GRAND CANYON
NATIONAL PARK AIRPORT
ARIZONA

AIRPORT MASTER PLAN

ADOT

GRAND CANYON
NATIONAL PARK AIRPORT
ARIZONA

GRAND CANYON NATIONAL PARK AIRPORT MASTER PLAN
PLANNING ADVISORY COMMITTEE MEETING #4

Tusayan Town Hall
845 Mustang Drive, Tusayan, AZ, 86023
June 28, 2017
1:00 PM

AGENDA

1. Introductions
2. Review of the Airport Master Plan Process
3. Review Working Papers
   - Chapter Six - Master Plan Concept/Financial Plan
   - Appendix B - Environmental Overview
   - Chapter Seven - Sustainability:
     Part 2 Sustainability Management Plan
4. Open Discussion
5. Adjournment

GRAND CANYON
NATIONAL PARK AIRPORT
ARIZONA

MASTER PLAN PROCESS

INITIATION

PAC #1

INVENTORY

FORECASTS

DEMAND/CAPACITY

FACILITY REQUIREMENTS

Working Papers

PAC #2

PIW(S)

GRAND CANYON
NATIONAL PARK AIRPORT
ARIZONA

MASTER PLAN PROCESS

DEVELOPMENT ALTERNATIVES

Working Papers

PAC #3

PIW(S)

GRAND CANYON
NATIONAL PARK AIRPORT
ARIZONA

MASTER PLAN PROCESS

MASTER PLAN CONCEPT/ FINANCIAL PLAN

ENVIRONMENTAL OVERVIEW

SUSTAINABILITY ANALYSIS

Working Papers

PAC #4 — **PIW(S)**

AIRPORT PLANS

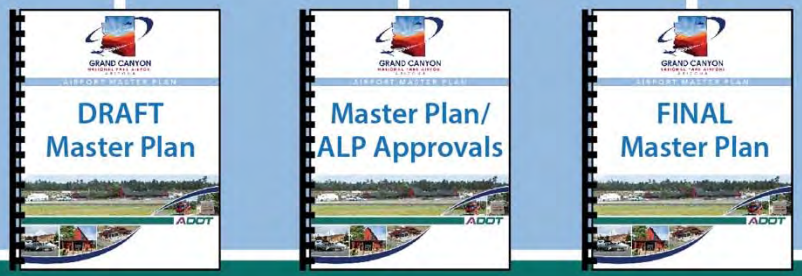

EXHIBIT 2J
FORECAST SUMMARY

GRAND CANYON
NATIONAL PARK AIRPORT
ARIZONA

	2015	2020	2025	2035
ENPLANED PASSENGERS				
Fixed Wing Air Tour	132,198	170,280	190,060	232,200
Helicopter Air Tour	196,930	225,720	251,940	307,800
Airline/Air Charter	-	42,000	67,000	125,000
TOTAL ENPLANED PASSENGERS	***329,128***	***438,000***	***509,000***	***665,000***
BASED AIRCRAFT				
Single Engine	2	2	3	5
Multi-Engine	0	0	0	0
Turboprop	6	7	8	10
Jet	0	0	1	1
Helicopter	29	32	34	38
TOTAL BASED AIRCRAFT	***37***	***41***	***46***	***54***
ANNUAL OPERATIONS				
ITINERANT				
Airline/Air Charter	-	2,200	2,400	3,600
Fixed Wing Air Tour	20,982	24,800	28,000	33,400
Helicopter Air Tour	70,506	80,800	90,200	110,200
General Aviation	2,731	3,030	3,400	4,000
Air Taxi	9,402	10,850	12,150	14,750
Military	604	600	600	600
Total Itinerant	***104,225***	***122,280***	***136,750***	***166,550***
LOCAL				
General Aviation	1,181	1,210	1,235	1,285
Military	553	550	550	550
Total Local	***1,734***	***1,760***	***1,785***	***1,835***
TOTAL OPERATIONS	***105,959***	***124,040***	***138,535***	***168,385***

EXHIBIT 6A
RECOMMENDED MASTER PLAN CONCEPT

GRAND CANYON
NATIONAL PARK AIRPORT
ARIZONA

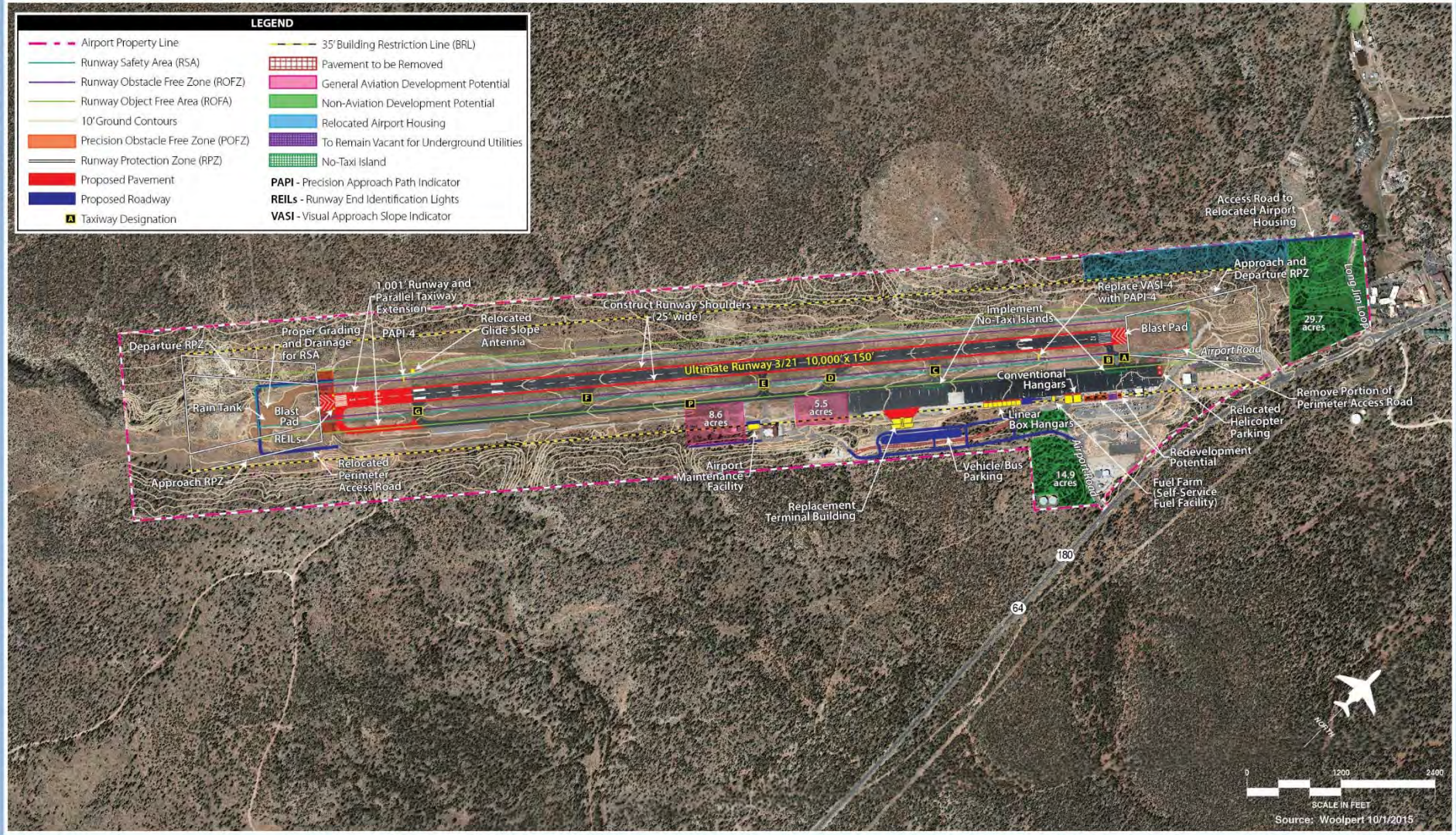

EXHIBIT 6A
RECOMMENDED MASTER PLAN CONCEPT

GRAND CANYON
NATIONAL PARK AIRPORT
ARIZONA

LEGEND

- Airport Property Line
- Runway Safety Area (RSA)
- Runway Obstacle Free Zone (ROFZ)
- Runway Object Free Area (ROFA)
- 10' Ground Contours
- Precision Obstacle Free Zone (POFZ)
- Runway Protection Zone (RPZ)
- Proposed Pavement
- Proposed Roadway
- A Taxiway Designation
- 35' Building Restriction Line (BRL)
- Pavement to be Removed
- General Aviation Development Potential
- Non-Aviation Development Potential
- Relocated Airport Housing
- To Remain Vacant for Underground Utilities
- No-Taxi Island
- **PAPI -** Precision Approach Path Indicator
- **REILs -** Runway End Identification Lights
- **VASI -** Visual Approach Slope Indicator

