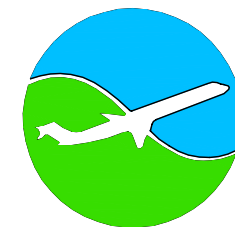




AVIATION RELATED DEVELOPMENT PLAN

McGhee Tyson Airport



PREPARED BY
LOCKWOOD GREENE
AND
THE LPA GROUP
APRIL 2001

TABLE OF CONTENTS

TITLE	PAGE	FIGURES	PAGE	TITLE	PAGE	FIGURES	PAGE
Table of contents	ii						
Introduction	1	Aerial Photo	2	Development Area 5		Development Area 5	
Regional Context	3	Regional Map	4	Potential Development Capacity	69	Rendering	70
Development Plan	5	Development Plan	6	Feasible Building Area	71	Phasing Plan	72
General Land Use	7	General Land Use Plan	8	Phasing	73	Landside and Rail Access	74
Main Trunk Utilities		Main Trunk Line		Airside, Landside & Rail Access	75	Feasible Building Area	76
Existing	9	Existing	10	Grading Plan	77	Grading	78
Improvements	11	Improvements	12	Storm Water Management	79	Storm Water Management	80
All Development Areas Existing		All Development Areas Existing		Existing Utilities	81	Existing Utility	82
Storm Water Management	13	Storm Water Management	14	Proposed Utilities	83	Proposed Utility	84
Development Phasing	15	Development Plan Phasing	16	Utilities Phasing	85	Utilities Phasing Plan	86
				Reference Contacts	87		
Development Area 1		Development Area 1		Supplemental Documents (Under Separate Cover)			
Potential Development Capacity	17	Rendering	18	Executive Summary			
Property Acquisition	19	Property Acquisition	20	Mass Grading Plan			
Feasible Building Area	21	Feasible Building Area	22	Conceptual Development Costs			
Phasing Plan	23	Phasing Plan	24	Environmental Report			
Airside and Landside Access	25	Airside and Landside Access	26	ATCT Line-of-Sight Study			
Grading Plan	27	Grading Plan	28	Storm Water Management Calculations			
Storm Water Management	29	Storm Water Management	30	Design Guidelines			
Existing Utilities	31	Existing Utility	32				
Proposed Utilities	33	Proposed Utility	34				
Utilities Phasing	35	Utility Phasing Plan	36				
Development Area 2 & 3		Development Area 2 & 3					
Potential Development Capacity	37	Rendering	38				
Land Use Plan	39	Land Use Plan	40				
Phasing	41	Phasing Plan	42				
Airside and Landside Access	43	Airside and Landside Access	44				
Grading Plan	45	Grading	46				
Storm Water Management	47	Storm Water Management	48				
Existing Utilities	49	Existing Utility	50				
Proposed Utilities	51	Proposed Utility	52				
Utilities Phasing	53	Utilities Phasing Plan	54				
Development Area 4		Development Area 4					
Potential Development Capacity	55	Rendering	56				
Phasing	57	Phasing Plan	58				
Airside and Landside Access	59	Airside and Landside Access	60				
Grading & Storm Water Mgt.	61	Grading	62				
Existing Utilities	63	Existing Utility	64				
Proposed Utilities	65	Proposed Utility	66				
Utilities Phasing	67	Utilities Phasing Plan	68				

INTRODUCTION

Regional Airport - The McGhee Tyson Airport is a regional airport located in East Tennessee. The airport is located approximately 12 miles from the central business district of Knoxville, Tennessee within the City limits of Alcoa, Tennessee. Aviation service is provided to major national destinations directly or through connections at other regional hubs in Charlotte, NC, Atlanta, GA and Cincinnati, OH. The McGhee Tyson has direct flights to 14 destinations. Interstate I-140 provides direct vehicular access to nearby cross-county Interstate Highways I-75 (north and south) and I-40 (east and west).

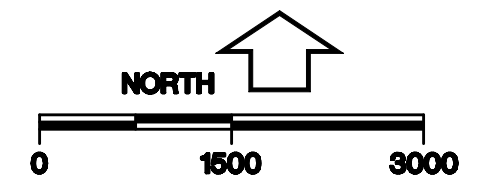
History - Originally named after a WWI aviator, McGhee Tyson, Knoxville's first aviation facility was established

in 1919. As aviation business outgrew its original location, the airport was re-established at its present location Blount County in 1937. Major renovations have occurred at several intervals include 1974 and 1999 when new passenger terminals were built.

Management - The Metropolitan Knoxville (Tennessee) Airport Authority (MKAA) with a professional staff and a nine-member Board of Commissioners manages the airport. Principal objectives of the MKAA include meeting the needs of (1) the Region for aviation-related facilities and services and (2) current and future airport customers.

Operations - In addition to 1.3 million passenger enplanements annually, the airport serves the air cargo industry, corporate and private aviation, and maintenance, repair and overhaul operators.

Purpose of Development Plan - The Development Plan described herein has been prepared to help assure the most functional and economical development of airport land and facilities.



AERIAL PHOTOGRAPH
McGhee Tyson Airport



REGIONAL CONTEXT

The McGhee Tyson Airport is located in East Tennessee's Blount County near the cities of Knoxville, Alcoa, Maryville, Gatlinburg and Oak Ridge. The Airport serves the aviation needs of the East Tennessee Region that is experiencing increased growth rates in various economic markets including manufacturing and tourism.

The region's abundant inventory of developable land, the attraction of the nearby Great Smoky Mountains National Park, the City of Knoxville and resources at the nearby Oak Ridge National Laboratory and the University of Tennessee are among the region's unique destinations and assets. With seven major airlines and 120 arrivals and

departures each day, McGhee Tyson Airport is among the fastest growing airports in the nation.

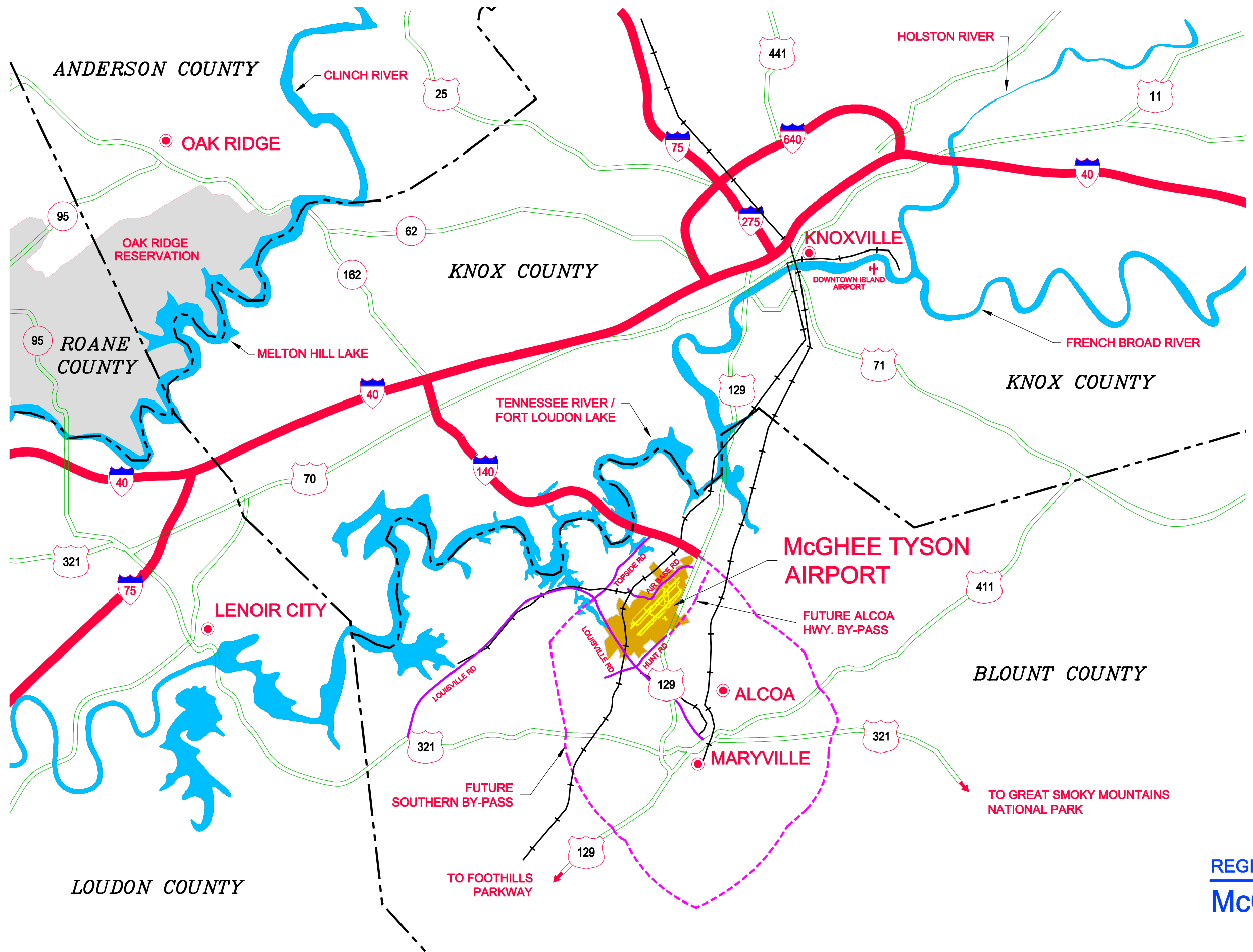
In addition to a principal passenger service airport serving the Southeastern United States, the McGhee Tyson Airport also accommodates numerous general aviation, air cargo, and aircraft maintenance businesses. These and future airport customers benefit from the continuing improvements to airport facilities as well as the intermodal nature of transport in the Region. The Aviation Development Plan accommodates opportunities associated linking current and planned air and land routes.

As indicated on the Regional map, the Interstate 140 (I-140) connector provides direct ground transportation to and from the Airport and the











national interstate highway system, and affords wide ranging ground accessibility to current and future aviation customers. As a part of its Aviation Development Plan, future land development is planned in accordance with the transportation improvement plans of local and State departments for public roadway transportation.

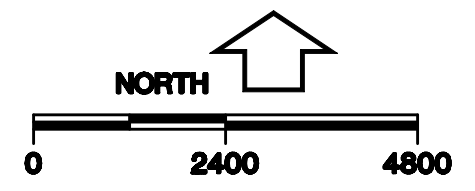
The Airport is in close proximity to three new industrial parks, including the Airport's Development Area 5. Area 5 designated in the Aviation Development Plan is included in the Regional inventory of industrial park sites and provides location opportunities for those industrial and manufacturing customers that can benefit from adjacent proximity to an Airport.

The airport is strategically located in East Tennessee at the convergences of major north-south and east-west interstate highways, a major CSX Railroad line, and has access to waterway linkage to the Mississippi River. Additionally, the 1995 Master Plan for McGhee Tyson Airport includes the location for the Airport's next runway, expanded terminal facilities, and future roadway access planned to accommodate aviation needs well into the future.



REGIONAL MAP

-  AIRPORT PROPERTY
-  INTERSTATE HIGHWAY
-  FEDERAL HIGHWAY
-  STATE ROAD
-  COUNTY ROAD
-  FUTURE ROAD
-  RAILROAD
-  LAKE OR RIVER
-  CITY OR TOWNS
-  COUNTIES



DEVELOPMENT PLAN

Overview – During the past three years, many prospective tenant representatives have approached the Airport Authority regarding the availability of land to develop facilities for businesses that require airport access. While attempting to follow the recommendations of the FAA 1995 Master Plan, and accommodate the needs of the prospective tenants, the Airport Authority realized that a plan with a greater level of detail than what the Master Plan provided was necessary.

This Development Plan has been prepared to help assure that the most functional and economical growth and development of airport land and facilities are achieved. The plan provides the guidance to prepare the land and access that will encourage and enable the development of specific business facilities. The plan addresses the following issues:

- Land Use
- Property Ownership and Acquisition
- Airfield Access Requirements
- Roadway Access Requirements

- Interaction with Intermodal Transportation facilities
- Utility Requirements
- Land Preparation
 - Environmental Overview
 - Earthwork
 - Storm Water Management
- Estimates of Development Costs

Land Areas 1, 2, 3, 4, and 5 – Five areas within the perimeter of the airport have been identified by the Airport Authority as being the primary areas of potential development. These five areas are the focus for the study. In order to study the five areas, consideration has also been given to adjoining lands and facilities for the evaluation of compatibility and growth.

The five areas are comprised in total or in part of property owned by the Airport Authority. Within the development areas, properties that are not owned by the Airport Authority are comprised of single-family

residences within rural areas and subdivisions, and commercial property.

Area 1 is located in the northeast quadrant of the airport and encompasses potential developable lands as well as the existing overnight cargo facilities and an aircraft maintenance facility. The land is comprised of property that is owned by the Airport Authority, and properties that are owned by individuals and businesses. The size of this area is approximately 210 acres.

Areas 2 and 3 are adjoining areas located to the southwest of the terminal area and comprise what is currently called the West Development Area. This area is currently under construction for earthwork and drainage in preparation for the construction of an aircraft parking apron and roadway access. The size of this area is approximately 140 acres.

