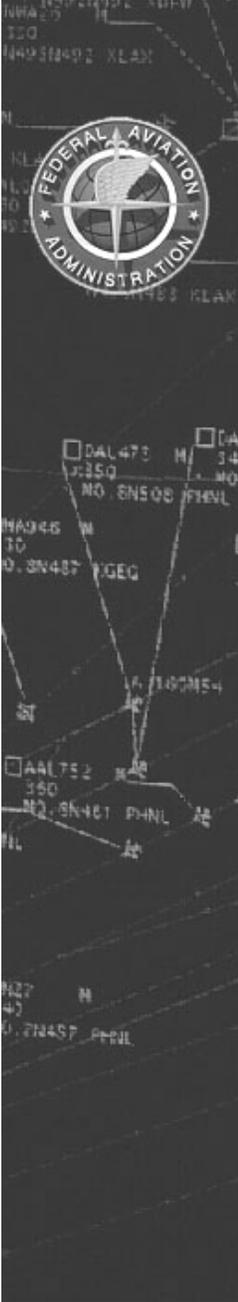


FAA ATCT BUILD PROCESS FLOWCHART: DESIGN PHASE

FAA / INTERNAL		SPONSOR / EXTERNAL		ACTIVITY
PROCESS	DELIVERABLE	PROCESS	DELIVERABLE	
Usually occurs before 75% design level. The mock-up is conducted at AFTIL for all of the electronics. The mock-up confirms that the actual design sizes and arrangements match the conceptual sizes and arrangements. (ACTION ITEMS 45-47)	(1) ANI-440 electronics engineer develops final equipment layout for the tower cab (2) ANI-440 develops video/pictures showing final layout			EQUIPMENT PLACEMENT MOCK-UP
Final design package includes Cost Estimate as well as final design plans and drawings. Note: 7460 Obstruction Evaluation must be approved before the 60% Design Review. (ACTION ITEM 48)	(1) A/E firm provides the final design package to ANI-440 (2) ANI-440 then forwards the final package to all internal terminal stakeholders for review			FINAL DESIGN BY A/E
This meeting may take place in the RO or via telecon. Note: The Environmental Assessment must be completed prior to Construction Award, whereas the approval of the EDDA and the completion of the lease must occur before Construction may begin. (ACTION ITEMS 49, 50)	(1) Internal stakeholders forward any comments to the final design package to ANI-440 for consolidation			FINAL DESIGN REVIEW BY FAA