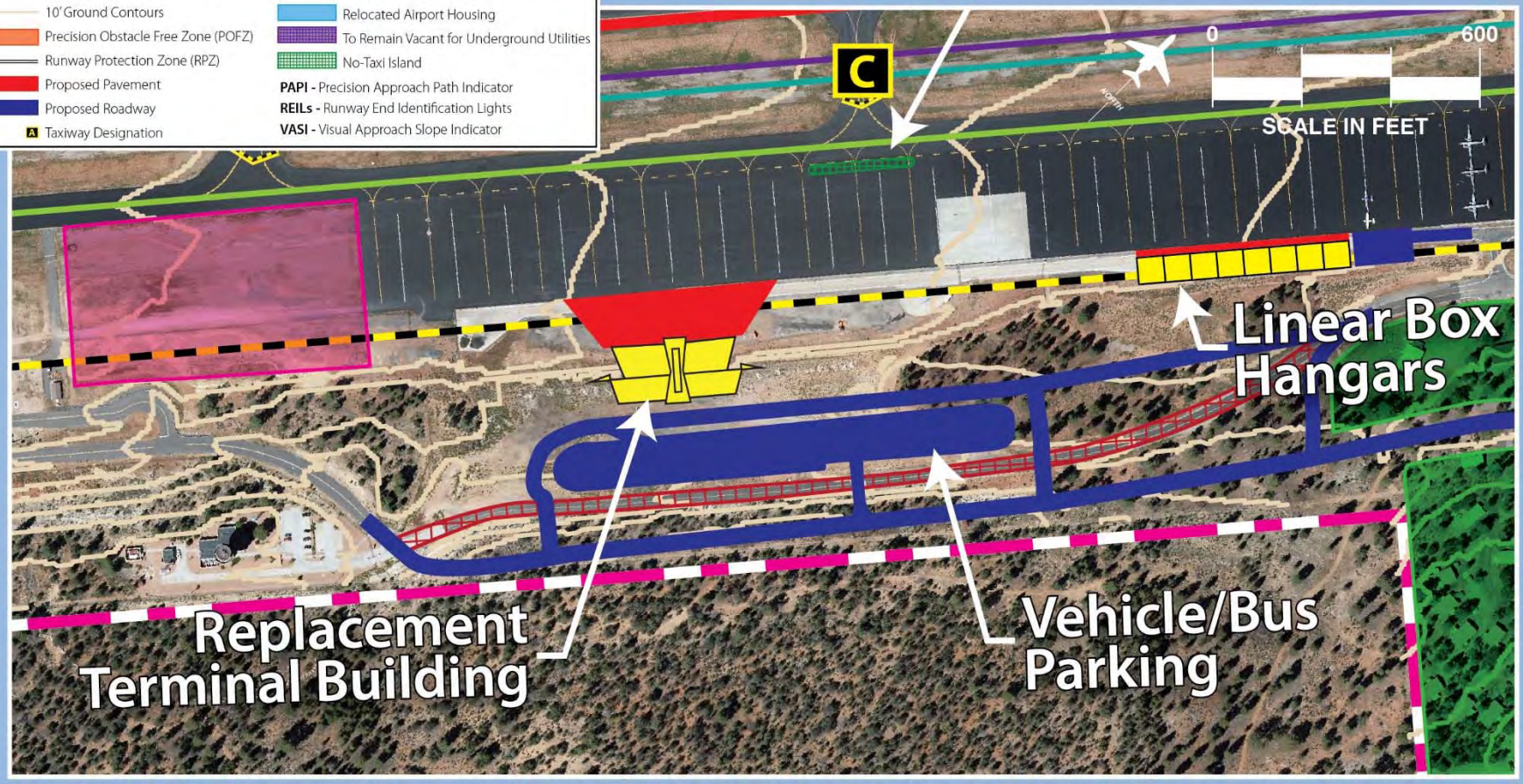

TABLE 6B
AIRCRAFT HANGAR AND DEVELOPMENT SPACE PLANNED

Aircraft Hangar and Development Parcels	Provided in Master Plan Concept
Linear Box Hangar Area	28,800 s.f.
Conventional Hangar Area	20,000 s.f.
Redevelopment of Existing Terminal Area	0.8 acres
Aviation Development Parcel South of Proposed Terminal	5.5 acres
Aviation Development Parcel South of Airport Rescue and Firefighting Facility	8.6 acres



EXHIBIT 6B
CAPITAL IMPROVEMENT PROGRAM

GRAND CANYON NATIONAL PARK AIRPORT ARIZONA

	Project Description	Development Category	Total Project Cost	FAA Eligible	ADOT Eligible*
	Short Term Program (Years 1-5)				
2018	1 Environmental Documentation (CatEx and/or EA) for Airside and Landside Improvements in the Short Term Program	EN	$500,000	$455,300	$44,700
	2 Design and Construct - Implement PAPI-4 and REILs on Runway 3	SS	$150,000	$136,590	$13,410
	3 Equipment Purchase - Lighted Xs (2) for Runway Construction Projects/Closures	SS	$75,000	$68,295	$6,705
	4 Equipment Purchase - Obtain Snow Plows (2) and Friction Trailer	SS/MN/EF	$750,000	$682,950	$67,050
	5 Design and Construct - Implement Perimeter Fencing in Helicopter Operating Areas	SS	$280,000	$254,968	$25,032
	2018 Total		**$1,755,000**	**$1,598,103**	**$156,897**
2019	6 Design and Construct - Implement No-Taxi Islands at Taxiways A/B and C Intersections (Include MITL)	SS	$122,000	$111,093	$10,907
	7 Conduct Drainage Master Plan	SS	$500,000	$455,300	$44,700
	8 Design - ADA Compliance/Renovations to Existing Terminal Building	SS/DM/OP	$400,000	$364,240	$35,760
	9 Conduct Water Source Analysis/Study	DM/EF/OP	$300,000	$273,180	$26,820
	2019 Total		**$1,322,000**	**$1,203,813**	**$118,187**
2020	10 Design - Airfield Culvert Relocations and Proper Grading	SS	$150,000	$136,590	$13,410
	11 Construct - ADA Compliance/Renovations to Existing Terminal Building	SS/DM/OP	$2,700,000	$2,458,620	$241,380
	12 Clear ROFA on West Side of Runway 3-21	SS	$230,000	$209,438	$20,562
	13 Conduct Environmental Assessment for Water Source Improvements	EN/DM	$800,000	$728,480	$71,520
	2020 Total		**$3,880,000**	**$3,533,128**	**$346,872**
2021	14 Construct - Airfield Culvert Relocations and Proper Grading	SS	$850,000	$774,010	$75,990
	15 Relocate Helicopter Parking Outside ROFA on North Side of Terminal Area	SS	$23,000	$20,944	$2,056
	16 Design - Runway 3-21 Shoulders/150' Width Correction and Pavement Rehabilitation/Reconstruction	SS/MN	$1,377,000	$1,253,896	$123,104
	17 Design - Airfield Perimeter Fencing Improvements	SS	$146,000	$132,948	$13,052
	2021 Total		**$2,396,000**	**$2,181,798**	**$214,202**
2022	18 Construct - 25' Runway Shoulders and Runway Width Correction	SS	$2,763,000	$2,515,988	$247,012
	19 Construct - Runway 3-21 Pavement Rehabilitation/Reconstruction	MN	$8,713,000	$7,934,058	$778,942
	20 Construct - Airfield Perimeter Fencing Improvements	SS	$1,215,000	$1,106,379	$108,621
	21 Replace Terminal Building Generator	MN	$500,000	$455,300	$44,700
	22 Remove/Relocate Portion of Perimeter Access Road on North Side of Runway 3-21 Outside RSA	SS	$43,000	$39,156	$3,844
	2022 Total		**$13,234,000**	**$12,050,880**	**$1,183,120**
	Short Term Program Total		**$22,587,000**	**$20,567,722**	**$2,019,278**

Development Category - **SS - Safety/Security** **DM - Demand** **EF - Efficiency** **EN - Environmental** **MN - Maintenance** **OP - Opportunity**

*ADOT serves as the Airport Sponsor.



EXHIBIT 6B
CAPITAL IMPROVEMENT PROGRAM

GRAND CANYON NATIONAL PARK AIRPORT ARIZONA

Project Description	Development Category	Total Project Cost	FAA Eligible	ADOT Eligible*
Intermediate Term Program (Years 6-10)				
(1) Construct Blast Pads (Both Runway Ends)	SS	$798,000	$726,659	$71,341
(2) Replace Airfield Generator	MN	$200,000	$182,120	$17,880
(3) Rehabilitate Existing Terminal Roadways and Parking Lots	MN/EF	$560,000	$509,936	$50,064
(4) Environmental Assessment - Terminal Building Replacement	EN/DM	$500,000	$455,300	$44,700
(5) Equipment Purchase - ARFF Truck	SS	$1,300,000	$1,183,780	$116,220
(6) Equipment Purchase - Deicing Equipment to Service Larger Aircraft	SS/DM	$400,000	$364,240	$35,760
(7) Upgrade Perimeter Access Road on East and West Sides of Airfield	SS/EF	$2,863,000	$2,607,048	$255,952
(8) Construct Helipad Between ARFF Facility and Terminal Apron	DM/EF/OP	$81,000	$73,759	$7,241
(9) Construct Dedicated Airport Maintenance Facility	MN	$1,049,000	$0	$1,049,000
(10) Design New Replacement Terminal Building and Associated Infrastructure	DM/OP	$2,550,000	$1,275,000	$1,275,000
(11) Replace VASI-4 with PAPI-4 on Runway 21	MN	$98,000	$89,239	$8,761
(12) Construct New Replacement Terminal Building	DM/OP	$16,800,000	$8,400,000	$8,400,000
(13) Construct Associated Vehicle Access/Parking to Serve Replacement Terminal Building	DM	$3,600,000	$3,278,160	$321,840
(14) Relocate Airport Housing for Non-Aviation Development Potential	OP	**	**	**
(15) General Airfield Pavement Maintenance	MN	$500,000	$455,300	$44,700
Intermediate Term Program Total		**$31,299,000**	**$19,600,540**	**$11,698,460**

*ADOT serves as the Airport Sponsor. **Coordination will be needed outside the Master Plan to further define the potential relocation of airport housing and associated costs in order to accommodate possible non-aviation development.