Area 4 is located immediately southwest of Area 3, and is immediately adjacent to the Benford Heights and Armona subdivisions. The area is comprised of land that is owned

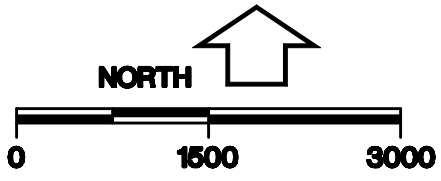
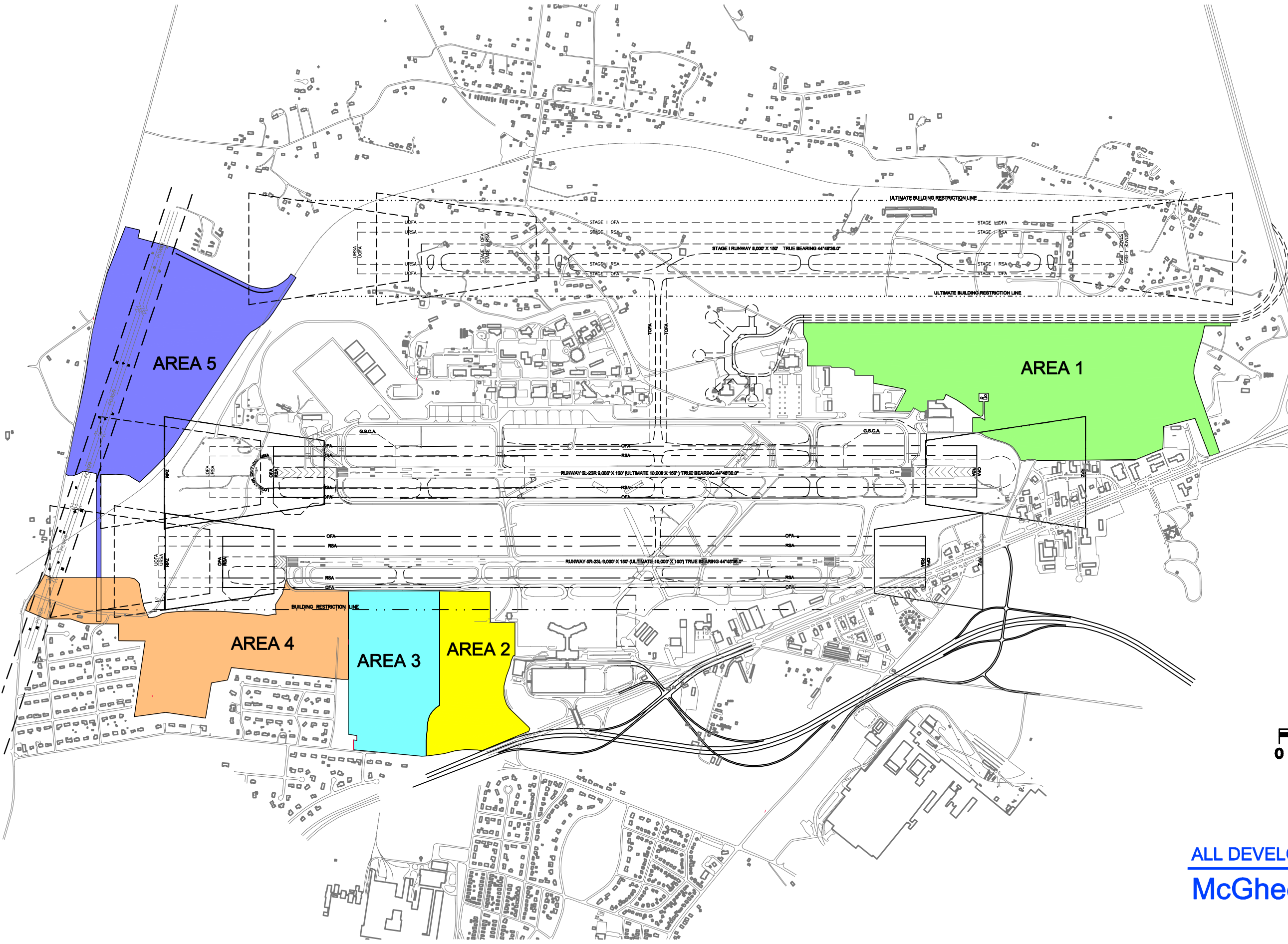
by the Airport Authority. The size of this area is approximately 94 acres.

Area 5 is located to the southwest of the airport on land that is owned by the Airport Authority. This area is separated from the airport by the CSX railroad tracks. The size of this area is approximately 160 acres.

An Environmental Overview of each of the five sites has been conducted in an effort to identify potential problems that need to be addressed in order for development within the areas to occur. Each site has been evaluated under six separate categories: Potential Section 303 (c) Property; Potential Cultural Resources; Potential Protected Species Habitat; Wetlands and Waters of the United States; 100-Year Floodplain; and Potential Hazardous Materials. At least one item requiring additional review was observed in each of the five areas.

**DEVELOPMENT
PLAN AREA**

-  DEVELOPMENT AREA 1
-  DEVELOPMENT AREA 2
-  DEVELOPMENT AREA 3
-  DEVELOPMENT AREA 4
-  DEVELOPMENT AREA 5



GENERAL LAND USE

The ultimate development of the Airport is anticipated to be confined by roadway infrastructure, with growth limited to the area bounded by I-140 (Pellissippi) as the easterly limit, SR 335 (Hunt Road) as part of the southerly limit, SR 334 (Louisville Road) as the westerly limit, and Mentor Road as the northerly limit. Airport development could occur to the southerly side of US 129 (Alcoa Highway) with development occurring on property currently owned by the Airport Authority.

Current uses of lands surrounding the airport primarily include commercial along Alcoa Highway; single family residential and recreational along Hunt Road; rural agricultural and residential along Louisville Road and Mentor Road; and single family/multi-family residential with a few commercial uses along SR 429 (Airbase Road).

Projections indicate that the trend of commercial and residential development within the area surrounding the airport will continue. In addition, it is expected that industrial development will occur on agricultural lands west of the airport and Louisville Road.

A portion of Airport Authority property, located in the southwest quadrant of the Airport, lies within the corporate limits of the City of Alcoa. All other land included within the limits of the Airport lie within Blount County.

Current land uses on the Airport include airfield facilities consisting of paved runways, taxiways, and aprons for the function of aircraft movements and parking; passenger service facilities including the newly renovated terminal, auto parking, and ground transportation; general aviation facilities; military facilities; air cargo facilities; and aircraft maintenance/repair/overhaul facilities.

The growth of the Airport, and uses of the land, should be directed towards meeting current facility deficiencies, encouraging the growth of current uses, and accommodating new development that will enhance the economic welfare of the community and region.

The Airport Authority has identified items of need for improvement of their operations. The items include the development of an efficient and improved field

maintenance facility; land allocation for a new safety facility; land allocation for terminal expansion; the development of new fuel facilities to compliment the existing facilities; allocation of land for development and growth; and identification of growth needs and potential users.

A market analysis and identification of potential opportunities for the Airport has been conducted by Global Aviation Associates, Ltd. Initially, the facility needs of the existing tenants that are the Airport Authority's core market, should be addressed.

Within the General Aviation sector of the airport uses, the needs include accommodation of increased space for the expansion of existing and the development of new hangars and vehicle parking facilities for FBO operations; segregation of cargo operations from general aviation operations; and the establishment of corporate aviation facilities separate from the FBO operations.

The needs for Air Cargo improvements include the expansion of the Airborne Express building; provisions of space for the U.S. Postal Service cargo activities currently provided on the general aviation apron; the reservation of land for the long-term future expansion of the FedEx and UPS facilities, and improve facilities for air carrier cargo and freight forwarder operations.

The aircraft Maintenance/Repair/Overhaul (MRO) industry is rapidly expanding, and the market is demanding of facilities to meet the shortages that exist. The needs of this sector of the airport uses are a high priority with three prospective new tenants desiring the accommodation of land for new facilities at the Airport.

The military operations at the Airport are not expected to expand during the next several years. However changes to the facilities and land uses within the designated military lease areas could occur.

Other demands for facilities and land uses at the airport could occur over mid-term and long-term periods. Land uses for manufacturing, warehousing, additional cargo, and MRO operations are potential areas for a market demand of aviation related development.

Growth of the Airport could ultimately include a third parallel runway and taxiway system, and a new air carrier terminal as depicted in the 1995 Master Plan. In the event that the facilities become a reality, the growth of the land use to the ultimate development towards Mentor Road could occur.

Land Side Development Planning - Land Areas 1, 2, 3, 4, and 5

For the Airport Authority to be in a position of timely responding to the needs of tenants, and requests from prospective tenants, an aggressive and pro-active program of land acquisition and zoning should be pursued to enable development to occur.

Changes and improvements to existing roadway systems and new roadways will need to be constructed to provide landside access to the development areas. Changes and improvements to existing roadways will be required to minimize the impacts of increased traffic resulting from the development areas, and to improve access to major thoroughfares and interstate highways. New roadways will be required to provide local access to the airport facilities, and to promote segregation of airport and non-airport traffic.

A limited access highway has been proposed by the City of Alcoa as a bypass of the congested commercial area of Alcoa Highway from the Airport northward past the I-140 interchange. This proposed highway and access to the Airport allows opportunities for the development of airport-use facilities south of Alcoa Highway, which can benefit the land use near the airfield.

Public utilities are available to each of the five areas. Changes and improvements of the facilities may be necessary based on the facility requirements of specific site developments.

Airside Development Planning - Land Areas 1, 2, 3, 4, and 5

Direct access onto the existing airfield facilities is limited by the presence of existing facilities, and the topography of the adjoining land. In order to meet demands for growth that requires airfield access, new taxiways will

need to be constructed. Three of the five areas identified for study will require the development of taxiways to provided the needed airfield access. The geometry and design of the facilities will be dictated by the most demanding aircraft use for the specific areas. Individual or common use aircraft aprons will be required to accommodate aircraft parking at specific facilities.

Taxiway access for Areas 1, 2, and 3 can be achieved from taxiway systems that presently exist or are shown on the current Airport layout Plan as future for connection to the third runway. Taxiway access for Area 4 will require a new taxiway paralleling the alignment of Taxiway 'A'.

Designated vehicular circulation routes within the Air Operations Area of the Airport exist to maximize a segregation of vehicles and aircraft. Within the development areas the addition of new roads, relocation of roads, and improvements to the roads will be required.

Future airfield access associated with the long-term development of the new terminal area and the third runway will be a second taxiway connecting the existing airfield to the third runway, lateral taxiways, access ramps, and aircraft parking aprons.

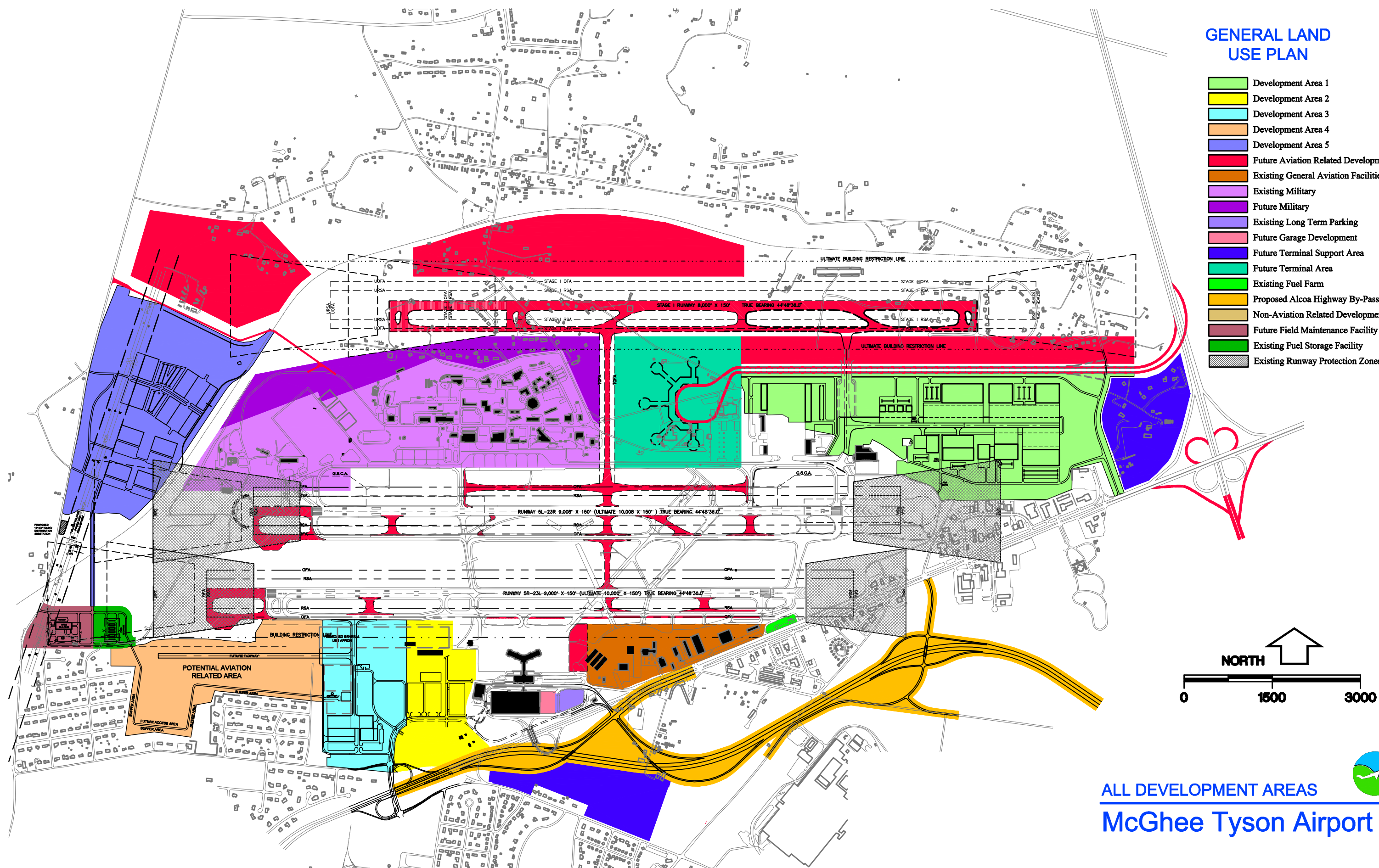
Line-of-Site Issues

Representatives of the FAA Air Traffic Control Tower (ATCT) at the Airport have expressed concerns regarding inadequate line of sight from the tower cab to all points on the airfield. These line of sight concerns are the result of off airport lighting, topography of the airport, and height of the ATCT facility.

A Line-of-Sight study has been conducted to determine the extent of any locations within the plan areas at which the direct view from the ATCT controller cab is restricted. Areas of the airfield pavement are/will be obstructed from full view from the controller cab due to either terrain or building structures. Specific areas of sight obstruction are further addressed in the descriptive narrative for each of the areas.

GENERAL LAND USE PLAN

- Development Area 1
- Development Area 2
- Development Area 3
- Development Area 4
- Development Area 5
- Future Aviation Related Development
- Existing General Aviation Facilities
- Existing Military
- Future Military
- Existing Long Term Parking
- Future Garage Development
- Future Terminal Support Area
- Future Terminal Area
- Existing Fuel Farm
- Proposed Alcoa Highway By-Pass
- Non-Aviation Related Development
- Future Field Maintenance Facility
- Existing Fuel Storage Facility
- Existing Runway Protection Zones



ALL DEVELOPMENT AREAS
McGhee Tyson Airport



MAIN TRUNK UTILITIES

Water Distribution System

The City of Alcoa Public Works Department provides water service to the Airport. The Airport uses water for a multitude of operations, including: drinking fountains and food preparation; general and aviation maintenance; mechanical and process equipment; restroom facilities; fire protection; landscape irrigation; and waterfalls/cascading fountains within the Terminal Building.