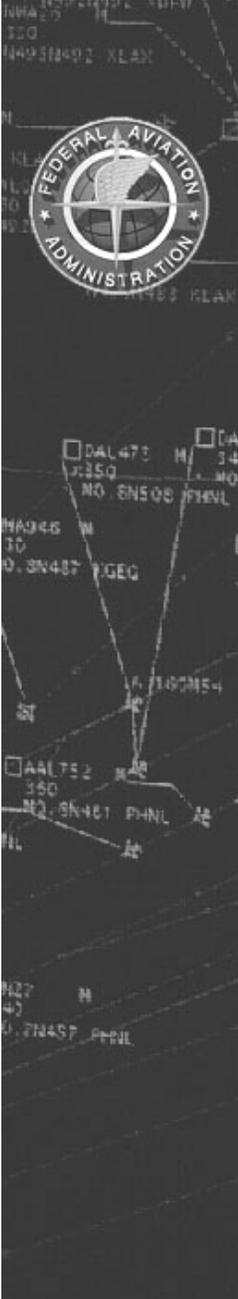


CONSTRUCTION PHASE



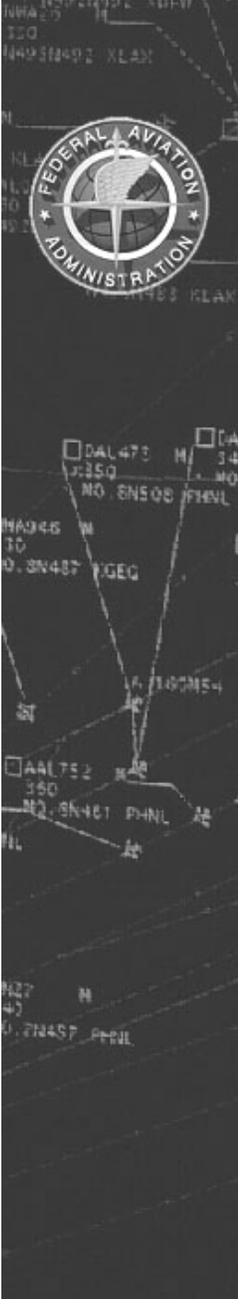
FAA ATCT BUILD PROCESS FLOWCHART: CONSTRUCTION PHASE

FAA / INTERNAL		SPONSOR / EXTERNAL		ACTIVITY
PROCESS	DELIVERABLE	PROCESS	DELIVERABLE	
<p>PR is sent to Logistics to procure the construction contract. Once the contract is approved, the solicitation is sent to Legal and bidding of the construction contract begins. Final award is reviewed by Headquarters if it is over \$3M. (ACTION ITEMS 51-56)</p>	<p>(1) Construction transmittal and PRs, Cost Estimate, and Engineering/Design package (ANI-440) are sent to AGL-55R and AGL-55A</p> <p>(2) Logistics forwards the Construction Solicitation to Legal</p>			<p>CONSTRUCTION CONTRACT SOLICITATION/AWARD</p>
<p>Pre-Construction meeting between ANI-440, Logistics, Contractor, SMO, Airport and sub-contractor held to discuss intent and scope of work.</p> <p>Note: The Pre-Con meeting occurs before the Notice to Proceed and may or may not occur before the Ceremonial Groundbreaking. (ACTION ITEMS 57-62)</p>	<p>None</p>			<p>GROUNDBREAKING</p>

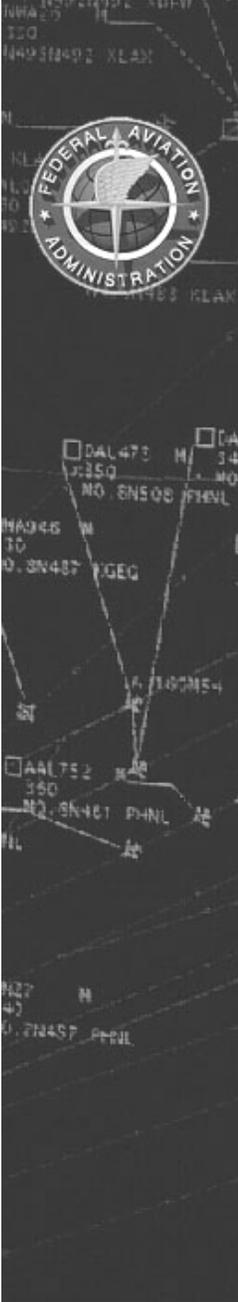


FAA ATCT BUILD PROCESS FLOWCHART: CONSTRUCTION PHASE

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PROCESS	DELIVERABLE	PROCESS	DELIVERABLE	
<p>Shop Drawing Reviews are conducted throughout the construction period by A/E firm and ANI-440. Drawings are submitted by Contractor to the FAA and reflect the contractor's interpretation of how he will build to specifications. These reviews are also considered Quality Assurance reviews.</p> <p>Note: The FAA determines which, if any, Shop Drawings need to be forwarded to the A/E firm for review.</p> <p>Note: After Construction Start, the Electronics Engineering begins Usually at 25-50% Construction). (ACTION ITEMS 63-74)</p>	<p>(1) Shop Drawings are submitted by the construction contractor to the A/E firm and ANI-440</p>			<p>CONSTRUCTION</p>
<p>BOD occurs when the Punch List between the FAA and the Contractor has been completed. This milestone triggers the Installation Phase. (ACTION ITEM 65)</p>	<p>None</p>			<p>BENEFICIAL OCCUPANCY DATE (BOD)</p>
<p>Construction Contractor Acceptance (CAI) is the contractual sign-off of the Plants JAI. ANI-440 and the SMO are involved in this activity.</p> <p>Note: BOD allows for the CAI. (ACTION ITEM 66)</p>	<p>(1) ANI-440 and SMO complete the contractual sign-off of Plants JAI</p>			<p>CONSTRUCTION CAI/ PLANTS JAI</p>