Development Category - **SS - Safety/Security** **DM - Demand** **EF - Efficiency** **EN - Environmental** **MN - Maintenance** **OP - Opportunity**



EXHIBIT 6B
CAPITAL IMPROVEMENT PROGRAM

GRAND CANYON NATIONAL PARK AIRPORT ARIZONA

Project Description	Development Category	Total Project Cost	FAA Eligible	ADOT Eligible*
Long Term Program (Years 11-20)				
1 Environmental Assessment - Runway 3-21 Extension	EN/DM	$1,000,000	$910,600	$89,400
2 Redevelop Existing Terminal Area for Aviation Use (Site Preparation)	DM/OP	$250,000	$0	$250,000
3 Implement Self-Service Fuel Facility/Fuel Farm	DM	$318,000	$0	$318,000
4 Site Preparation for Runway 3-21 Extension (Clearing, Grading, Relocated Perimeter Access Road)	SS/DM	$8,198,000	$7,465,099	$732,901
5 Extend Runway 3-21 1,001' Southwest and Associated Parallel Taxiway P	DM	$3,063,000	$2,789,168	$273,832
6 Relocate Navigational Aids (Glideslope Antenna, PAPI-4, and REILs)	SS	$1,134,000	$1,032,620	$101,380
7 General Airfield Pavement Maintenance	MN	$1,000,000	$910,600	$89,400
Long Term Program Total		**$14,963,000**	**$13,108,087**	**$1,854,913**
TOTAL PROGRAM COSTS		**$68,849,000**	**$53,276,349**	**$15,572,651**

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Development Category - **SS - Safety/Security** **DM - Demand** **EF - Efficiency** **EN - Environmental** **MN - Maintenance** **OP - Opportunity**

EXHIBIT 6C
DEVELOPMENT STAGING
SHORT TERM PROGRAM

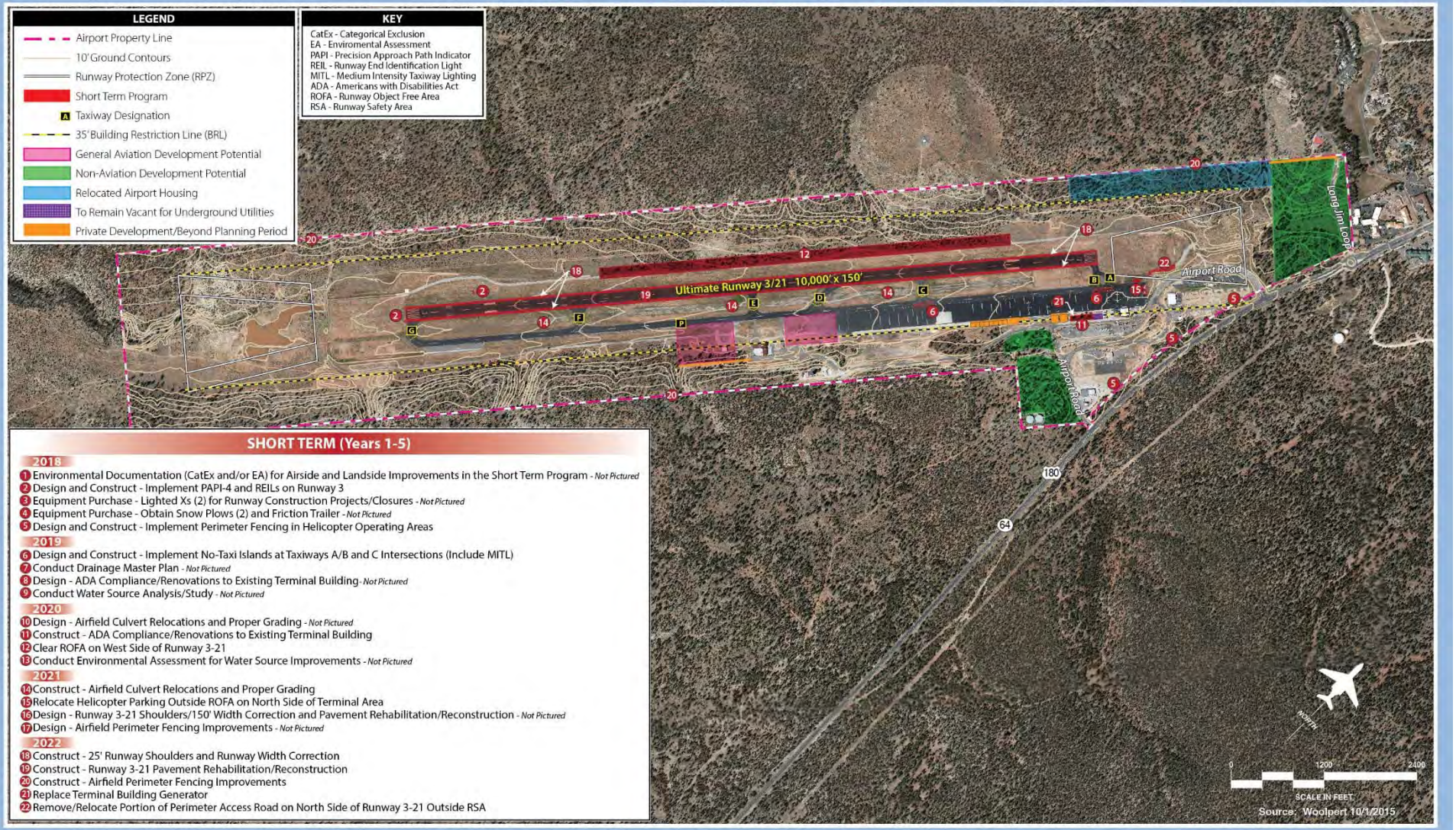
GRAND CANYON
NATIONAL PARK AIRPORT
ARIZONA

LEGEND

- Airport Property Line
- 10' Ground Contours
- Runway Protection Zone (RPZ)
- Short Term Program
- A Taxiway Designation
- 35' Building Restriction Line (BRL)
- General Aviation Development Potential
- Non-Aviation Development Potential
- Relocated Airport Housing
- To Remain Vacant for Underground Utilities
- Private Development/Beyond Planning Period

KEY

CatEx - Categorical Exclusion
EA - Enviromental Assessment
PAPI - Precision Approach Path Indicator
REIL - Runway End Identification Light
MITL - Medium Intensity Taxiway Lighting
ADA - Americans with Disabilities Act
ROFA - Runway Object Free Area
RSA - Runway Safety Area



SHORT TERM (Years 1-5)

2018

1. Environmental Documentation (CatEx and/or EA) for Airside and Landside Improvements in the Short Term Program - *Not Pictured*
2. Design and Construct - Implement PAPI-4 and REILs on Runway 3
3. Equipment Purchase - Lighted Xs (2) for Runway Construction Projects/Closures - *Not Pictured*
4. Equipment Purchase - Obtain Snow Plows (2) and Friction Trailer - *Not Pictured*
5. Design and Construct - Implement Perimeter Fencing in Helicopter Operating Areas

2019

6. Design and Construct - Implement No-Taxi Islands at Taxiways A/B and C Intersections (Include MITL)
7. Conduct Drainage Master Plan - *Not Pictured*
8. Design - ADA Compliance/Renovations to Existing Terminal Building - *Not Pictured*
9. Conduct Water Source Analysis/Study - *Not Pictured*

2020

10. Design - Airfield Culvert Relocations and Proper Grading - *Not Pictured*
11. Construct - ADA Compliance/Renovations to Existing Terminal Building
12. Clear ROFA on West Side of Runway 3-21
13. Conduct Environmental Assessment for Water Source Improvements - *Not Pictured*

2021

14. Construct - Airfield Culvert Relocations and Proper Grading
15. Relocate Helicopter Parking Outside ROFA on North Side of Terminal Area
16. Design - Runway 3-21 Shoulders/150' Width Correction and Pavement Rehabilitation/Reconstruction - *Not Pictured*
17. Design - Airfield Perimeter Fencing Improvements - *Not Pictured*

2022

18. Construct - 25' Runway Shoulders and Runway Width Correction
19. Construct - Runway 3-21 Pavement Rehabilitation/Reconstruction
20. Construct - Airfield Perimeter Fencing Improvements
21. Replace Terminal Building Generator
22. Remove/Relocate Portion of Perimeter Access Road on North Side of Runway 3-21 Outside RSA

EXHIBIT 6D
DEVELOPMENT STAGING
INTERMEDIATE AND
LONG TERM PROGRAMS

GRAND CANYON
NATIONAL PARK AIRPORT
ARIZONA

LEGEND

- Airport Property Line
- 10' Ground Contours
- Runway Protection Zone (RPZ)
- Intermediate Term Program
- Long Term Program
- A Taxiway Designation
- 35' Building Restriction Line (BRL)
- General Aviation Development Potential
- Non-Aviation Development Potential
- To Remain Vacant for Underground Utilities
- Private Development/Beyond Planning Period