The supply of potable water from the City of Alcoa is sufficient to handle the current and long-term needs of the Airport. The supply of water used for fire protection is dependent on the type and use of facilities constructed. Under certain circumstances, hangar size and configuration may require water system upgrade or supplemental water supply. For all development that occurs, close coordination with the City of Alcoa is necessary. The Airport Authority's engineering consultant will prepare design drawings and water line distribution plans, and the City of Alcoa Public Works Department will review the engineer's plans and give approval for the final sizing and routing of water distribution lines for Airport development areas.

Sanitary Sewer

The City of Alcoa Public Works Department provides sanitary sewer service to the Airport, in addition, the waste water treatment facility is operated by the City of Maryville. For all development that occurs, close coordination with the Cities of Alcoa and Maryville is necessary. The Airport Authority's engineering consultant will prepare design drawings and system

requirements for sanitary sewer extensions, and the Cities of Alcoa and Maryville Public Works Departments will review the engineer's plans and give final approval for the configuration, size, and force main or gravity flow requirements for the sanitary sewer system at Airport Authority property.

Natural Gas

Major gas transmission pipelines of 6" diameter (Ø) and 12" Ø sizes, owned and maintained by Duke Energy Company traverse the McGhee Tyson Airport site in a generally east-west direction. From these transmission pipelines and with connections at existing pressure reducer and valve stations, United Cities Gas Company provides natural gas service to the Airport and surrounding properties with 2" Ø and 4" Ø pipelines. The supply of natural gas needed is dependent on the type and use of facilities constructed. For all development that occurs, close coordination with United Cities Gas Company is necessary. The Airport Authority's engineering consultant will prepare layout plans and design drawings for the extension of natural gas distribution lines, and United Cities Gas Company will review the engineering plans and approve the final routing and sizing of lines.

Communications System

Bell South currently provides telephone service to the Airport. However, the Airport also maintains its own telephone system apart from the regular phone service. The Airport Authority will be taking full control of the operations for all telecommunication, security and access control, and fire protection alarm systems by ultimately

connecting and looping all existing and proposed development areas with fiber optics wiring. With the demand for "shared tenant services" and the current availability of only 600 voice stations (phone connections), the Airport has a need for 200 more voice stations within the next 18 months. Close coordination with Bell South is essential in designing and installing the most advanced fiber optic communication systems for Airport property

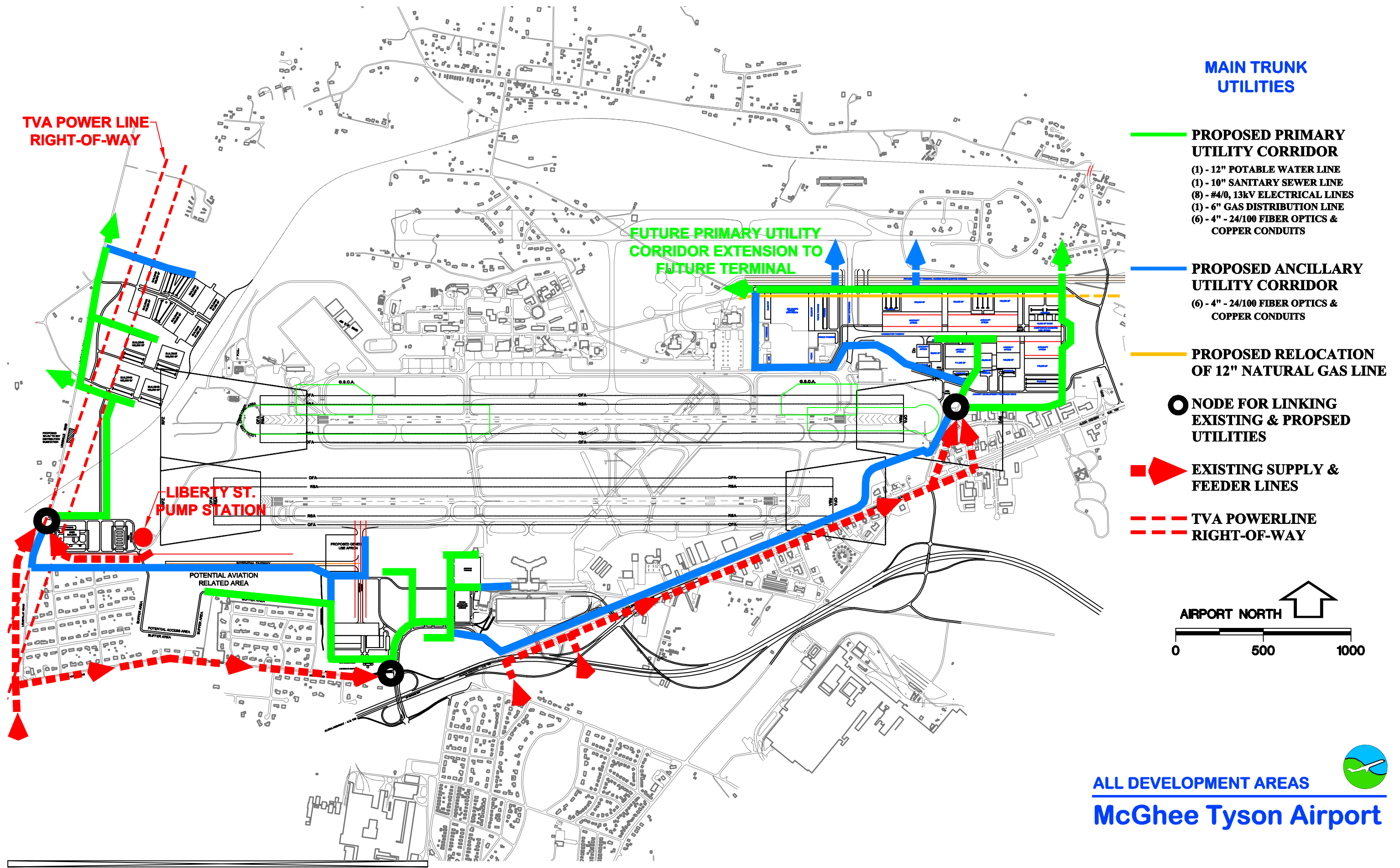
Electrical

The City of Alcoa Electrical Department provides electrical service to the Airport. Sufficient electrical system capacity exists to support current land uses and most proposed facilities far out into the future. Transformers, mostly owned by Alcoa Electric are located in the Terminal Building, runway lighting vault, and near the parking garage, Hilton Hotel, Knox-Air entrance gate, and at several other locations including, numerous pole-mounted transformers throughout Airport property.

Electricity demand is dependent on the specific type and use of facilities constructed. For all development that occurs, close coordination with the City of Alcoa is necessary. The final routing of all electrical lines and the location of transformers will be determined by Alcoa Electric, as they will design and construct all electrical distribution lines required to provide service to Airport property. The City of Alcoa will bill the Airport Authority for design, materials, and labor associated with the installation of these electrical lines.

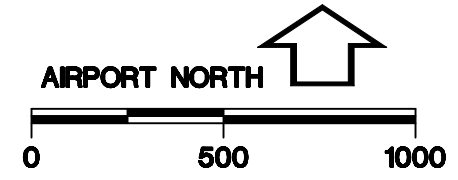
Currently, the City of Alcoa has plans to construct a new electrical distribution substation off of Louisville Road on Development Area Five. This new substation is sized to accommodate all new construction for Development Areas One through Five, as well new facilities on the Proffitt Farm (Airport Authority property) and the adjoining Burkhardt Farm (owned by Blount County and the Cities of Alcoa and Maryville). When in operation during the summer of 2002, the Louisville Road Substation would join two existing substations (Chandler and Duncan Substations) in providing electrical service to all new construction in and around the Airport for the next 40 years. The proposed Louisville Road Substation is sized to accommodate eight circuits, and will utilize #795 aluminum wire and two 3-phase transformers, each unit having a capacity of 22.5/37.5/42 MVA.

The existing Duncan and Chandler Substations currently serve the Airport and adjoining properties in the area. The Duncan Substation provides electrical distribution to the Airport Terminal and to areas along Alcoa Highway and Hunt Road, while the Chandler Substation serves the Tennessee Air National Guard Airbase, the Continental Express and Air Cargo areas, and the Louisville Road area. Future Airport Authority land and facilities associated with the construction of the proposed third runway will be provided electrical distribution by the Chandler Substation



MAIN TRUNK UTILITIES

- **PROPOSED PRIMARY UTILITY CORRIDOR**
 (1) - 12" POTABLE WATER LINE
 (1) - 10" SANITARY SEWER LINE
 (8) - #4/0, 13kV ELECTRICAL LINES
 (1) - 6" GAS DISTRIBUTION LINE
 (6) - 4" - 24/100 FIBER OPTICS & COPPER CONDUITS
- **PROPOSED ANCILLARY UTILITY CORRIDOR**
 (6) - 4" - 24/100 FIBER OPTICS & COPPER CONDUITS
- **PROPOSED RELOCATION OF 12" NATURAL GAS LINE**
- **NODE FOR LINKING EXISTING & PROPOSED UTILITIES**
- ▶ **EXISTING SUPPLY & FEEDER LINES**
- - - **TVA POWERLINE RIGHT-OF-WAY**



MAIN TRUNK UTILITIES IMPROVEMENTS

Underground utility corridors located within easements and roadway right-of-ways will contain the utility mains and distribution lines for all proposed utility connections within the five existing Airport Authority Development Areas. When in place these utility corridors will provide high-quality utility infrastructure, redundancy of essential systems, logical configurations for aviation-related services and corporate functions, and practical phasing and economical development of land and facilities. All existing Airport Authority property, on-going acquisitions, and future purchases of land by the Authority will benefit from an orderly and systematic approach to the installation of primary and ancillary utility corridors, including land for the construction of a future third runway, new terminal complex, potentially Development Area Six, and site development on the Proffitt and Burkhardt Farms.

Information regarding the routing, sizing, and types of wire, pipes, and system requirements for proposed electrical, water, and sanitary sewer distribution and extensions planned for Airport Authority development areas has been coordinated with the Electrical and Public Works Departments of the City of Alcoa. The Primary Utility Corridor planned for the development of Airport properties will consist of underground utility infrastructure, including: a 12" Ø potable water line capable of providing up to 300 gpm for operational needs and 1,000 gpm reserve for fire protection; a 10" Ø sanitary sewer line consisting mostly of gravity flow, but requiring some force main usage; eight # 4/0, 13.2 kV, 3-phase, dual primary-feed electrical lines; a 6" Ø gas distribution line with a capacity of 350 psi; and six (4" Ø) 24/100 fiber optic conduits, each containing 24 strands of fiber optic conductors and 100 pairs of copper conductors. Ancillary Utility Corridors will be vital to

site development and utilities distribution in areas requiring minimal utility services, and will serve buildings and areas mostly with telecommunications for telephone, security systems, fire protection alarms, FAA and Airport Authority communications, aircraft guidance and runway sensors, computer data links, and cable TV.

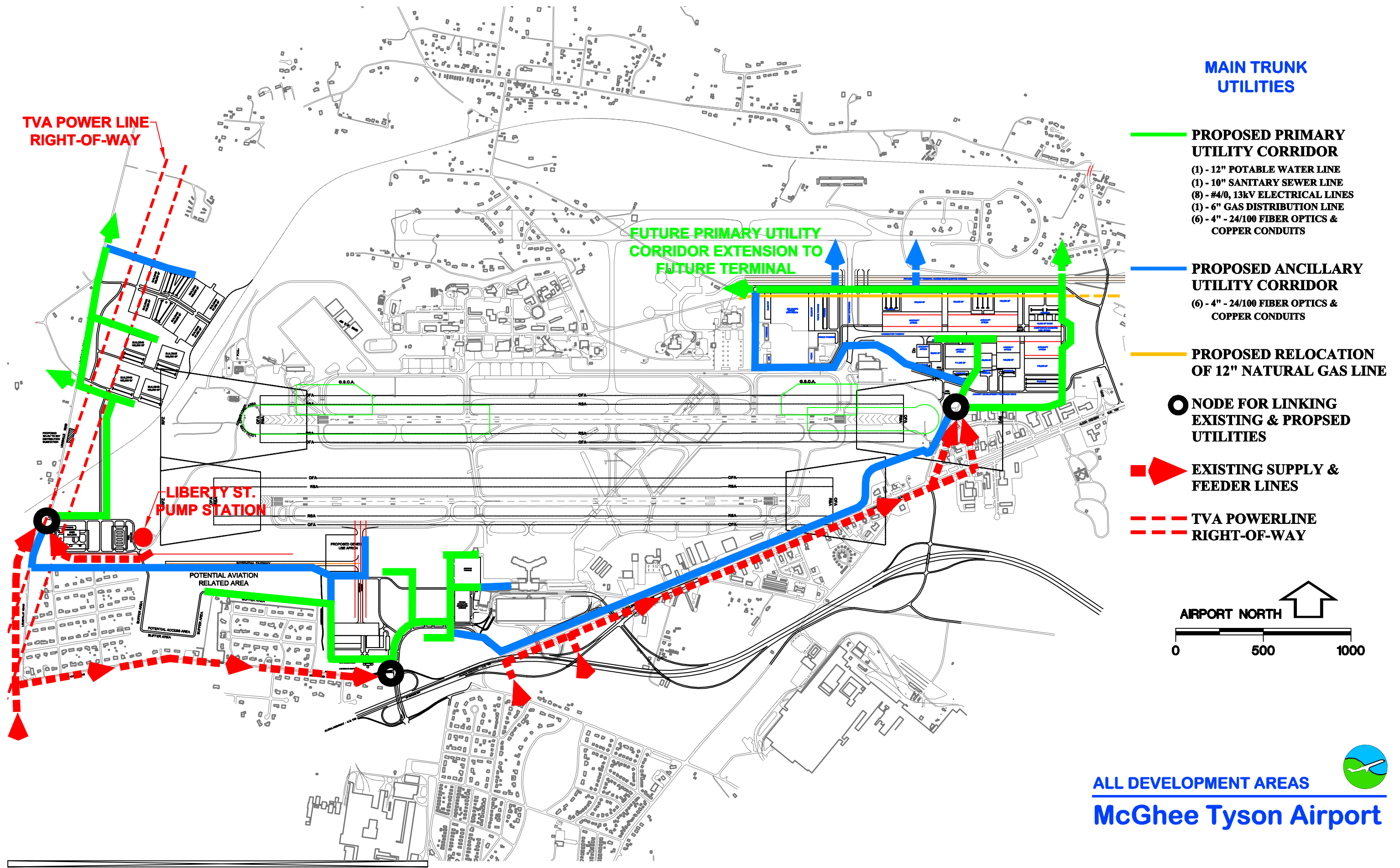
Utilities Phasing

A vital component in the formulation of the Master Development Plan includes the phasing of proposed utilities infrastructure. The process of phasing utilities planned to serve site development began with the characterization of existing site features and utilities within Airport Authority property. An understanding of the complex programmatic, functional, and economic relationships led to assumptions and goals used in producing planning criteria, and the analysis of data

revealed the limitations of existing utilities and support systems to accommodate projected growth.