INSTALLATION PHASE



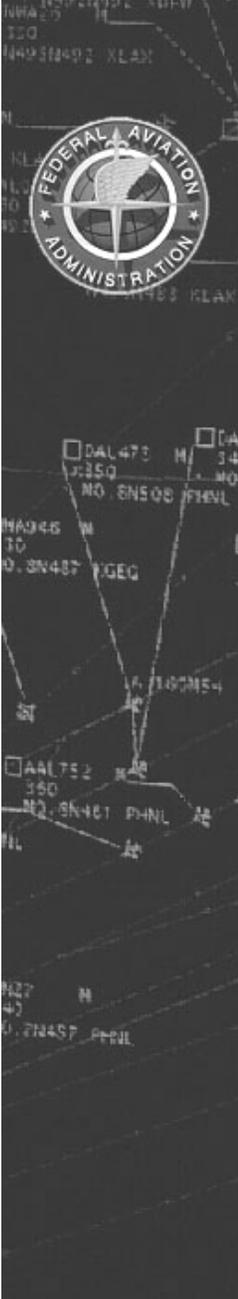
FAA ATCT BUILD PROCESS FLOWCHART: INSTALLATION PHASE

FAA / INTERNAL		SPONSOR / EXTERNAL		ACTIVITY
PROCESS	DELIVERABLE	PROCESS	DELIVERABLE	
Partial BOD of key installation areas start some of the infrastructure installation. (ACTION ITEMS 66-68)	(1) Approved CAI and Partial BOD of key installation areas and systems are signed by ANI-440 (2) Integrated Project Schedule outlining engineering and installation activities is developed by ANI-440 (3) Infrastructure engineering package (which includes rack layout and equipment, console drawings and end-state diagrams) is developed by ANI-440			↓ PARTIAL BOD FOR KEY INSTALLATION AREAS ↓
Scope of work is defined and material will be released in PCN. (ACTION ITEM 64)	(1) ANI-440 provides copies of electronics engineering transmittals to SMO, SSC, AGL-470 and AGL-52. Up to 45 days are allowed for review.			↓ INITIAL ELECTRONICS ENGINEERING ↓
Transition Planning is included in the electronics engineering review package. (ACTION ITEMS 69-70)	(1) ANI-440 incorporates comments from initial review and resubmits for final review (2) ANI-440 sends Electronics engineering package to SMO and Facility AF for review and acceptance			↓ ELECTRONICS ENGINEERING REVIEW ↓

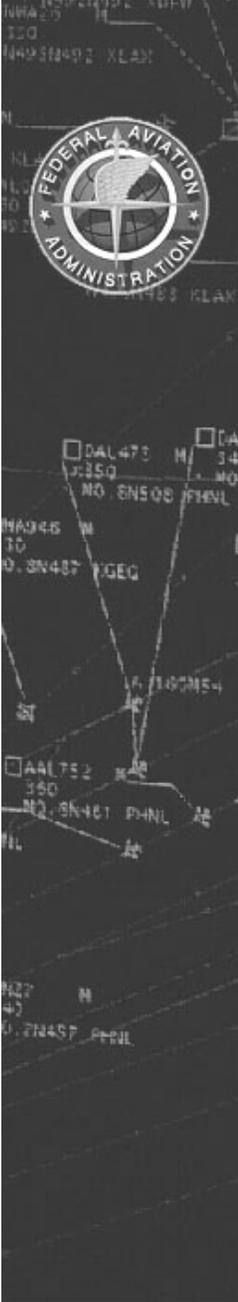


FAA ATCT BUILD PROCESS FLOWCHART: INSTALLATION PHASE

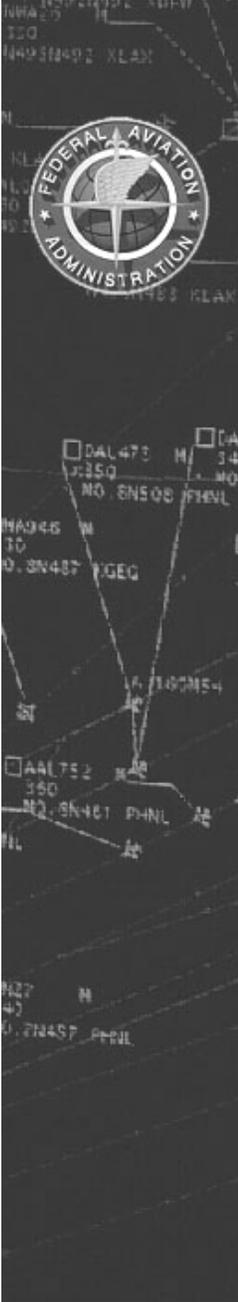
FAA / INTERNAL		SPONSOR / EXTERNAL		ACTIVITY
PROCESS	DELIVERABLE	PROCESS	DELIVERABLE	
No issues (ACTION ITEM 71)	(1) ANI-440 forwards 100% electronics engineering to Installation group (one transmittal per system) to begin installation of the appropriate system			↓ 100% ELECTRONIC ENGINEERING
Acceptance testing and operations training is conducted. Telco equipment CAI must have been completed by this time. (ACTION ITEM 72)	(1) CAI will be completed upon installation of equipment			↓ ELECTRONIC EQUIPMENT INSTALLATION
There is a JAI for each system prior to Cut-over/Commissioning and one final JAI that encompasses all of the systems. (ACTION ITEM 73)	(1) Documented JAI agreement between ANI-440 and AF			↓ ELECTRONICS JAI
No issues (ACTION ITEM 74)	None			↓ CUT-OVER/ COMMISSIONING ↓