INTERMEDIATE TERM (Years 6-10)

1. Construct Blast Pads (Both Runway Ends)
2. Replace Airfield Generator
3. Rehabilitate Existing Terminal Roadways and Parking Lots
4. Environmental Assessment - Terminal Building Replacement - *Not Pictured*
5. Equipment Purchase - ARFF Truck - *Not Pictured*
6. Equipment Purchase - Deicing Equipment to Service Larger Aircraft - *Not Pictured*
7. Upgrade Perimeter Access Road on East and West Sides of Airfield
8. Construct Helipad Between ARFF Facility and Terminal Apron
9. Construct Dedicated Airport Maintenance Facility
10. Design New Replacement Terminal Building and Associated Infrastructure - *Not Pictured*
11. Replace VASI-4 with PAPI-4 on Runway 21
12. Construct New Replacement Terminal Building
13. Construct Associated Vehicle Access/Parking to Serve Replacement Terminal Building
14. Relocate Airport Housing for Non-Aviation Development Potential*
15. General Airfield Pavement Maintenance - *Not Pictured*

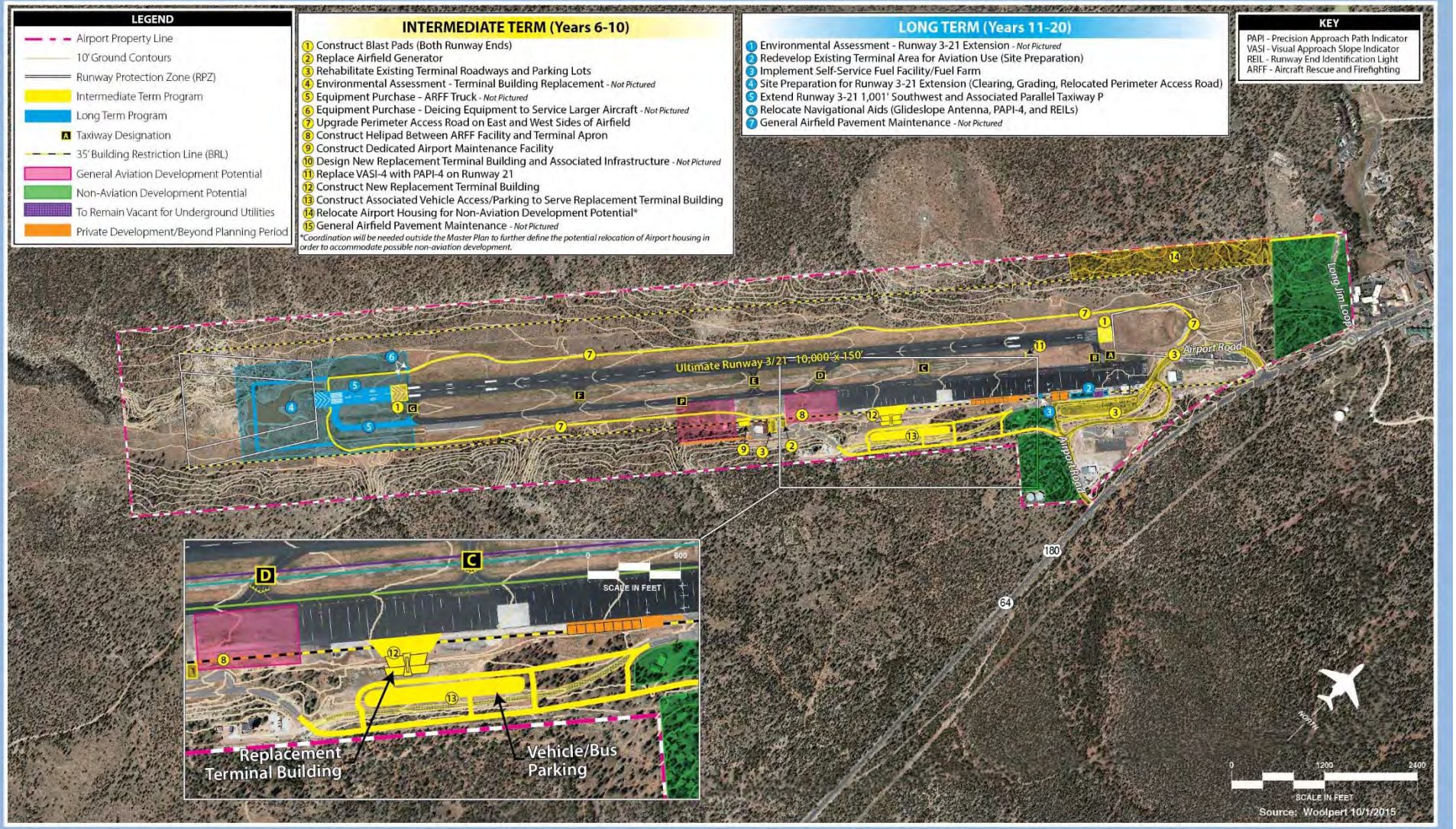
*Coordination will be needed outside the Master Plan to further define the potential relocation of Airport housing in order to accommodate possible non-aviation development.

LONG TERM (Years 11-20)

1. Environmental Assessment - Runway 3-21 Extension - *Not Pictured*
2. Redevelop Existing Terminal Area for Aviation Use (Site Preparation)
3. Implement Self-Service Fuel Facility/Fuel Farm
4. Site Preparation for Runway 3-21 Extension (Clearing, Grading, Relocated Perimeter Access Road)
5. Extend Runway 3-21 1,001' Southwest and Associated Parallel Taxiway P
6. Relocate Navigational Aids (Glideslope Antenna, PAPI-4, and REILs)
7. General Airfield Pavement Maintenance - *Not Pictured*

KEY

PAPI - Precision Approach Path Indicator
VASI - Visual Approach Slope Indicator
REIL - Runway End Identification Light
ARFF - Aircraft Rescue and Firefighting



Source: Woolpert 10/1/2015

ADOT

TABLE 6D
20-YEAR CIP
FUNDING SOURCES (IN 000S)

	Project Costs		Funding Sources	
	2017 Dollars [1]	Inflated [2]	Federal [3]	ADOT
FY 2018	$1,755	$1,755	$1,598	$157
FY 2019	1,322	1,322	1,204	118
FY 2020	3,880	3,880	3,533	347
FY 2021	2,396	2,396	2,182	214
FY 2022	13,234	13,234	12,051	1,183
Subtotal	**$22,587**	**$22,587**	**$20,568**	**$2,019**
FY 2023 - 2027	$31,299	$38,762	$24,274	$14,488
FY 2028 - 2037	14,963	22,680	19,868	2,812
Total	**$68,849**	**$84,028**	**$64,710**	**$19,319**

[1] Represents CIP as presented in Exhibit 6B.

[2] Beginning in FY 2023, project costs were inflated at 2.7%, which reflects the most recent five-year average of *Engineering News-Record's* Construction Cost Index.

[3] Federal funds include funds from FAA AIP (entitlement and discretionary).

Source: Coffman Associates and DKMG Consulting, LLC

TABLE 6E
AIP ENTITLEMENT CALCULATION (IN 000S)

	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023 - 2027	FY 2028 - 2037
Enplanements for Entitlement	376	406	438	451	464	2,539	6,231
FAA Formula[1]							
$7.80 for 1st 50,000 Enplanements	$390	$390	$390	$390	$390	$1,950	$3,900
$5.20 for next 50,000 Enplanements	260	260	260	260	260	1,300	2,600
$2.60 for next 400,000 Enplanements	717	796	879	912	947	5,127	10,400
$0.65 for next 500,000 Enplanements	0	0	0	0	0	44	800
$0.50 for the remaining Enplanements	0	0	0	0	0	0	0
Total Calculated Entitlements	$1,367	$1,446	$1,529	$1,562	$1,597	$8,421	$17,700
Total Calculated Entitlements x 2	$2,734	$2,892	$3,058	$3,124	$3,194	$16,841	$35,401
2 Year Lag in Receipt of Grants	$2,468	$2,580	$2,734	$2,892	$3,058	$16,324	$34,972
Cumulative AIP Entitlement Grants		$5,048	$7,782	$10,674	$13,732	$30,056	$65,027

[1] The FAA formula is defined in 49 United States Code § 47114.