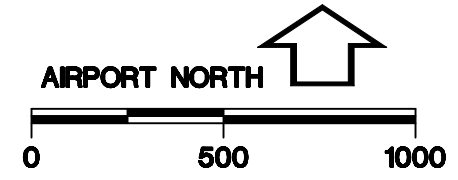
Therefore, most proposed facilities and utility corridors are located based upon perceived needs in terms of proximity, support, and site development capability.

Providing areas for near-term growth creates opportunities for rapid change and construction flexibility, and provides stages of growth as the Development Plan progresses toward its ultimate implementation. Proposed mass grading, storm water management, and construction schedules are vital in serving as the bases for near-term and long-term planning, and have led to recommendations concerning the logical phasing of utilities within Development Areas One through Five.



MAIN TRUNK UTILITIES

- PROPOSED PRIMARY UTILITY CORRIDOR**
 - (1) - 12" POTABLE WATER LINE
 - (1) - 10" SANITARY SEWER LINE
 - (8) - #4/0, 13kV ELECTRICAL LINES
 - (1) - 6" GAS DISTRIBUTION LINE
 - (6) - 4" - 24/100 FIBER OPTICS & COPPER CONDUITS
- PROPOSED ANCILLARY UTILITY CORRIDOR**
 - (6) - 4" - 24/100 FIBER OPTICS & COPPER CONDUITS
- PROPOSED RELOCATION OF 12" NATURAL GAS LINE**
- NODE FOR LINKING EXISTING & PROPOSED UTILITIES**
- ▶ EXISTING SUPPLY & FEEDER LINES**
- - - TVA POWERLINE RIGHT-OF-WAY**



STORM WATER MANAGEMENT

Prior to 1937, before being commissioned as McGhee Tyson Airport, the land use of the site was agricultural. At that time, the facility consisted of two asphalt runways, a small terminal building, aircraft and automobile parking areas, and one storage/maintenance hangar, all constructed on a 351-acre parcel of land. Since then, the Airport has expanded to include approximately 2,677 acres, including 475 acres of impervious surfaces. Airport Authority holdings continue to expand with on-going acquisitions of real estate in areas adjoining the Airport.

Land surfaces in the region consist of series of low valleys and ridges with gentle slopes. More than three-quarters of the slopes are located in lowlands, and local relief ranges from 100-200 feet. Common physiographic features include preferential drainage due to the parallel

nature of the strata and the development of karst features, with approximately 30 to 90 feet of clay, silt, sand, and gravel underlie the Airport area. Ground water moves through the soil in a downward and/or lateral direction as dictated by gravity and the placement of semi-impermeable or impermeable confining layers. Groundwater is often available in sufficient amounts for industrial, as well as domestic uses. Surface water at the site drains in a northwestern direction toward Russell Branch, a tributary of the Little River, and in a southwestern direction toward an unnamed tributary of Lackey Creek, with both streams discharging into the Tennessee River.

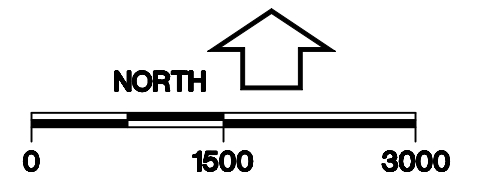
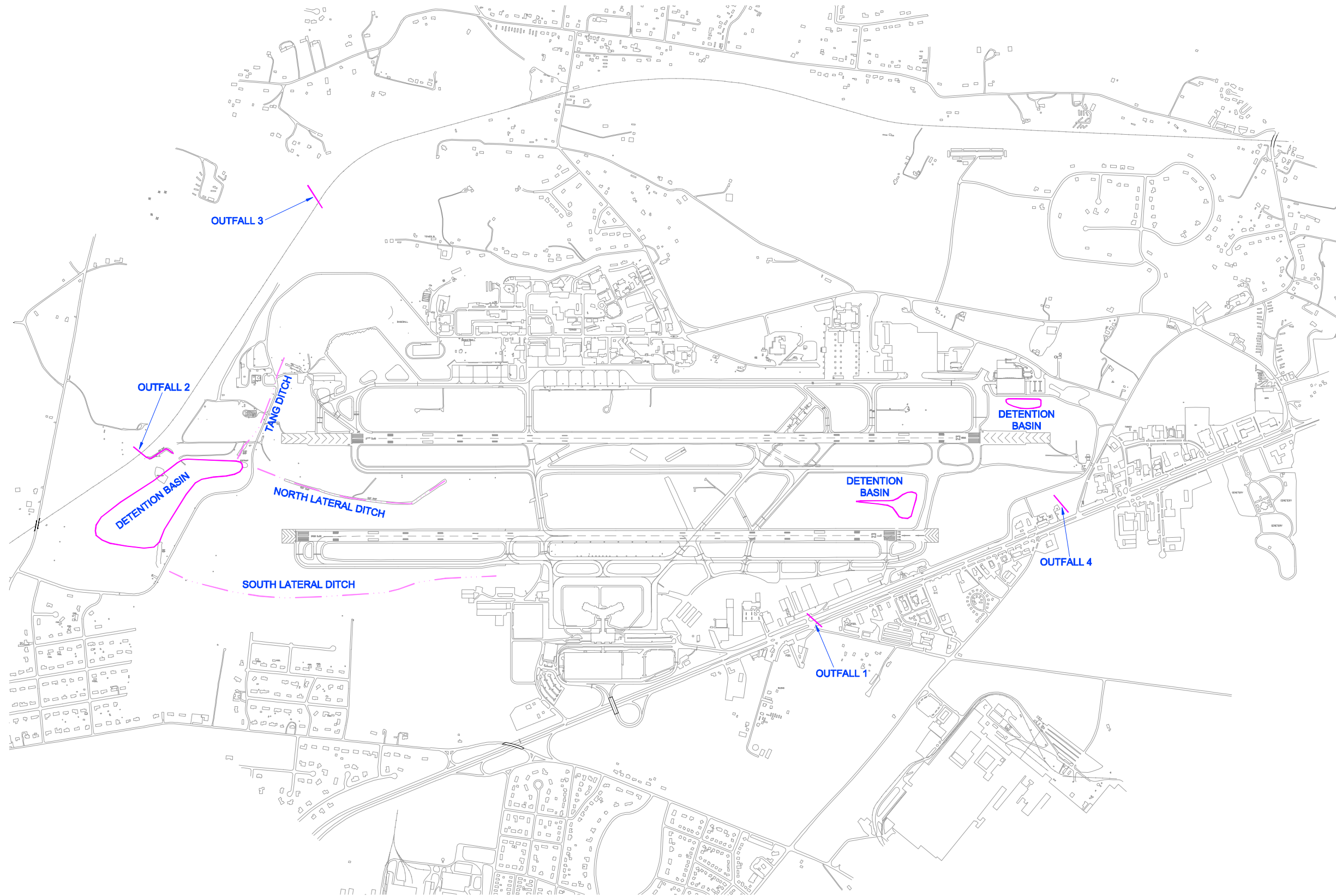
The storm water drainage system for the Airport is designed to convey storm water off airport property via four outfalls: Outfall #1 is located along the southern

border of Airport property across Alcoa Highway from the KnoxAir Terminal Building; Outfall #2 is near the sedimentation pond located on the western portion of the Airport; Outfall #3 is located along the northern border of Airport property near the Tennessee Air National Guard Airbase; and Outfall #4 is located adjacent to the southeastern border of the Airport.

The storm water drainage system at the Airport consists of a graded air operations apron, storm water drains located throughout the apron and near taxiways, runway drainage swales, lateral riprap drainage ditches, naturally draining topography, and sedimentation/storm water detention ponds. Drainage from storm sewers is ultimately directed toward the ponds or one of three outfall culverts located along the boundaries of the Airport.

At Outfall #1, effluent discharges through a 4'x 8' box culvert to an unnamed tributary of Russell Branch., which flows into the Little River embayment of Fort Loudon Lake. Outfall #2, located near the sedimentation pond conveys drainage into the pond from lateral ditches and from the northern drainage ditch of the Airbase. A manually operated 42" Ø gate valve controls discharge from the pond, and the resulting effluent is released through a culvert into an unnamed tributary of Lackey Creek, which eventually flows into Fort Loudon Lake. Outfall #3 consists of a culvert, which also flows into Fort Loudon Lake via Lackey Creek. Outfall #4 discharges to an unnamed tributary of Russell Branch, which flows to the Little River embayment of Fort Loudon Lake.

EXISTING STORM WATER MANAGEMENT



DEVELOPMENT PHASING

The growth of the Airport will occur in phases dictated by demand for growth. Two other factors will influence the growth of the Airport: land and cost.

Demand:

The near-term of the airport will accommodate the demands presented by the operational needs of the Airport, the success of marketing efforts, and the accommodation of business requests. The five designated development areas are the primary locations for accommodating these demands.

The long-term growth of the Airport will accommodate the aviation needs for increased capacity of the airfield. The development of the third runway will meet this demand. The development of the third runway will also increase the opportunity for additional airport growth and development within adjoining land areas.

Land Availability – Near Term and Long Term Development Areas (next to the third runway)

The Airport Authority is progressing toward the acquisition of land needed to meet the aviation demands of the region. The Airport Authority maintains a policy of promoting a willingness to negotiate for the fair market value purchase of property when landowners offer to sell.

This is currently limited to areas designated by the 1995 Airport Master Plan for growth and land use.

Land Status and Property Acquisition:

The Airport Authority owns the land within Development Areas 2, 3, 4 and 5. The land within Areas 2 and 3 has been rezoned for aviation use, and the City of Alcoa Planning Commission has approved the proposed development plans.

The Airport Authority owns the majority of the land within Development Area 1. Fifty-eight (58) land parcels, constituting 294 acres, need to be acquired for the full development of Area 1 to occur. These parcels lie outside of the limits of the City of Alcoa, but within the boundary of Blount County. Currently there are no zoning requirements controlling the development of land within the county.

The Airport Authority owns all of the land within Development Area 4. This area is adjacent, and between the two residential subdivisions of Benford Heights and Armona, and within the limits of the City of Alcoa. Rezoning of the land from agricultural to aviation use will be required for the full development of this area. The Airport Authority will need to obtain approval from the City Planning Commission for development within this area to occur.

Roadway Improvements:

The primary roadway access to and from the Airport is by way of I-140 and Alcoa Highway. Access to the passenger terminal facility, general aviation facilities, and Development Areas 2 and 3 is obtained from Alcoa Highway. An interchange between the two highways northeast of the Airport exists providing the access route from I-140.

The secondary roadway access to and from the Airport is by way of Airbase Road, Wrights Ferry Road, Hunt Road, Louisville Road, Topside Road, and Mentor Road. Access to the existing military, cargo, and aircraft maintenance facilities along the northwest side of the airfield is from Airbase Road, Wrights Ferry Road, Louisville Road, Topside Road, and Mentor Road. Access to Development Areas 2 and 3 can be obtained from Hunt Road.

Changes to the roadways within the vicinity of the Airport are expected to occur within each of the development periods. Plans have been proposed for improvements to Alcoa Highway. A preliminary plan has been prepared for the Tennessee Department of Transportation that identifies widening and limiting access to the highway. This plan will require land from the Airport, and impact the Airport roadway system. An alternative plan has been prepared for the City of Alcoa

that identifies developing a realignment of the highway away from the airport, and provides limited and controlled access to the local road system. A new access location to the terminal area of the Airport would result from this plan.

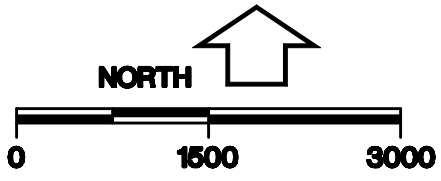
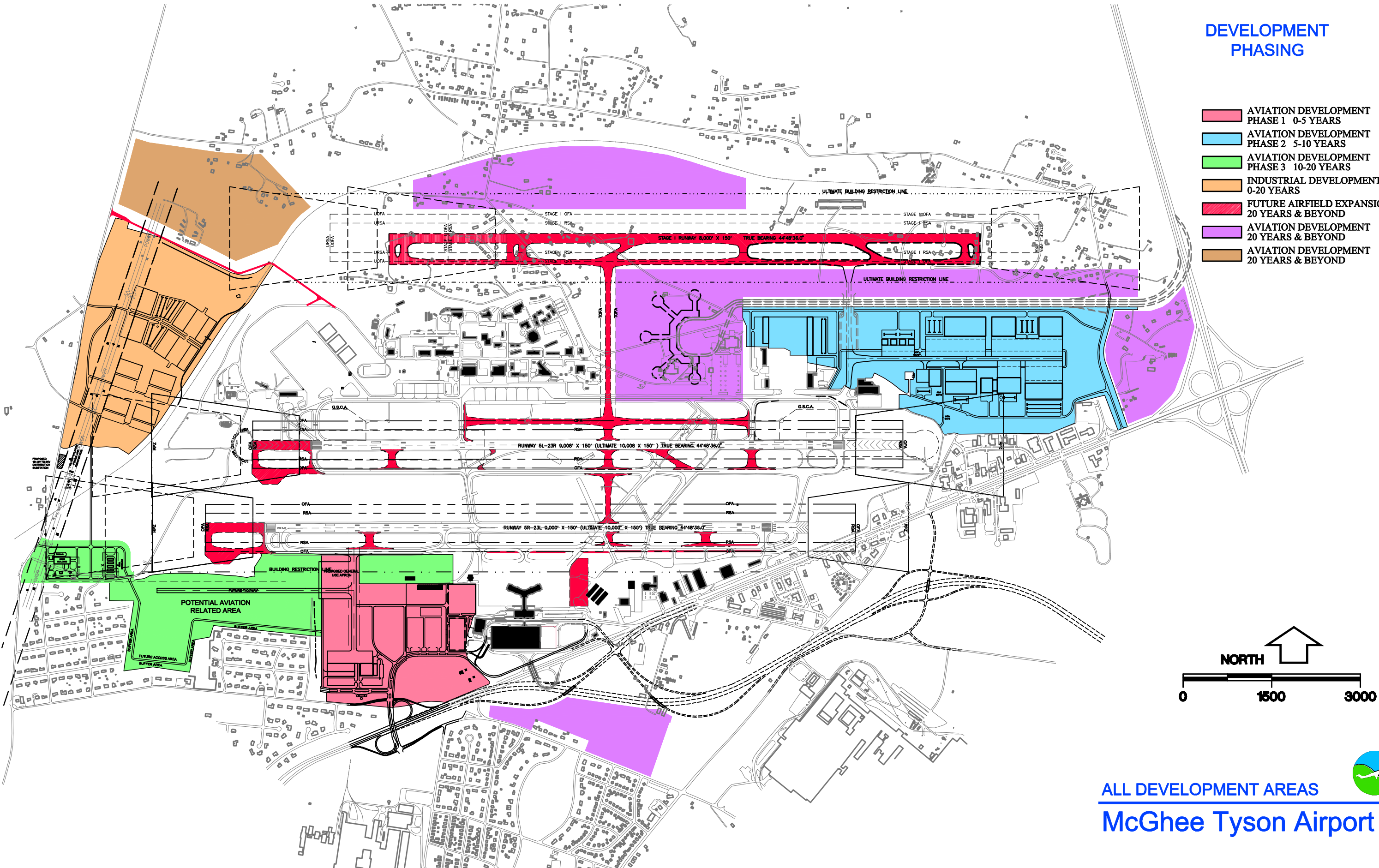
There are no known plans by the State of Tennessee, county, and municipal governments to make any other changes to the roads within the near-term development period.