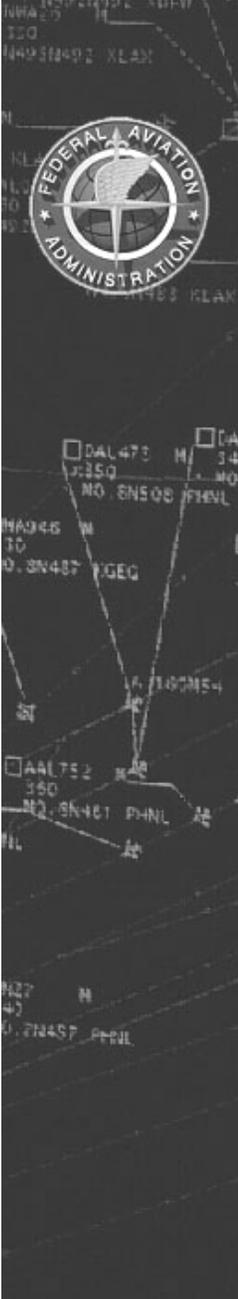


TRAINING PHASE



DISPOSITION PHASE





QUESTIONS / ANSWERS

For additional information, please contact:

Gary Nielsen, ATO-T Planning at (817) 222-5516 or
via e-mail at larry.perkins@faa.gov

ACRONYMS FOR FAA ATCT BUILD PROCESS

A/E (ARCHITECTURE AND ENGINEERING)
ADO (AIRPORT DISTRICT OFFICE)
AF (AIRWAY FACILITIES)
AFTIL (AIRWAY FACILITIES TERMINAL INTEGRATION LABORATORY)
ALP (AIRPORT LAYOUT PLAN)
AT (AIR TRAFFIC)
ATCT (AIR TRAFFIC CONTROL TOWER)
BOD (BUILDING OCCUPANCY DATE)
CAI (CONTRACTOR ACCEPTANCE INSPECTION)
COMM (COMMISSIONING)
EA (ENVIRONMENTAL ASSESMENT)
EDDA (ENVIRONMENTAL DUE DILLIGENCE AUDIT)
EIS (ENVIRONMENTAL IMPACT STATEMENT)
FONSI (FINDING OF NO SIGNIFICANT IMPACT)
JAI (JOINT ACCEPTANCE INSPECTION)
LEC (LOCAL EXCHANGE COMPANY)
LOB (LINES OF BUSINESS)
MOA/MOU (MEMORANDUM OF AGREEMENT/ MEMORANDUM OF UNDERSTANDING)
NAVAIDS (NAVIGATIONAL AIDS)
NEPA (NATIONAL ENVIRONMENTAL POLICY ACT)
NR (NON-RULEMAKING STUDY)
PCN (PARTS CONTROL NUMBER)
PML (PROJECT MATERIAL LIST)
PR (PURCHASE REQUEST)
PRS (PROJECT REQUIREMENT SYSTEM)
RO (REGIONAL OFFICE)
ROD (RECORD OF DECISION)
SSC (SYSTEM SUPPORT CENTER)
SMS (SAFETY MANAGEMENT SYSTEM)
SMO (SYSTEMS MANAGEMENT OFFICE)
TELCO (TELECOMMUNICATIONS)

***For a more comprehensive list of FAA acronyms, please visit
<http://www.chicago.ani.faa.gov/more/acronyms/acronyms.cfm>**