TABLE 6G
SUMMARY OF AIRLINE RATES & CHARGES

GRAND CANYON NATIONAL PARK AIRPORT ARIZONA

	Current Rates		Current Rates
Landing Fee (per 000 lbs)		Fuel Flowage Fees (per gallon)	
Using operations area	$1.05	Fuel delivered to GCN	$0.03
Not using operations area	$0.30	Fuel sold at GCN	$0.07
Gate Fees		Terminal Fees	
Leaseholder (per flight)		Advertising Space (per sq ft)	
Less than 12,500 lbs	$1.00	Terminal and counter areas	$5.00
12,500 to 44,999 lbs	$5.00	Outdoor sign space	$8.00
45,000 to 99,999 lbs	$10.00	After hours terminal use (per hour)	$200.00
100,000 lbs to 199,999 lbs	$50.00	Direct phone space (per phone)	$35.00
200,000 lbs or greater	$75.00	Public address system (monthly subscription)	$35.00
Nonleaseholder (per flight)		Retail sales space (per sq ft)	$26.00
Less than 12,500 lbs	$1.50	Terminal counter space (per sq ft)	$26.00
12,500 to 44,999 lbs	$7.50		
45,000 to 99,999 lbs	$15.00		
100,000 lbs to 199,999 lbs	$100.00		
200,000 lbs or greater	$150.00		
Aircraft Parking Fees		Commercial Use Ramp Fees	
Single Engine		Terminal ramp area	
Monthly	$50.00	Per hour	$15.00
Daily	$5.00	Max per use	$60.00
Multi-Engine		Non-terminal ramp area	
Monthly	$100.00	Per hour	$10.00
Daily	$10.00	Max per use	$40.00
Security Fees (per flight)	$150.00		

Source: Arizona Title 17, *Transportation,* Chapter 2, Article 2 *Grand Canyon National Park Airport – Operation and Management*



TABLE 6F
SUMMARY OF MAJOR TENANTS

GRAND CANYON NATIONAL PARK AIRPORT ARIZONA

Lessee	Expiration	Area	Estimated Annual Revenue	Description
Grand Canyon Airlines	9/30/17	FBO	$12,000	Minimum annual rent plus landing fees, gate fees, % gift shop sales, and % air tour sales
Grand Canyon Airlines	9/30/17	Fuel Farm	$1,500	Minimum annual rent (annual CPI increase) plus % fuel sales and fuel flowage fees
Grand Canyon Helicopters	2/28/19	Heliport Ground Lease	$43,200	Minimum Annual Rent (annual CPI increase) plus % food and beverage sales, % air tour sales, and % retail sales
Maverick Helicopters	3/31/19	Heliport Ground Lease	$36,000	Minimum Annual Rent (annual CPI increase) plus % food and beverage sales, % air tour sales, and % retail sales
Papillon Helicopters	month to month	Indoor Terminal Advertising	$900	Annual rate
Papillon Helicopters	6/30/19	Heliport Ground Lease	$50,400	Minimum Annual Rent (annual CPI increase) plus % food and beverage sales, % air tour sales, and % retail sales
Paragon Skydiving	12/31/2016 extended to 6/30/2017	Terminal Tandem Parachute Operations	$18,100	Annual fixed rent plus landing fees, gate fees, % retail sales, and fuel flowage fees
Westwind Aviation	expired 6/30/2012; month to month	Terminal Gift Shop	$9,400	annual terminal rent plus landing fees, gate fees, % gift shop sales, and commercial ground passenger fees
Westwind Aviation	month to month	Outdoor Terminal Advertising	$1,200	Annual rate

Source: GCN records

GRAND CANYON
NATIONAL PARK AIRPORT
ARIZONA

Environmental Regulations Affecting Airport Master Plan Projects

- *National Environmental Policy Act* (NEPA) - Evaluates projects that receive Federal funding or require Federal approval (i.e., FAA).
- FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures*
- FAA Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*
- "Special purpose" laws – e.g., *National Historic Preservation Act*

GRAND CANYON
NATIONAL PARK AIRPORT
ARIZONA

NATIONAL ENVIRONMENTAL POLICY ACT (NEPA) ENVIRONMENTAL IMPACTS

Air Quality

Biological Resources

Climate

Coastal Resources

DOT Section 4(f) Lands

Farmlands

Hazardous Materials, Solid Waste, and Pollution Prevention

Historical, Architectural, Archaeological, and Cultural Resources

Land Use

Natural Resources and Energy Supply

Noise and Noise-Compatible Land Use

Socioeconomics, Environmental Justice, and Children's Environmental Health and Safety Risks

Visual Effects

Water Resources (including wetlands, groundwater, surface waters, floodplains, and wild and scenic rivers)

GRAND CANYON NATIONAL PARK AIRPORT ARIZONA

Levels of Environmental Review per FAA Order 1050.1F

- **Categorical Exclusion** – Must show that there are "No Extraordinary Circumstances."
- **Environmental Assessment** –Allows FAA to decide if a Finding of No Significant Impact or an Environmental Impact Statement is appropriate.
- **Environmental Impact Statement** – Required when one or more environmental impacts would be significant.



TABLE B4
ANTICIPATED ENVIRONMENTAL REVIEW FOR FUTURE PROJECTS

GRAND CANYON NATIONAL PARK AIRPORT ARIZONA

Recommended Project	Expected NEPA Action
Short-Term Projects	
Install PAPI-4 and REIL on Runway 3	CatEx
Equipment purchase - lighted "X"s	CatEx
Equipment purchase - snow plows and friction trailer	CatEx
Install perimeter fencing in helicopter operating areas	CatEx
Implement No Taxi Islands/MITL at TW "A/B" and "C" intersections	CatEx
Prepare drainage master plan	CatEx*
Conduct water source analysis/study	CatEx*
Construct ADA compliance/renovations to existing terminal building	CatEx
Clear ROFA on west side of Runway 3-21	CatEx
Construct airfield culvert relocations and proper grading	EA
Relocate helicopter parking outside of ROFA (north of terminal area)	CatEx
Construct Runway 3-21 runway shoulders (25 feet wide), a 150-foot runway width correction, and pavement rehabilitation/reconstruction	CatEx
Construct airfield perimeter fencing improvements	CatEx
Replace terminal building generator	CatEx
Remove/relocate portion of perimeter access road north of runway	CatEx
Intermediate-Term Projects	
Construct blast pads (both runway ends)	CatEx
Replace airfield generator	CatEx
Rehabilitate existing terminal roadways and parking lots	CatEx
Equipment purchase - ARFF truck	CatEx
Equipment purchase - deicing equipment	CatEx
Upgrade perimeter access road on east and west sides of airfield	CatEx or EA
Construct helipad between ARFF facility and terminal apron	CatEx
Construct dedicated Airport maintenance facility	CatEx
Replace VASI with PAPI-4 on Runway 21	CatEx
Construct new replacement terminal building, including vehicular access/parking	EA
Relocate Airport housing	EA
General airfield pavement maintenance	CatEx
Long-Term Projects	
Redevelop existing terminal area	CatEx
Implement self-service fuel farm	CatEx
Extend Runway 3-21 and parallel TW "P" southwest 1,001 feet (relocate navigational aids)	EA or EIS
General airfield pavement maintenance	CatEx

NEPA – *National Environmental Policy Act*
CatEx – Categorical Exclusion
PAPI - precision approach path indicator
REIL - runway end indicator lighting
MITL - medium intensity taxiway lights
TW - taxiway
ADA - *Americans with Disabilities Act*
ROFA – runway object free area
EA – Environmental Assessment
ARFF - aircraft rescue and firefighting
VASI - vertical approach slope indicator
EIS - Environmental Impact Statement

* Although a CatEx is available for planning studies, implementation of recommended projects as a result of the study is a separate action under NEPA that may require additional analysis.