The Metropolitan Planning Organization has identified in their 1999 Long-Range Plan the development of a bypass loop around the cities of Alcoa and Maryville. This bypass would connect at I-140 and Cussick, and terminate at the intersection of Louisville Road and Topside Road. TDOT has indicated this plan would not be considered siting the cost as the primary factor in their decision.

The development of new roadways, and changes to existing roadways within and adjoining the five development areas of the Airport would be required for the efficient development and use of the areas. The new roadways and changes to the existing roadways need to be of sufficient geometry and strength to accommodate large trucks as well as the safe integration of a variety of commercial, military, and personal vehicles.

DEVELOPMENT PHASING

- AVIATION DEVELOPMENT PHASE 1 0-5 YEARS
- AVIATION DEVELOPMENT PHASE 2 5-10 YEARS
- AVIATION DEVELOPMENT PHASE 3 10-20 YEARS
- INDUSTRIAL DEVELOPMENT 0-20 YEARS
- FUTURE AIRFIELD EXPANSION 20 YEARS & BEYOND
- AVIATION DEVELOPMENT 20 YEARS & BEYOND
- AVIATION DEVELOPMENT 20 YEARS & BEYOND



ALL DEVELOPMENT AREAS
McGhee Tyson Airport



DEVELOPMENT AREA 1 – POTENTIAL DEVELOPMENT CAPACITY

The potential for development within this area could best be served with the development of large corporate hangars, aircraft Maintenance/Repair/Overhaul MRO facilities, expansion of existing cargo facilities, and other larger facilities including manufacturing, warehousing, and additional cargo. All of the facilities should require direct airfield access based on the designated use of airport. The area has the capacity to accommodate a variety of building shapes and sizes. However, the cost of

the infrastructure to provide the access to the sites, warrants that the facilities be of a significant magnitude and provide a significant economic impact to the region.

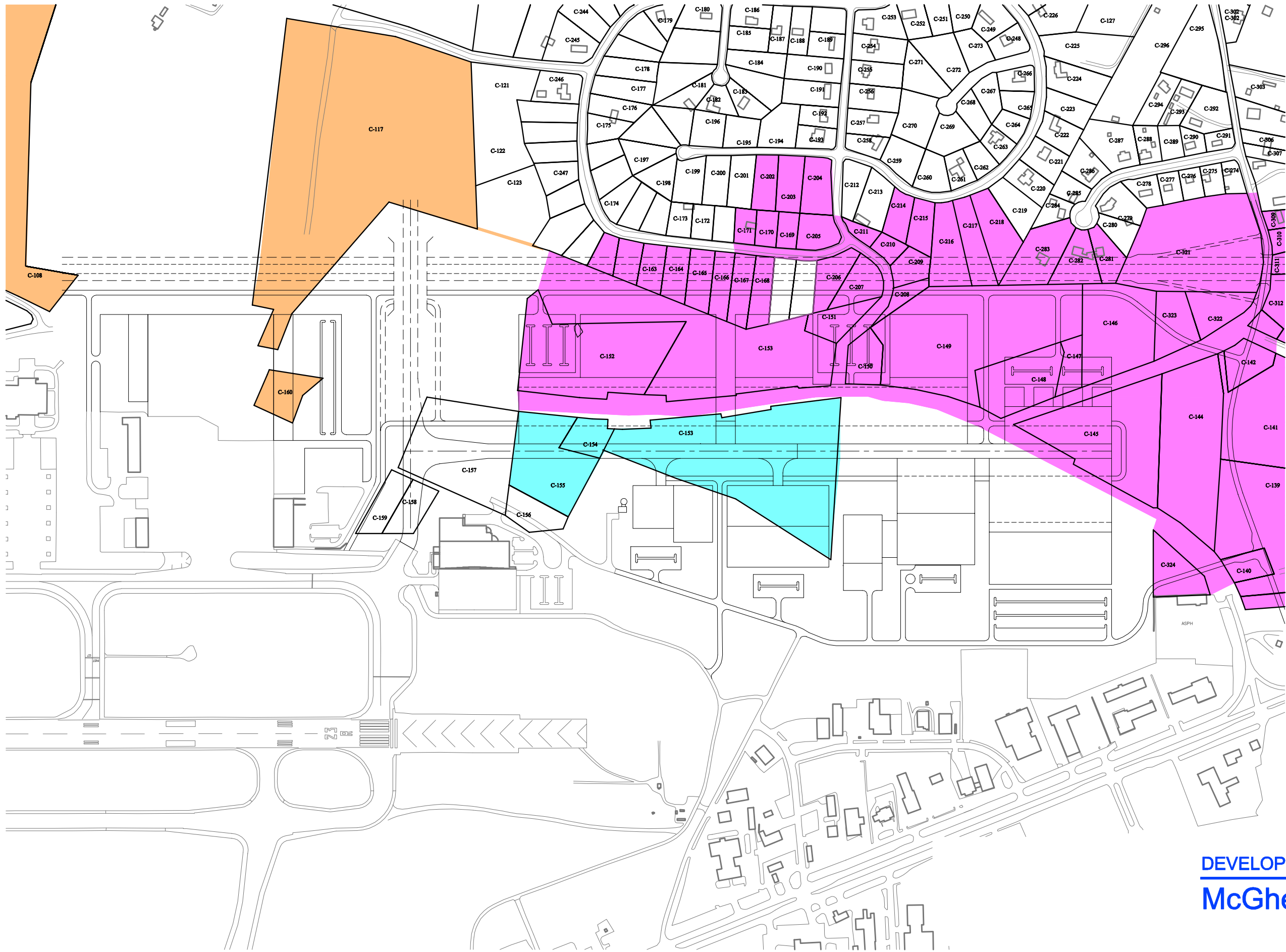
Additional opportunity for the development of facilities that do not require direct airfield access is also a potential along the periphery of the area bounded by the relocation of Wrights Ferry Road.

Potential Development Area	210 acres
Building Area	1,130,000 square feet
New Apron Area	1,750,000 square feet
New Taxiway	5,000 linear feet
New Roadway	21,000 linear feet

DEVELOPMENT AREA 1 - PROPERTY ACQUISITION

Property acquisition will be required for the development of this area. The purchase of the Warrior Transport property and the Self property will need to occur for the initial development of the area. Future acquisitions will include parcels within the Rocky Waters subdivision, and the mobile home areas northeast of the airport.

A total acquisition of 58 parcels, consisting of 294 acres is needed for the full development of the area



PROPERTY ACQUISITION

PHASE 1

LOT	ACRES
C-153	21.28
C-154	0.87
C-155	4.08

PHASE 2

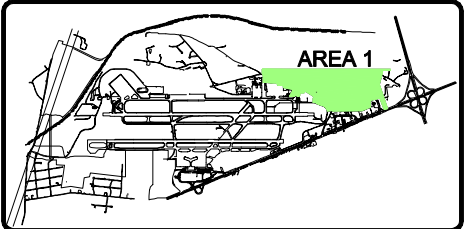
LOT	ACRES
NONE	

PHASE 3

LOT	ACRES	LOT	ACRES	LOT	ACRES
C-107	63.18	C-162	0.72	C-214	0.61
C-137	9.27	C-163	0.77	C-215	0.71
C-139	6.75	C-164	0.82	C-216	1.48
C-140	0.7	C-165	0.87	C-217	1.69
C-141	7.52	C-166	0.73	C-218	1.42
C-142	1	C-169	0.59	C-281	0.76
C-144	6.09	C-170	0.59	C-282	0.93
C-145	6.16	C-171	0.55	C-283	1.34
C-146	4.99	C-202	0.67	C-309	0.48
C-147	1.04	C-203	0.69	C-310	0.48
C-148	3.68	C-204	0.68	C-311	0.54
C-149	10.08	C-205	0.91	C-312	3.55
C-150	1.01	C-206	0.83	C-313	0.06
C-151	1.66	C-207	0.75	C-321	7.01
C-152	6.36	C-208	0.56	C-322	1.33
C-153	21.28	C-209	0.7	C-323	1.41
C-161	0.65	C-210	0.54	C-324	0.9
		C-211	0.58		

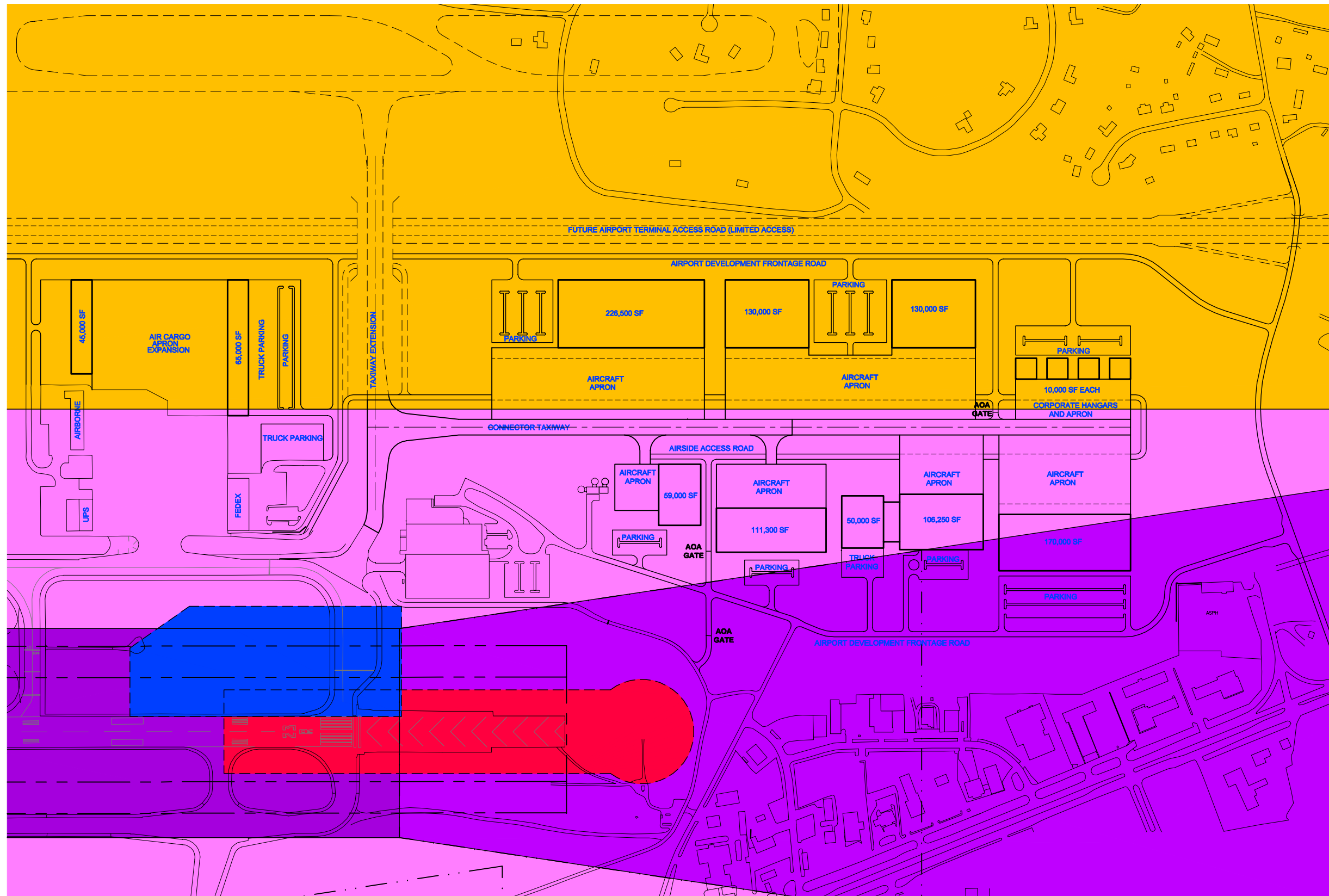
PHASE 4

LOT	ACRES
C-108	47.78
C-117	29.72
C-160	1.17



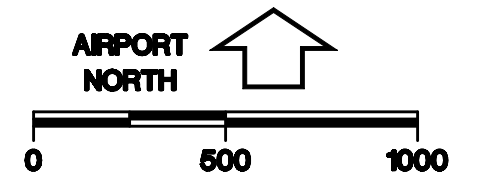
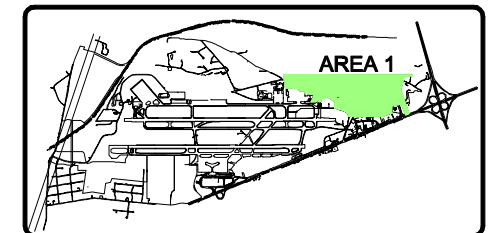
DEVELOPMENT AREA 1-FEASIBLE BUILDING AREA

Area 1 is in close proximity to the approach to Runway 23R. Any development that occurs within Area 1 must be compatible with the specific conditions for the runway approach as set forth by the Federal Aviation Administration. The most demanding conditions as set forth by Part 77 of the Federal Aviation Administration Regulations, TERPS, and the signal transmission for the Instrument Landing System must be reviewed and incorporated to assure the compatibility of development within this area. The specific locations and height of any structures will be controlled by the requirements of the FAA. The FAA must review any proposed plan within Area 1, prior to the start of construction. The FAA will render an opinion regarding the impacts that the location and height of any structure will have on the runway approach, and recommend acceptance or rejection of the plan.