EXHIBIT B5
EXISTING (2015) NOISE EXPOSURE CONTOURS

GRAND CANYON
NATIONAL PARK AIRPORT
ARIZONA

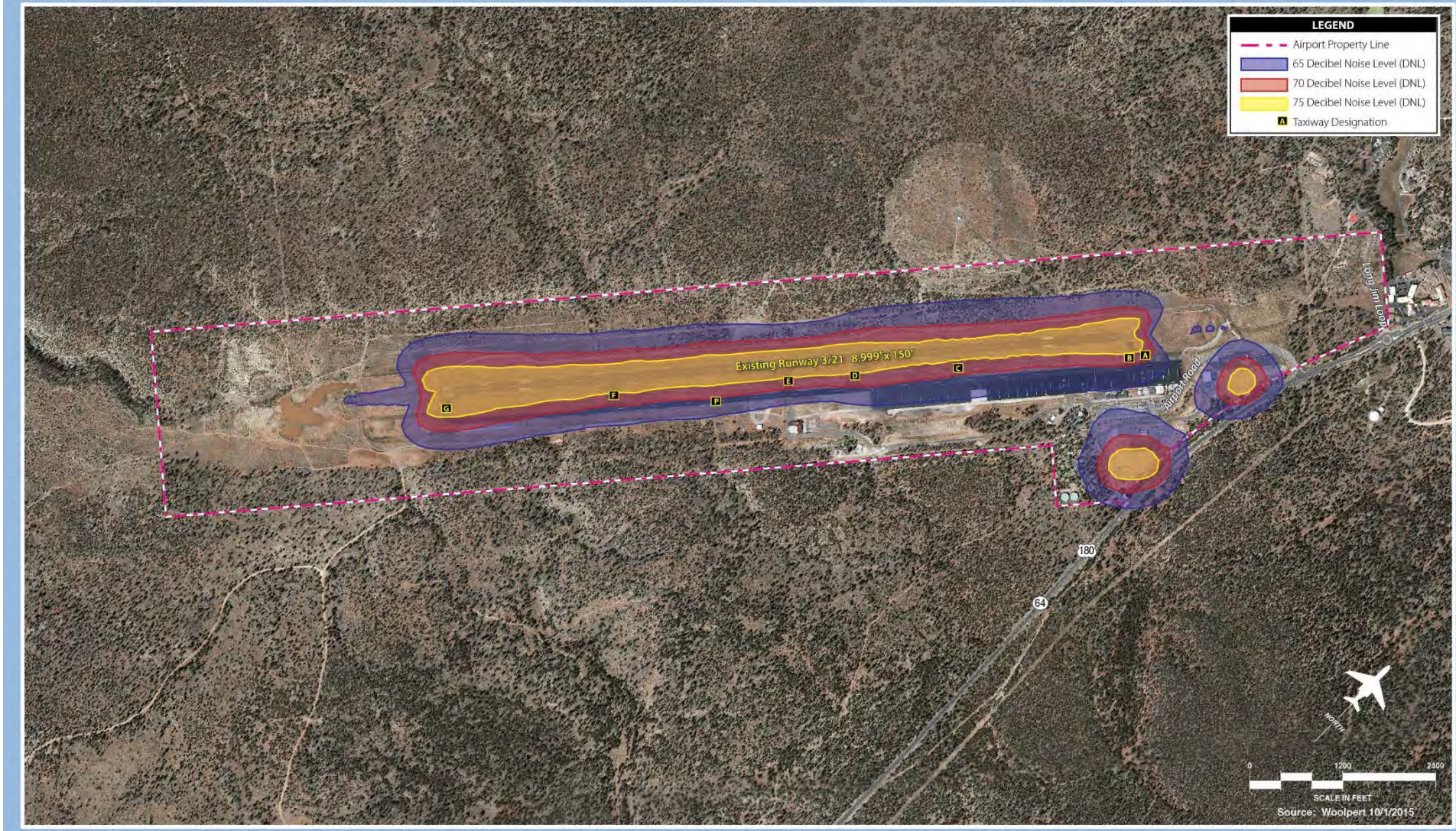


EXHIBIT B7
SHORT-TERM (2020)
NOISE EXPOSURE CONTOURS

GRAND CANYON
NATIONAL PARK AIRPORT
ARIZONA

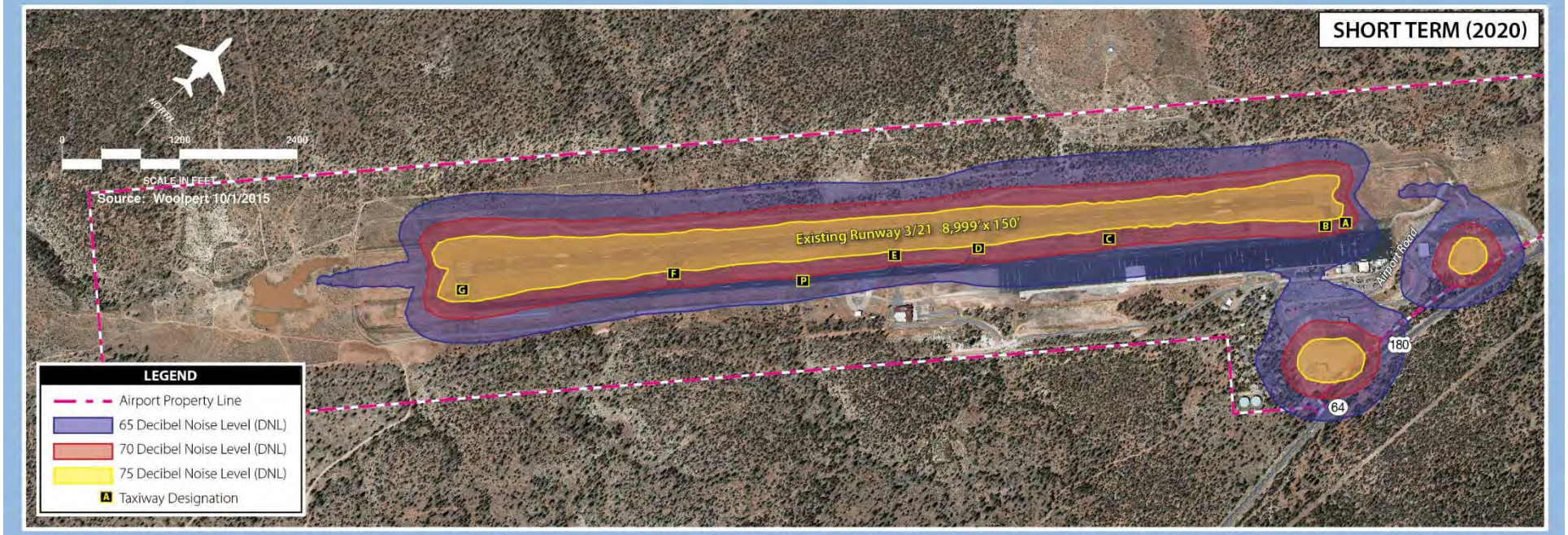
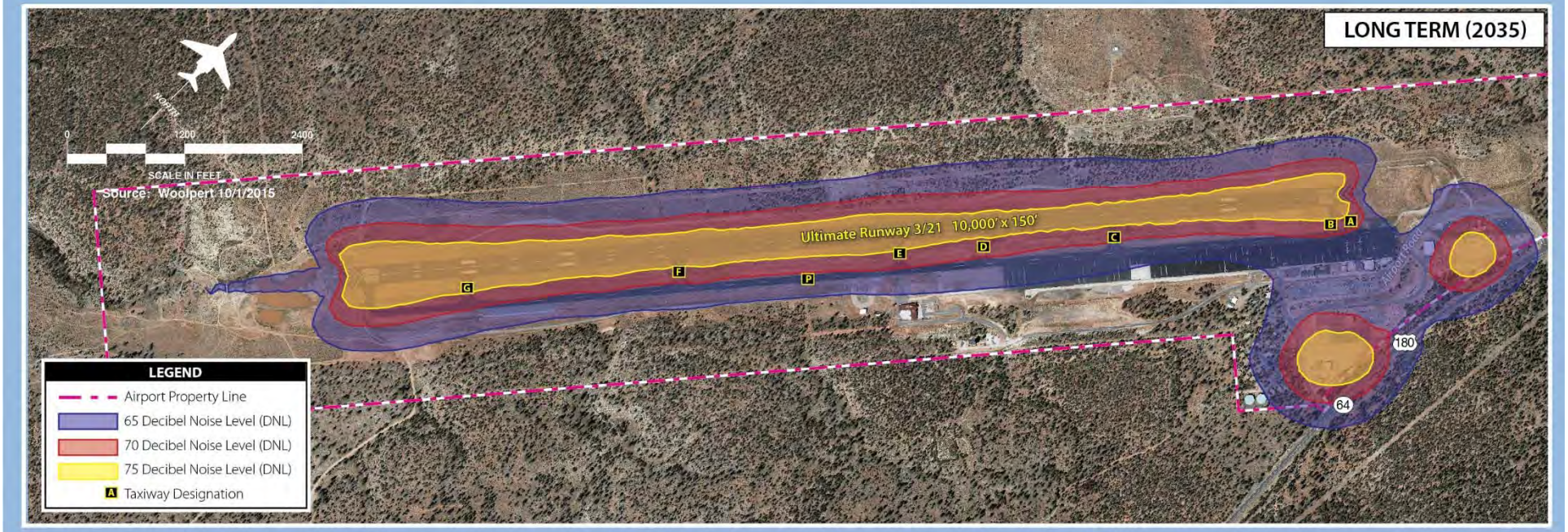




EXHIBIT B7
LONG-TERM (2035)
NOISE EXPOSURE CONTOURS

GRAND CANYON
NATIONAL PARK AIRPORT
ARIZONA



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WATER SOURCE IMPROVEMENTS

- Incorporate a water harvesting system into the design of existing and ultimate terminal facility improvements. In addition, the Airport could explore the future implementation of a water catchment system.

- Continue to maintain and improve as appropriate the existing system in which water is received via pipeline from Hydro-Resources and stored in water storage tanks.

- Drill a groundwater supply well on Airport property.
  (2013 study conducted by Montgomery & Associates)



GRAND CANYON NATIONAL PARK AIRPORT ARIZONA

SUSTAINABILITY MANAGEMENT PLAN

Sustainability Categories	Goals
Air Quality	Improve regional air quality by reducing GHG emissions from GCN users and enacting policies to reduce emissions from Airport-controlled sources.
Energy	Expand energy efficiency measures and renewable energy opportunities
Natural Resource Management	Incorporate procurement, landscaping, and janitorial practices that reduce the burden on nearby natural resources.
Land Use	Preserve surrounding natural resources by encouraging alternative transportation modes to and from the Airport, and reducing noise and light pollution caused by Airport activities.
Planned Development	Develop capital improvement projects that consider both present and future needs.
Construction Methods	Incorporate sustainability into Airport construction methods.
Resiliency and Preparedness	Protect the Airport from climate risks and cyber security threats.
Waste Management	Increase waste diversion rate through increased recycling and composting efforts.
Water	Reduce potable water consumption with expanded efficiency measures and reclaimed/grey water use.