FEASIBLE BLDG AREA

- PRIMARY SURFACE - EL 976.9'
- APPROACH SURFACE - 50:1 Slope
- TRANSITION SURFACE - 7:1 Slope
- HORIZONTAL SURFACE - EL 1131.0'
- LOCALIZER CRITICAL AREA
- GLIDE SLOPE CRITICAL AREA



DEVELOPMENT AREA 1

McGhee Tyson Airport



DEVELOPMENT AREAS 1 – PHASING PLAN

Phase 1 is defined as the property bounded by Airbase Road, Wrights Ferry Road, and Callahan Road and contains 49 acres. Property acquisition is required for this phase of the development. The area of Phase 1 will accommodate the extension of Taxiway 'G8', the construction of the lateral taxiway, and the development of one to two facilities, depending upon the size, along the southerly side of the taxiway. The development of Phase 1 can be accomplished without impacting Airbase Road. Wrights Ferry Road would need to be closed temporarily during construction and reopened when construction is complete.

Phase 2 is defined as the property bounded by Airbase Road, Wrights Ferry Road and the limits of commercial property that fronts Alcoa Highway. The property is

owned by the Airport Authority, and is commonly referred to as the Goens property. During Phase 2, the lateral taxiway would be extended. The Phase 2 area contains 49 acres and could accommodate one to two individual facilities, depending upon the size. A combination of Phases 1 and 2 would provide a larger area for the initial phase of development in this area. The construction within the Phase 2 area would not impact Airbase Road. The construction within the area would require the relocation of Wrights Ferry Road.

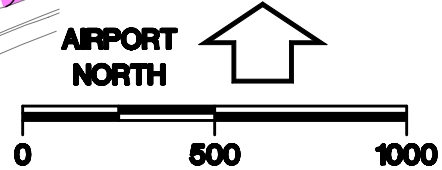
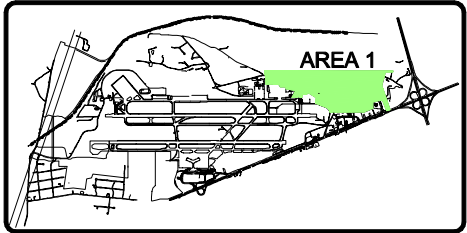
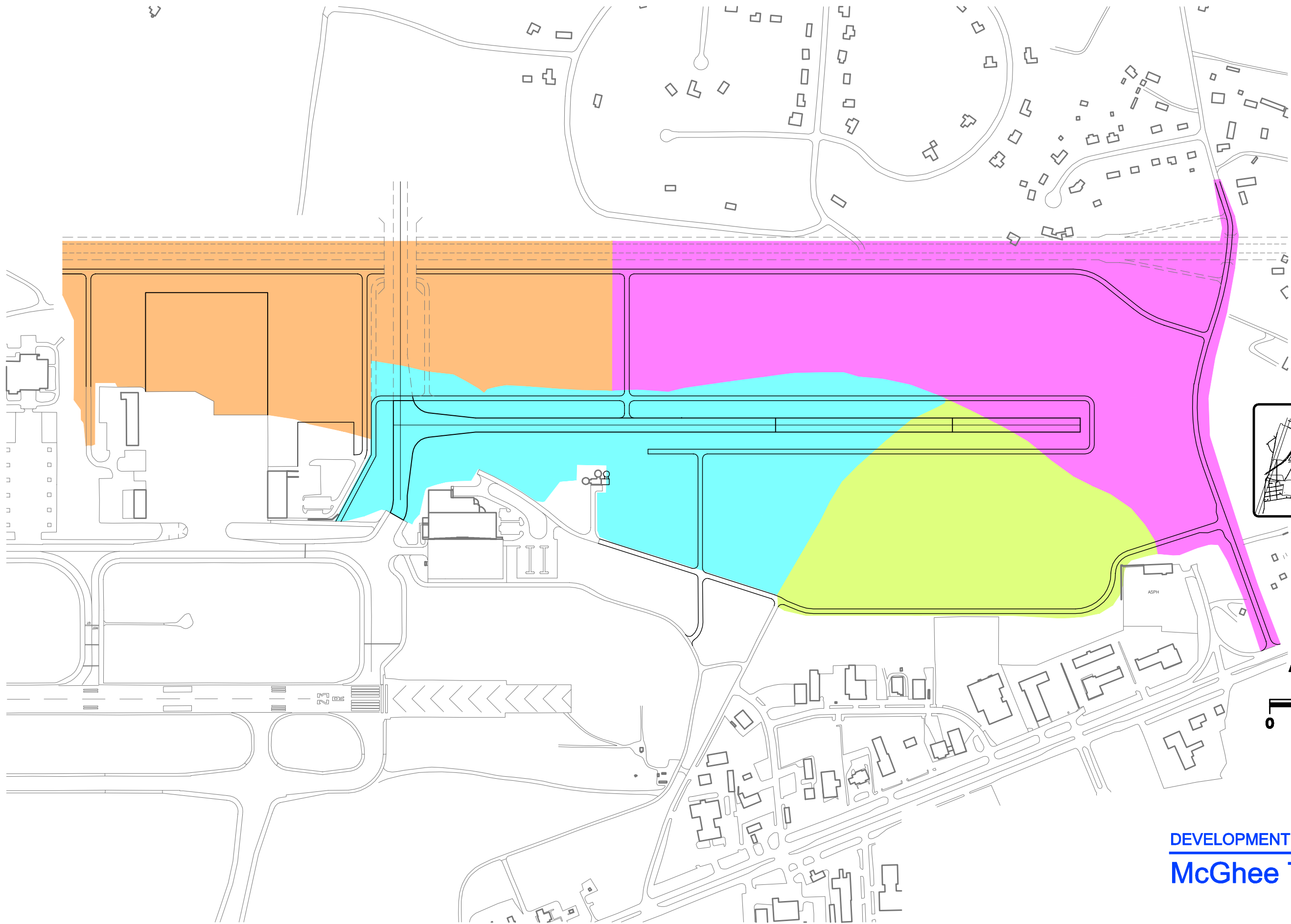
Phase 3 is defined as the area between the lateral taxiway and the future entrance road to the future terminal complex. The area of this phase will accommodate several aviation facilities. Property acquisition is also required for this phase of the development. The

relocation of Airbase Road ~~is~~ and the development of the new landside access road is required for this phase of the development.

Phase 4 is defined as the area between the existing cargo facility and the new landside access road and contains approximately 61 acres. The development of this area will be for the expansion of the existing cargo complex. The expansion of the cargo complex will require property acquisition. The relocation of Airbase Road, and a portion of Callahan Road is necessary for this phase of the Area 1 development. The construction of new entrance roads into the facility would also be required.

PHASING PLAN

- SEQUENCE 1
- SEQUENCE 2
- SEQUENCE 3
- SEQUENCE 4



DEVELOPMENT AREA 1
McGhee Tyson Airport



DEVELOPMENT AREA 1 - AIRSIDE AND LANDSIDE ACCESS

Airside Access

Airfield access to new facilities in this area will be primarily accommodated from Taxiway 'G8'. The initial extension of Taxiway 'G8' occurred with the construction of the Continental Express Maintenance facility. The 1995 Master Plan identifies this taxiway as ultimately providing one of two connections to the future third runway. A second extension of Taxiway 'G8' and the construction of a lateral taxiway connecting with Taxiway 'G8' and extending northeasterly parallel to the runway system, will be required to facilitate development in Area 1.

A line of site study, identifying the extent of direct visibility between the Air Traffic Control Tower observation cab and the airfield facilities, has been conducted. As a result of a combination of factors that include location and height of the tower, existing buildings, topography, and existing/proposed taxiway elevations, the line of site will be blocked for a portion Taxiway 'G8' and the lateral taxiway. The condition of the inadequate line of site will result in the FAA not controlling those portions of the airfield access within the area affected by the condition. Coordination between the Airport Authority and the FAA is recommended to evaluate alternatives including technological monitoring systems, and changes to the tower and existing buildings, that will eliminate the line of site conflicts.

Based on the 1995 Master Plan, a grade separated crossing of the future taxiway connection to the third runway and the future terminal entrance road will be required. The bridge structure will also need to accommodate the underpass of the proposed airport frontage road.

Due to issues pertaining to the conflicts with the line of site from the Air Traffic Control Tower, and the potential need for bridges, it is recommended that the Airport Authority give consideration to extending Taxiway 'G8' only to the extent to necessary to allow the full development of Area 1. The future second taxiway connection to the third runway could be achieved by the development of a dual taxiway system west of the future terminal area.

The vehicular circulation road within this area will require relocation. Presently the road intersects the extended Taxiway 'G8'. Due to the potential of vehicle incursions of the taxiway, this situation will not be satisfactory to the FAA in the future after the taxiway is extended and increased use of the taxiway occurs. To provide a remedy for this situation, it is recommended that the circulation road parallel the lateral taxiway on both sides with a crossing at the easterly end of the taxiway, and parallel the extended Taxiway 'G8' along the westerly side.

The vehicular circulation road will intersect with the public access road serving Continental Express. The intersecting roads present a situation that impacts the access control for the Airport. The vehicular circulation road must be secured due to its location within the AOA. The security of the circulation road can be maintained by one of two scenarios for the intersection. One scenario would be to construct a grade separated crossing of the circulation road over the public road. This would avoid an intersection of the two road, and would be the more expensive of the two scenarios. The second scenario would be to install electric access control gates across the circulation road on each side of public roadway. The second scenario requires an interaction between the vehicles using the two roadways. The existence of the two access control gates will increase the maintenance for the access control system.

Landside Access

Landside access for this area will be achieved through the relocation of existing roads and the development of new roads. The Master Plan addresses a new entrance road to provide access to a future terminal facility from I-140. This entrance road should have limited access to maintain efficient access to the terminal facility. Therefore, to maintain the efficient flow of traffic, a segregation of terminal and non-terminal traffic is needed. The development of a frontage road that will provide access









for local non-terminal traffic will provide the needed segregation of traffic.

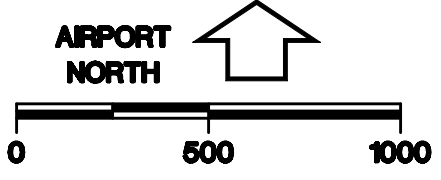
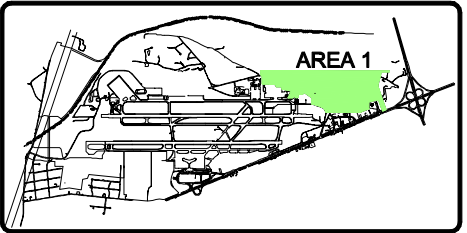
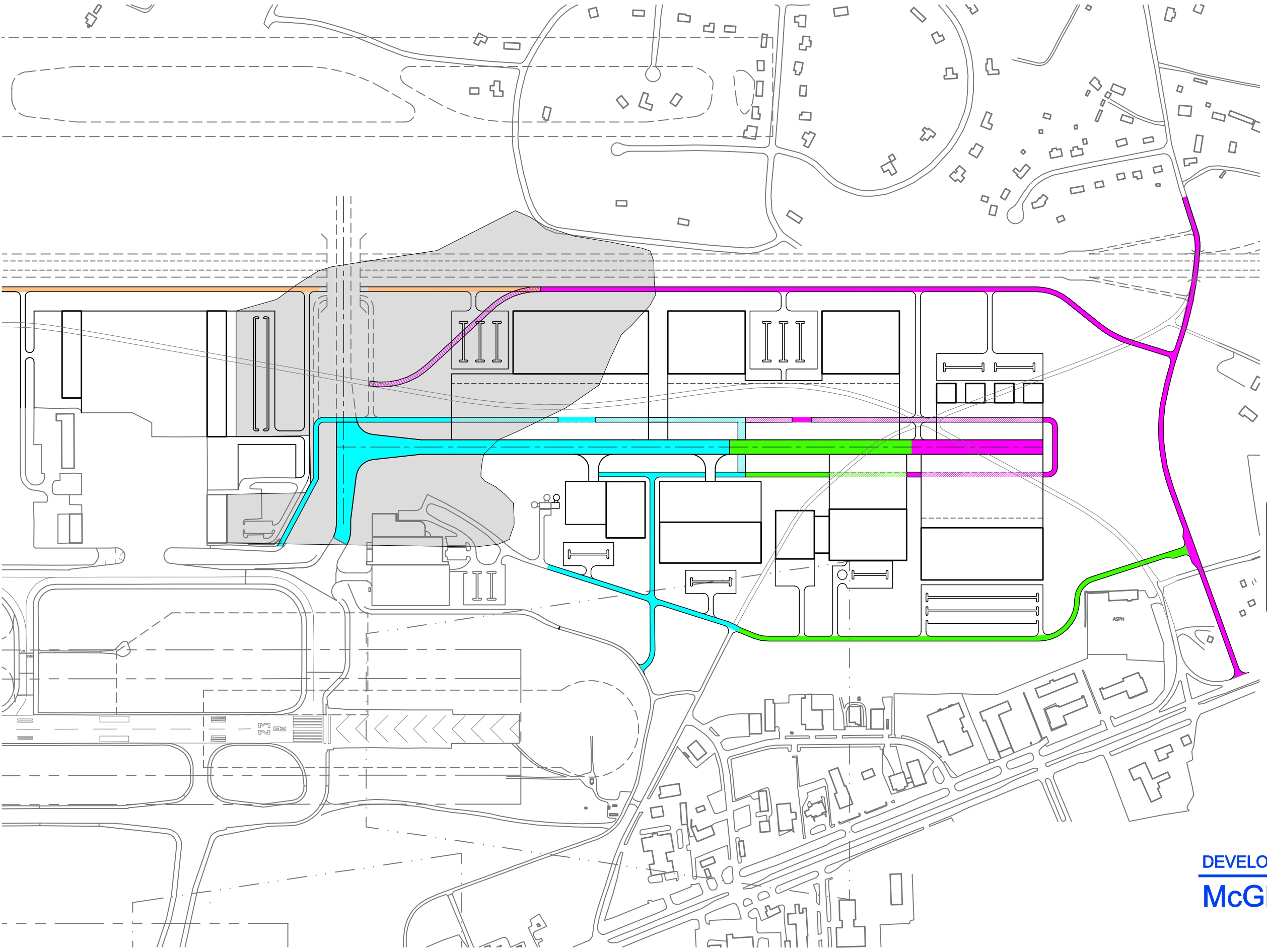
Area 1 encompasses parts of Airbase Road. The development of the frontage road may be developed independent of the long-term entrance road, and will replace an easterly/westerly portion of Airbase Road. During the interim period prior to the development of the long-term terminal complex, the frontage road will provide the access to the military facilities currently served by Air Base Road.

Area 1 will served from the south by Wrights Ferry Road. As the area is developed, the current alignment of Wrights Ferry Road will need to terminate at Callahan Road, and a relocation to the east across the Goens property will need to be occur, with a connection to Airbase Road, east of the area.