EXHIBIT 7B
SUSTAINABILITY MATRIX

GRAND CANYON NATIONAL PARK AIRPORT ARIZONA

SUSTAINABLE OBJECTIVE EVALUATION	INITIAL INVESTMENT	O & M[1] COST	PAYBACK PERIOD	STAFFING REQUIREMENTS	ENERGY REDUCTION	ENVIRONMENTAL BENEFITS	SOCIAL BENEFITS	CATEGORIES IMPACTED	CORRESPONDING GCNP OBJECTIVES
SHORT-TERM OBJECTIVES									
Prohibit smoking within 25 feet of all entries, outdoor air intakes & operable windows					N/B				N/A
Implement anti-idling measures for all vehicles (incl. GSE) within Airport environs									"Implement a no-idling policy."
Post occupancy signs on roads & in parking areas to reduce emissions related to wayfinding									"Provide advanced warning of parking conditions."
Receive free training from Coconino County on how to conserve water					N/B	N/B			N/A
Place aerators on all faucets & showerheads									"Replacement of low-flow fixtures is ongoing."
Replace toilets with low-flow options									"Replacement of low-flow fixtures is ongoing."
Place water conservation signs in all restrooms[2]									N/A
Place signs throughout buildings explaining what can/cannot be recycled					N/B				"Institute signage throughout the park and weave waste reduction messaging into interpretation programs."
Recycle uncommon items (i.e., batteries, ink cartridges)					N/B				"Establish a program for printer ink and toner refills."
Consolidate recycling & solid waste efforts with tenants									N/A
Collect food scraps for pick up or incorporate into existing chip trees & manure compost									"Compost food and other organic waste."
Reduce unnecessary dumpster pickups by scheduling service when dumpsters are full					N/B	N/B	N/B		N/A
Request a quote for solid waste & recycling from multiple solid waste providers					N/B	N/B	N/B		N/A
Apply for awards from Coconino County Sustainable Building Program					N/B	N/B			N/A
Incentivize alternative transportation methods (i.e., hiking, biking, walking)									"Promote visitor use of trails for alternative means of travel."
Adhere to International Dark Sky Parks certification standards									"Install dark-sky comliant lighting in compliance with Park Lighting Guidelines."
Incorporate sustainability into procurement policy					N/B				"Reviewing concessioner contractual language to include sustainble practice requirements."
Implement a Natural Resources Management Plan (incl. reduction or elimination of toxic pesticide use)					N/B				N/A
Adopt the International Energy Conservation Code for new or reconstructed buildings									N/A
Upgrade all light fixtures to LEDs							N/B		"Upgrade all light bulbs and fixtures to energy-efficient bulbs."
Add secondary doors or air curtains to terminal building							N/B		N/A
Upgrade &/or re-program all thermostats to maximize energy efficiency							N/B		"Upgrade to programmable thermostats."
Publish voluntary standard operating procedures for more energy-efficient flight procedures									N/A
Require GHG reporting by aircraft, mobile, stationary sources & waste management									N/A
Use existing operable windows in place of the HVAC system when the temperature allows							N/B		N/A

ARFF: Aircraft Rescue and Fire Fighting
FAA: Federal Aviation Administration
GCNP: Grand Canyon National Park
GHG: Greenhouse gas
GSE: Ground support equipment
HVAC: Heating, ventilation, and air conditioning
LED: Light-emitting diode
LEED: Leadership in Energy and Environmental Design
N/A: Not Applicable
N/B: No Benefit
PV: Photovoltaic

Source: SAGA Sustainable Practices Database (November 2016), Quest Energy Group (June 2016) [1] O & M: Operations and Maintenance [2] Signs provided for free from Coconino County as part of the County's water conservation initiatives



EXHIBIT 7B
SUSTAINABILITY MATRIX

GRAND CANYON NATIONAL PARK AIRPORT ARIZONA

SUSTAINABLE OBJECTIVE EVALUATION	INITIAL INVESTMENT	O & M[1] COST	PAYBACK PERIOD	STAFFING REQUIREMENTS	ENERGY REDUCTION	ENVIRONMENTAL BENEFITS	SOCIAL BENEFITS	CATEGORIES IMPACTED	CORRESPONDING GCNP OBJECTIVES
LONG TERM OBJECTIVES									
Adopt an adaptive management style to airport planning	2	2	2	3	N/B	2	3		"Incorporate climate change into all planning efforts and documents."
Adopt a climate change action plan	2	1	1	2	1	2	3		GCNP adopted a climate action plan in 2009.
Create & implement a construction waste management plan	2	2	2	2	1	3	N/B		"Implement a Construction Waste Management Plan."
Source construction materials locally or regionally	2	1	1	1	N/B	2	1		N/A
Create & incorporate sustainable contract & bid language	1	1	1	1	1	2	1		"Incentivize contractors to practice green purchasing."
Require all new or reconstructed developments to achieve LEED certification, Green Globes Program, or Living Building Challenge	2	3	1	2	2	3	1		"Ensure that 100% new construction meets LEED certification standards."
Expand Park & Ride shuttle to the Airport	2	2	1	1	1	2	1		"Evaluate opportunities to expand current alternative fuel shuttle buses to areas of heavy use and traffic."
Create compact, walkable future airport developments	1	1	1	1	1	2	1		N/A
Conduct regular waste audits	2	2	2	2	N/B	3	2		N/A
Achieve LEED O&M certification for Airport buildings	2	3	1	2	N/B	3	1		"Develop schedule to bring existing buildings into LEED Existing Buildings Operations and Maintenance system when possible."
Install bottle refill stations	2	1	2	1	N/B	3	1		N/A
Add a 30kW solar PV system to the terminal building and 25kW solar PV system to ARFF station	2	2	4	1	2	2	2		"Purchase 100% renewable energy-generated electricity."
Add insulation to the exterior walls of the terminal building	2	1	4	1	1	2	1		N/A
Redesign the water distribution system & upgrade the controls	2	1	3	1	1	1	N/B		N/A
Upgrade the HVAC system in the terminal building	2	1	2	1	1	2	N/B		N/A
Achieve Airport Carbon Accreditation Level 1 or 2	1	1	1	1	2	2	2		N/A
Replace retired vehicles with hybrid options (or other alternative fuel)	3	2	3	1	2	2	N/B		"Evaluate opportunity to replace conventional vehicles with alternative fuel vehicles including hybrid electric vehicles, electric vehicles, compressed natural gas, and biodiesel."
Re-establish former rain water containment system on FAA-approved part of the airport	2	2	2	1	N/B	1	1		N/A
Conduct a resiliency & preparedness study to address where Airport is vulnerable to climate and cyber threats.	1	1	1	1	N/B	1	1		"Conduct applicable vulnerability assessments."

KEY

Initial Investment
1 – < $5,000
2 – $5,000 to $100,000
3 – $100,000 to $500,000
4 – > $500,000

O & M Cost
1 – < $5,000 (savings)
2 – $5,000 to $50,000
3 – $50,000 to $100,000
4 – > $100,000

Payback Period
1 – 0 to 2 years
2 – 2 to 5 years
3 – 5 to 15 years
4 - > 15 year

Staffing Requirement
1 – < 10 hours per month
2 – 10-50 hours per month
3 – 50 – 200 hours per month

Energy Reduction
N/B – No benefit
1 – Decreases consumption
2 – Decreases consumption & generates renewable

Environmental Benefits
N/B – No benefit
1 – Low benefit
2 – Moderate benefit
3 – Multiple benefits

Social Benefits
N/B – No benefit
1 – Low benefit
2 – Moderate benefit
3 – Multiple benefits

Air Quality · Energy · Land Use · Planned Development · Natural Resource · Construction Methods · Resiliency · Waste Management · Water

Source: SAGA Sustainable Practices Database (November 2016), Quest Energy Group (June 2016)



GRAND CANYON NATIONAL PARK AIRPORT ARIZONA

EXHIBIT 7C
SUSTAINABLE REPORT CARD

SUSTAINABILITY PERFORMANCE TARGETS	KEY PERFORMANCE INDICATORS	REPORTING YEAR STATUS	BASELINE YEAR DATA	IMPROVEMENT FROM BASELINE YEAR	IMPROVEMENT FROM PREVIOUS YEAR
Air Quality	Airport Carbon Accreditation status & level		N/A		
	GHG emissions (tons/year)[1]		11,393		
	# of alternative fuel/low-emission fleet vehicles		0		
	# of "No Idling" signs in parking lots[2]		0		
	# of tenants that adopt fuel reduction strategies		0		
Energy	Energy use (kWhs/year)[3]		510,582		
	# of buildings with LED light fixtures		0		
	On-site energy generation (kWhs/year)[4]		7,022		
	Energy costs ($/year)		78,989		
Natural Resource Management	# of buildings that use herbicides or pesticides		20		
	Annual expenditures on sustainable & locally sourced materials		0		
	# of cleaning products certified by an eco-label		0		
Land Use	# of average daily vehicle trips to the Airport[5]		300		
	# of days the parking lot reaches capacity		Baseline Unknown		
	% of alternative (bus, bike, walk) transportation used by staff/visitors/passengers to & from GCN		20		
Planned Development	# of development projects with sustainable elements		0		
	# of development projects that consider Tusayan CIPs		0		
	# of contracts/documents that include sustainable elements		0		
	Capital expenditures on projects with sustainable elements		0		
Construction Methods	Volume of construction and demolition waste (cubic yards/year)		Baseline Unknown		
	# of buildings with green elements		1		
	Expenditures for locally/regionally sourced materials ($/year)		Baseline Unknown		
	# of green building awards from Coconino County's Sustainable Building Program		1		
Resiliency & Preparedness	Cost of extreme events to Airport ($/year)		0		
	# of resiliency training/education events		0		
	# of annual cyber security threats		0		
Waste Management[6]	Weight of waste sent to the landfill (tons/year)		1,378		
	# of tenants that recycle		Baseline Unknown		
	# of recycling signs in Airport managed buildings		0		
	# of recycling bins for uncommon items (i.e. batteries)		0		
	Weight of food scraps collected from tenants, passengers & residences (pounds)		0		
	Roundtrip vehicle miles traveled by solid waste & recycling provider(s) (miles/pick-up)[7]		470		
	# of annual solid waste & recycling pick-ups[8]		78		
	Cost of recycling & solid waste services ($/year)		8,800		
Water[9]	Amount of water used (gal/year)		2,621,623		
	Annual water costs ($/gal)		82,715		
	# of water conservation signs in Airport restrooms		0		
	# of tenant leases with water conservation clause		23		
	# of educational trainings held for employees & tenants regarding water conservation		0		
	# of faucets, toilets & shower heads with low-flow options		0		
	Amount of harvested rain water (gallons/year)		0		



EXHIBIT 7C
SUSTAINABLE REPORT CARD

GRAND CANYON
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Were there any issues or challenges implementing any of the Sustainability Performance Targets? (e.g., Additional staffing, funding needed, etc.)