Access to the Continental Express will need to be maintained. The construction of the extension to Taxiway 'G8' will close access by way of Callahan Road from the west. Therefore, access to Continental Express from the east will need to be maintained.

AIRSIDE AND LANDSIDE ACCESS PLAN

-  SHADOW AREA - ATCT LINE OF SIGHT
-  SEQUENCE 1 ACCESS
-  SEQUENCE 1 TEMPORARY ACCESS
-  SEQUENCE 2 ACCESS
-  SEQUENCE 2 TEMPORARY ACCESS
-  SEQUENCE 3 ACCESS
-  SEQUENCE 3 TEMPORARY ACCESS
-  SEQUENCE 4 ACCESS



DEVELOPMENT AREA 1 – GRADING PLAN

The mass grading of Area 1 will require the moving of 5,600,000 cubic yards of soil material. There is an excess of material within the area graded to compatible elevations for access and development.

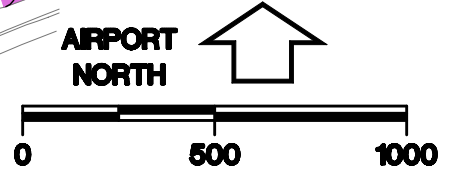
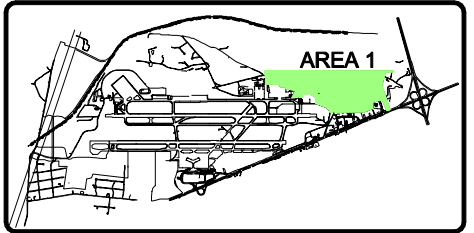
The grading of the area can be accomplished in phases, as demand for development in the area increases. Four phases have been identified based primarily on constraints for the relocation of existing roads.

A plan for the distribution of the earthwork should be developed to maximize the efficiency of the earthwork. It is estimated that there will be an excess of material in Phases 1 and 4, producing a situation of having to waste dirt material outside of the limits of the phase. It is also estimated that there will be deficiencies in the amount of dirt material available in Phases 2 and 3. In order to maximize the efficiency in the earth-moving operations, the placement of dirt from Phases 1 and 4 to Phases 2 and 3 respectively should be considered.

Phase 4 will produce the greatest amount of material in excess of what is needed throughout the remaining parts of the area. The excess of 2.1 M cubic yards of material will have to be transported away from Area 1 for the full development of the Area to occur. When full development of Area 1 occurs, consideration should be given to placing excess dirt in areas that have been designated for the future terminal and runway.

GRADING PLAN

- SEQUENCE 1 CUT
- SEQUENCE 1 FILL
- SEQUENCE 2 CUT
- SEQUENCE 2 FILL
- SEQUENCE 3 CUT
- SEQUENCE 3 FILL
- SEQUENCE 4 CUT
- SEQUENCE 4 FILL



DEVELOPMENT AREA 1 – STORM WATER MANAGEMENT

The existing storm water runoff within the designated limits of Area 1 flows in three separate directions. As the area is developed the storm water runoff patterns should be maintained. The suggested phasing of the grading is compatible with the existing patterns.

The increase of storm water runoff that will be generated from the land development shall be detained within the limits of the development area, and released at a rate that does not exceed pre-development conditions. Three separate detention basins will be required, one basin for

each runoff direction. The specific capacity of each basin will be dependent upon the configuration of the development within each runoff area. The specific design of the basins should accommodate a 100-year storm.

The first basin shall utilize the existing basin adjacent to the Continental Express site. Expansion of this basin to increase the detention capacity by 432,000 cubic feet will be required. The first and second phases of the Area 1 development will drain in part to this basin.

The second basin should be within the northeast part of the area, and adjacent to the limits of the area bounded by the relocation of Airbase Road. Based on the conceptual development scheme, this basin should have a detention capacity of at least 481,000 cubic feet. The second and third phases of the Area 1 development will drain in part to this basin.

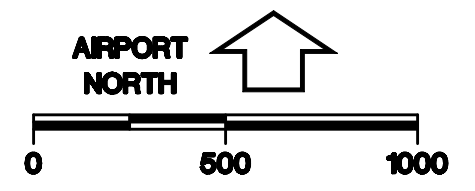
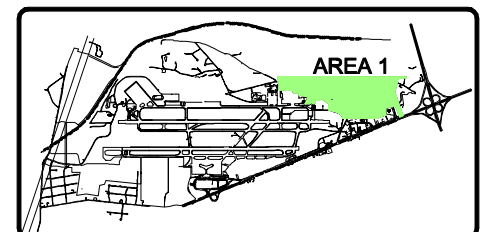
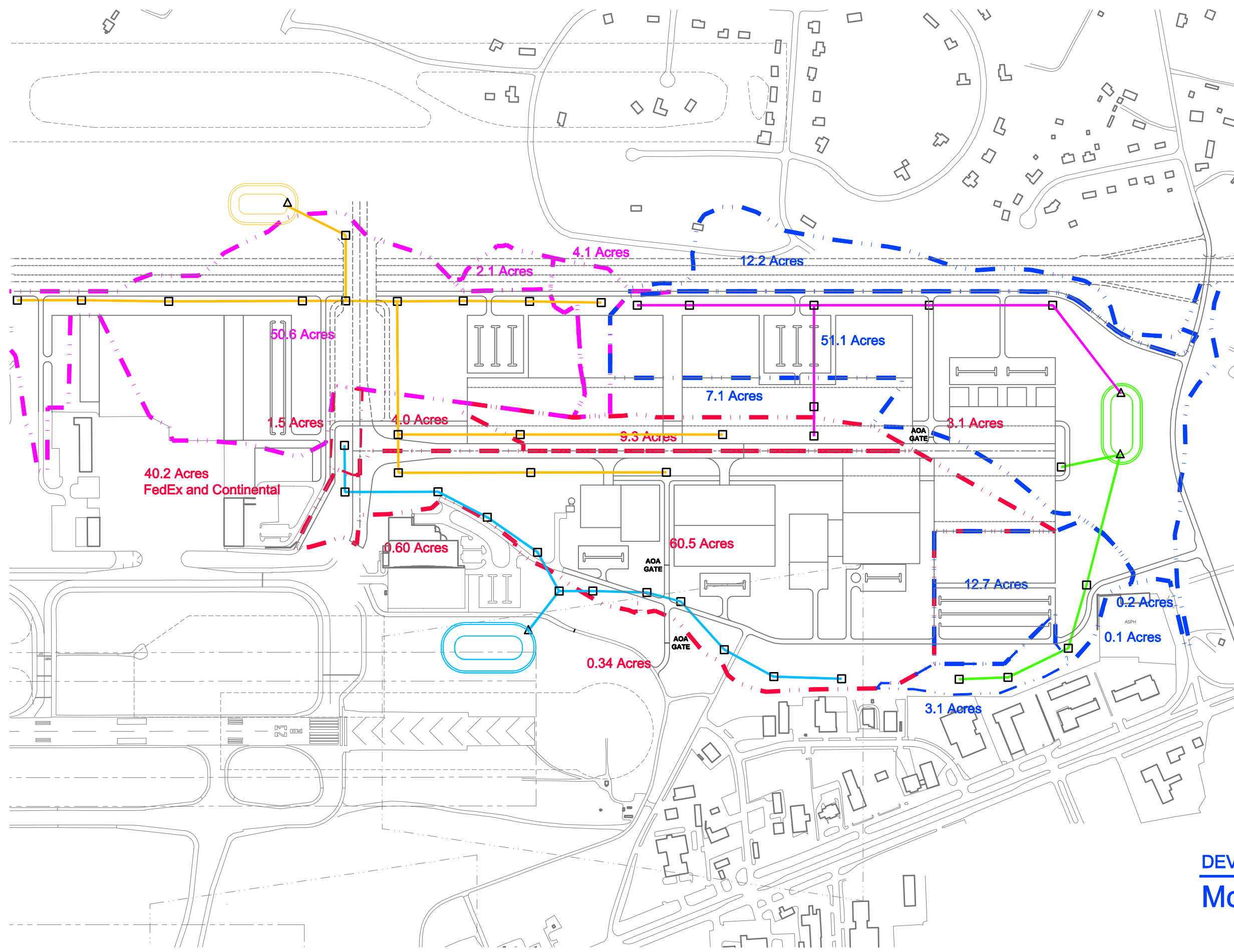
The third basin should be located in a northwesterly direction from the existing cargo facility. Based on the

conceptual development scheme, this basin should have a detention capacity of at least 338,000 cubic feet.

The conveyance of the storm water will be by way of open ditches, median swales, and closed pipe systems. Pipe sizes for a trunk-line drainage system, based on using concrete pipe and accommodating a 25-year storm frequency, would range in size from 18-inch diameter to 84-inch diameter. Pipe sizes within the areas of specific developments will require design to meet the requirements of each respective site.

STORM WATER MANAGEMENT

- △ OUTLET
- INLET
- PIPE FOR SEQUENCE 1
- PIPE FOR SEQUENCE 2
- PIPE FOR SEQUENCE 3
- PIPE FOR SEQUENCE 4
- DRAINAGE BASIN**
- BASIN 1
- BASIN 2
- BASIN 3



DEVELOPMENT AREA 1 – EXISTING UTILITIES

Water Distribution System

A 6" Ø line running from Alcoa Highway northerly along Judson Drive until branching off at the Wrights Ferry Road intersection supplies water service in this area. At this point, a 2" Ø line travels northeast along Wrights Ferry Road turns west and runs along Callahan Road for approximately 1,000 feet. This 2" Ø line has been abandoned in the area of the Continental Express Maintenance Facility, but is still in temporary service to one residential customer in the area of the Air Cargo Apron off of Callahan Road. An 8" Ø line starting at the intersection of Judson and Wrights Ferry Roads, traverses the area along Runway 23R Service Road, runs west to provide potable and fire protection water to the Continental Express Maintenance Facility, and connects with an 8" Ø water line serving the Air Cargo Apron. Here in the Air Cargo area, a 2" Ø line joins with a 6" Ø line at the intersection of Callahan and Airbase Roads, and then tees-off with an 8" Ø supply line. This line traverses the Air Cargo Apron, providing potable and fire protection water services to the Airborne Express, United Parcel Services, and Federal Express facilities.

The Pump House and Water Storage Facility for Fire Protection serve the 81,000 square-foot Continental Express regional jet hangar with a self-contained fire system. This pump house and fire protection facility is served by a 4" Ø supply line and a 16" Ø distribution line, and has the capacity to provide fire protection for another facility comparable in size to the Continental hangar.

Sanitary Sewer

The sewer system connection for an 8" Ø line serving this area is located at the intersection of Judson Drive and Alcoa Highway. This 8" Ø line traverses north along Judson drive, continues through the intersection with Wrights Ferry Road, and then heads west to serve the Continental Express Maintenance Facility and the Air Cargo Apron. Sanitary system capacity by the City of Alcoa is sufficient to meet the projected needs and planned construction within Area one.

Natural Gas

Traveling from west to east, a 12" Ø Duke Energy natural gas transmission line enters Area One north of the Air Cargo Apron. This line runs parallel to Airbase Road and then continues in an easterly direction through the site. Just to the north of the Federal Express Facility, a 6" Ø Duke Energy gas line splits off from the 12" Ø line and traverses south between the Continental Express and Federal Express Facilities. Natural gas supplied through the Duke Energy lines is distributed by 3" Ø United Cities Gas lines to the Air Cargo Apron, the Continental Express Maintenance Facility, the east end of Area One along Airbase Road, and to areas along Judson Drive and Wrights Ferry Road.

Communications

Telephone connections from Alcoa Highway provide phone service to underground lines located along Wrights Ferry, Callahan, and Airbase Roads. The communication systems for the Air Cargo Apron and the Continental Express Maintenance Building are linked to the underground phone lines at Callahan Road. FAA

communications and underground fiber optic lines traverse the area around Runway 23R.

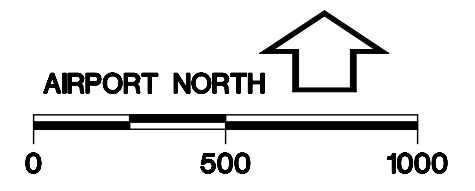
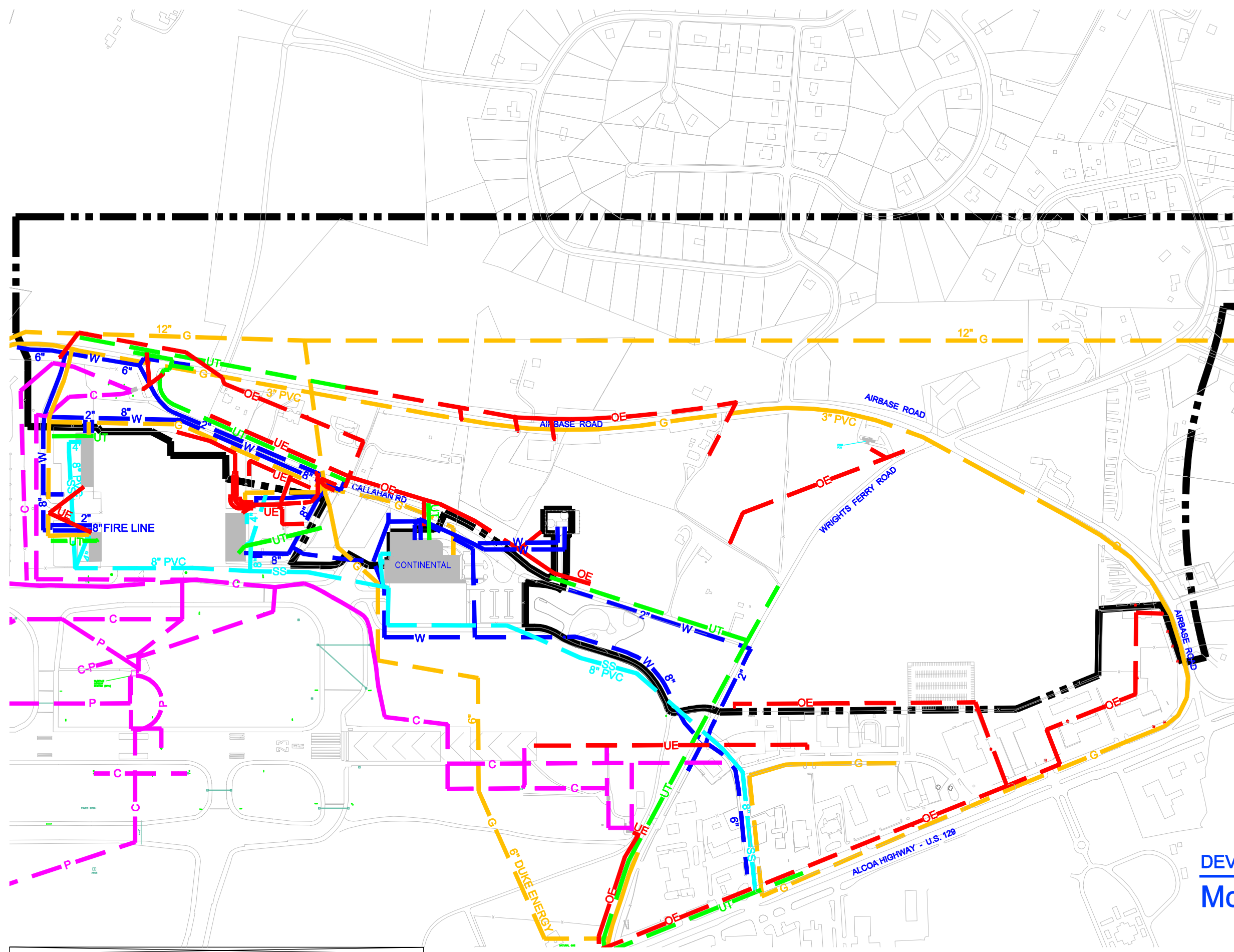
Electrical

This area is provided electrical service by a three phase 13-kV overhead line, which runs along Airbase Road. At the intersection of Airbase and Callahan Roads, this electrical line travels southeast between these two roads, and then turns directly south to provide service to an underground electrical line paralleling Callahan Road. The Continental Express Maintenance Building, the Pump House and Water Storage Facility for Fire Protection, and facilities located in the Air Cargo Apron receive power from this underground electrical line. Overhead electrical service from Alcoa Highway provides electricity to areas along Wrights Ferry Road, Judson Drive, Lois Lane, and to automobile dealerships in the area near the intersection of Airbase Road and Alcoa Highway. A network of underground electrical lines provide power to the FAA Middle Marker, beacons and transponders, landing approach sensors and communication systems, and to the lighting system for Runway 23R.