List any lessons learned or best practices for implementation in the following reporting year.

Include/attach any pertinent data that complements the Report Card for record keeping purposes.

[1] Greenhouse gases (GHGs) include CO_2, CH_2, N_2O, and CO_2e calculated using the Airport Carbon and Emissions Reporting Tool (ACERT)
[2] As a static measure, this can be removed once signs are placed in parking lot
[3] Energy use includes electric only (natural gas is not used at GCN)
[4] Solar generation estimated as a percent of total electric use (6% in baseline year)
[5] This baseline is an estimation based on peak season
[6] All waste & recycling figures assume 90% capacity in the 6- and 8-yard trash dumpsters & 4-yard recycling container
[7] Current waste provider dumps at Painted Desert Landfill (160 miles one way); Current recycling provider hauls to Flagstaff Hauling and Transfer (75 miles one way)
[8] Based on weekly solid waste pickups and bi-monthly recycling pick ups
[9] Some water usage includes submetered water from businesses on Airport property

EXHIBIT 7D
SUSTAINABILITY PROGRAM

GRAND CANYON NATIONAL PARK AIRPORT
ARIZONA

AIR QUALITY

Sustainability Goal: Improve regional air quality by reducing GHG emissions from GCN users & enacting policies to reduce emissions from Airport-controlled sources.

At airports, GHG emissions, like CO_2, result primarily from the combustion of fossil fuels which emanate primarily from aircraft engines, public and airside vehicles, and electricity consumption. GHGs have been linked to changes in the Earth's climate, like increased air temperatures, sea level rise, and more frequent and intense storms. Reduction of GHGs could help mitigate some of these effects.

Example Baseline Action: The Airport has implemented anti-idling practices for fleet vehicles, which reduces GHG emissions.

Select Sustainability Actions for Potential Implementation:

- Transition retired Airport vehicles to hybrid or other alternative low-fuel options.
- Upgrade the terminal building's HVAC system to bring in 100% outside air when conditions allow.
- Encourage aircraft operators to perform de-rated take-off or thrust procedures when safe and prudent.

ENERGY

Sustainability Goal: Expand energy efficiency measures and renewable energy opportunities.

Energy conservation initiatives at airports result in direct energy savings. The generation and/or procurement of renewable energy minimizes an airport's dependence on fossil fuels. Both tactics could reduce GCN's utility costs, provide for long-term stability in those costs, and reduce associated GHG emissions.

Example Baseline Action: : The Airport installed a 4.6 kW solar PV system to the ARFF Station, which provides six percent of the building's annual energy needs

Select Sustainability Actions for Potential Implementation:

- Expand solar PV to the terminal building and add on to existing solar capability at the ARFF station.
- Transition all lighting fixtures to LED technology.

NATURAL RESOURCE MANAGEMENT

Sustainability Goal: Incorporate procurement, landscaping, and janitorial practices that reduce the burden on surrounding natural resources.

GCN is uniquely situated amidst the Kaibab National Forest and Grand Canyon National Park, making natural resource management especially important. Natural resource management aims to preserve and protect land, water, soil, plants, and animals, ensuring that current use is not negatively impacting the future needs for these resources.

Example Baseline Action: The Airport practices xeriscaping methods at the ARFF Station, which uses less water than traditional landscaping, and no herbicides or pesticides.

Select Sustainability Actions for Potential Implementation:

- Eliminate herbicides and pesticides use Airport-wide.
- Establish a green cleaning policy (such as LEED O&M) to reduce watershed contamination.

LAND USE

Sustainability Goal: Preserve surrounding environment by encouraging alternative transportation modes to and from the Airport, and reducing noise and light pollution caused by Airport activities.

The FAA guides development of the built environment around an airport to ensure compatibility between an airport and surrounding land uses. This ensures both the safety of surrounding areas, as well as the minimization of noise disturbance that aircraft operations can cause.

Example Baseline Action: The ARFF Station has vehicle parking spaces reserved for those who carpool and/or drive alternatively fueled vehicles.

Select Sustainability Actions for Potential Implementation:

- Extend the Tusayan Park & Ride Shuttle to include a stop at the Airport.
- Promote existing walking trails to Airport visitors and employees as an alternate to driving.

PLANNED DEVELOPMENT

Sustainability Goal: Develop capital improvement projects that consider both present and future needs.

Planned development considers all future construction projects, both on and off Airport property. A capital improvement program generally forecasts the necessary capital, funding source, and timeline of development projects.

Example Baseline Action: The Airport built the ARFF Station in 2010, achieving LEED Gold from USGBC and the Advanced Level Plus Sustainable Building Award from Coconino County.

Select Sustainability Actions for Potential Implementation:

- Incorporate sustainability into Airport planning documents and contracts.
- Require all new or reconstructed developments to achieve LEED certification.

CONSTRUCTION METHODS

Sustainability Goal: Incorporate sustainability into all Airport construction methods.

Construction activities are significant generators of GHG emissions and solid waste, which makes sustainable construction critical. Green construction methods include sourcing materials locally versus shipping from far distances, using products that have low chemical inputs and outputs, reusing materials when appropriate, and designs that reduce the development's carbon footprint (i.e. harvesting rainwater, passive heating/cooling).

Example Baseline Action: The Airport encourages contractors to recycle materials when appropriate, including asphalt and concrete pavement material.

Select Sustainability Actions for Potential Implementation:

- Establish and adopt a green construction policy.
- Reduce the amount of waste related to construction and demolition.

RESILIENCY & PREPAREDNESS

Sustainability Goal: Protect the Airport from climate risks and cyber security threats.

Being prepared for potential threats to GCN like forest fires, and/or cyber security attacks can protect the Airport from catastrophic loss of infrastructure, data, and revenue. A resilient airport is one that can absorb shocks to its operations and maintain the same level of service.

Example Baseline Action: GCN has an Airport Emergency Plan that provides guidance during an emergency occurring at the Airport.

Select Sustainability Actions for Potential Implementation:

- Conduct a resiliency and preparedness study to address the reduction of vulnerabilities.
- Create and adopt an Airport Climate Action Plan.

WASTE MANAGEMENT

Sustainability Goal: Increase waste diversion rate through increased recycling and composting efforts.

Airports generate varying types and amounts of waste that primarily include municipal solid waste, construction and demolition debris, compostable waste, and deplaned waste. Minimizing waste and increasing diversion activities through recycling and composting could reduce related costs and minimize associated environmental impacts.

Example Baseline Action: The Airport currently composts chip trees and maintains a pile of horse manure, which is used for landscaping and soil remediation.

Select Sustainability Actions for Potential Implementation:

- Decrease vehicle miles traveled by solid waste and recycling providers by having as-needed pickups versus scheduled service.
- Begin a food scrap composting program that collects compost from residents, tenants, passengers, and staff that can be used within landscaped areas of the Airport.

WATER

Sustainability Goal: Reduce potable water consumption with expanded efficiency measures and reclaimed/grey water use.

Water is a precious resource in the Grand Canyon and Tusayan area. GCN has previously harvested rain water and processed it for reuse in its buildings; however, this system is no longer operational. Reducing potable water use for activities that could rely on grey or reclaimed water is a critical step in managing the amount of water demanded at the Airport.

Example Baseline Action: GCN encourages on-Airport residents to conserve water by allowing a set amount of usage (gallons) per month.

Select Sustainability Actions for Potential Implementation:

- Re-establish the former rain water containment system on a part of Airport property approved by the FAA.
- Transition all faucets, toilets, and showers to low-flow fixtures.

KEY

ARFF: Aircraft Rescue and Fire Fighting
FAA: Federal Aviation Administration
GCN: Grand Canyon National Park Airport
GHG: Greenhouse gas
HVAC: Heating, ventilation, and air conditioning
LEED O&M: Leadership in Energy and Environmental Design Operations and Maintenance
LED: Light-emitting diode
PV: Photovoltaic
USGBC: United States Green Building Council

ADOT



GRAND CANYON NATIONAL PARK AIRPORT ARIZONA

FUNDING OPPORTUNITIES

- Airport Improvement Program (AIP) Grant Funding
  - FAA Voluntary Airport Low Emissions Program
  - Zero Emissions Vehicle and Infrastructure Pilot Program
  - Program to Increase Energy Efficiency of Airport Power Sources
  - Energy Efficiency Improvement Costs
- Non-AIP Funding Sources
  - AZ Department of Environmental Quality Targeted Watershed Improvement Projects
  - AZ Department of Transportation, Aeronautics Division, Airport Grants and Loan Program
  - Third Party Financing


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QUESTIONS?