EXISTING UTILITIES

LEGEND

OVERHEAD ELECTRIC	OE
UNDERGROUND ELECTRIC	UE
UNDERGROUND TELEPHONE	UT
OVERHEAD TELEPHONE	OT
WATER	W
SANITARY	SS
GAS	G
MKAA COMMUNICATIONS	AAC
FAA POWER	P
FAA COMMUNICATIONS	C



DEVELOPMENT AREA 1
McGhee Tyson Airport



DEVELOPMENT AREA 1 – PROPOSED UTILITIES

Utilities Extensions

Connections for proposed utility mains will be provided at the intersection of Wrights Ferry Road and Judson Drive. It is at this location that all existing utilities will be stubbed-out to a new manhole, and a Primary Utility Corridor will be extended. From this manhole, the corridor will parallel Wrights Ferry Road to the intersection with the proposed airport development frontage road (south-side). Traversing along this frontage road, then heading north at the east side of the proposed

development, this utility corridor will turn back to the west within an easement located between the proposed aviation-related facilities and the new airport development frontage road on the north side of Area One.

The Primary Utilities Corridor will contain underground utility mains, including: a 12" Ø potable water line; a 10" Ø sanitary sewer line; eight #4/0, 13.2 kV, 3-phase, dual primary-feed electrical lines; a 6" Ø gas distribution line; and six (4" Ø) 24/100 fiber optic & copper conduits. At

the terminus of this primary corridor, near the northwest boundary of the development area, an Ancillary Utility Corridor containing six fiber optic & copper conduits will be extended. This ancillary corridor will traverse around the south side of the existing Air Cargo Apron, and parallel the proposed airside access road for approximately 1,000 feet. At that point, it will run alongside the Continental Express Access Road and the proposed airport development frontage road until connecting with the Primary Utility Corridor at Wrights Ferry Road.

PROPOSED UTILITIES

EXISTING DUKE ENERGY NATURAL GAS LINE

- PRIMARY UTILITY CORRIDOR**
- (1) - 12" POTABLE WATER LINE
 - (1) - 10" SANITARY SEWER LINE
 - (8) - #4/0, 13.2kV COPPER ELECTRICAL LINES
 - (1) - 6" GAS DISTRIBUTION LINE
 - (6) - 4" - 24/100 FIBER OPTICS & COPPER CONDUITS

- ANCILLARY UTILITY CORRIDOR**
- (6) - 4" - 24/100 FIBER OPTICS & COPPER CONDUITS

PROPOSED RELOCATION OF DUKE ENERGY 12" NATURAL GAS LINE

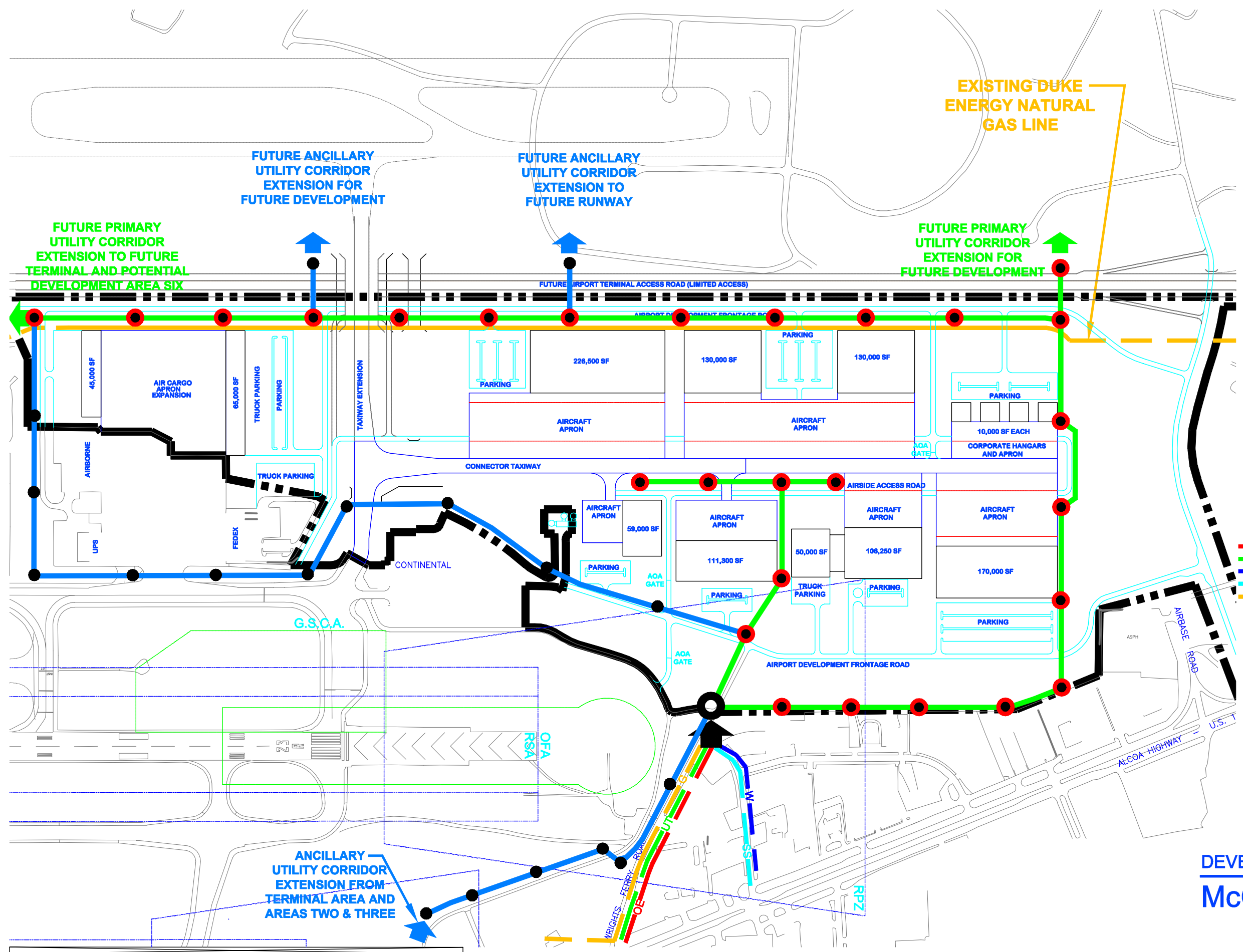
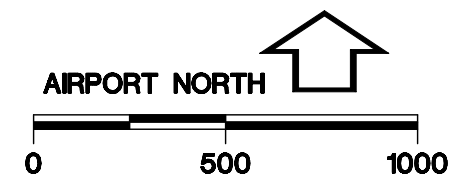
○ NODE FOR LINKING EXISTING & PROPOSED UTILITIES

● MANHOLE & UNDERGROUND VAULT CONNECTIONS

● UNDERGROUND VAULT FOR TELECOMMUNICATIONS

EXISTING SUPPLY AND FEEDER LINES

- OVERHEAD ELECTRIC
- UNDERGROUND TELEPHONE
- WATER
- SANITARY
- NATURAL GAS



DEVELOPMENT AREA 1 – UTILITIES PHASING

The phasing of utilities for Area One has been determined based on the studied evaluation of land use potential and the feasibility of development, the proximity to existing supply and feeder lines, the functional relationships of existing and proposed facilities, and the cost considerations for mass grading and storm water drainage system installations.

Utilizing these site considerations, it is recommended that Phase One Utilities be installed within the area to the north that includes Airbase Road, south to the proposed airport development frontage road, west to the boundary of the existing Air Cargo Apron, and east to the

intersection of Airbase Road and the airport development frontage road previously mentioned.

frontage road (north-side) and the Phase Two Utilities consists of installing utilities in the area between the proposed airport development proposed connector taxiway to the south, west to include the sites for proposed hangars and aircraft aprons, and east to provide for the construction of new hangars near the proposed realignment of Airbase Road.

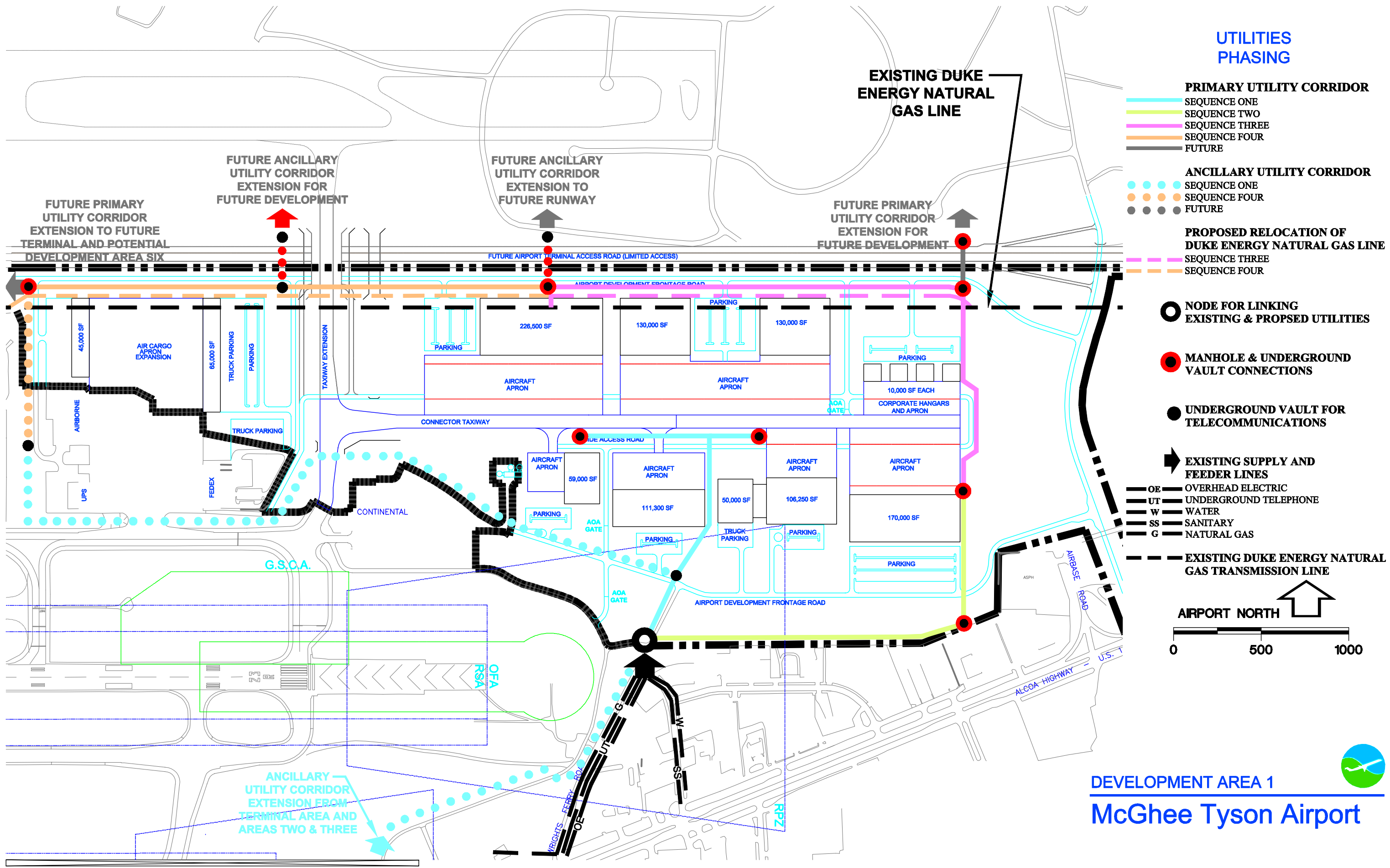
To complete the installation of utilities for Area One, Phase Three Utilities would consist of extending utilities to include the area from the proposed airport

development frontage road (north-side), south to the proposed connector taxiway, west to the proposed construction sites for Air Cargo Expansion, and east to serve new corporate hangars planned for the area.

Proposed Relocation of Duke Energy Natural Gas Line

As a part of the work required for preparation of construction sites within Area One, the relocation of an existing 12” Duke Energy natural gas line will be required. Approximately 5600 linear feet of this major natural gas transmission line, located at the northern boundary of Area One, will have to be moved 75 feet to

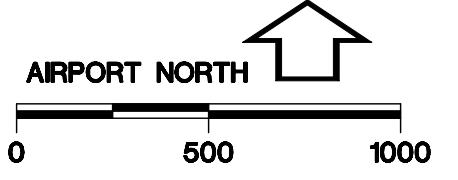
the north of its existing location. Of this total length of 12”pipe relocation, 2450 linear feet will be installed in Sequence Three of the grading and utilities operations, and the remaining 3150 linear feet will be placed in its new alignment as part of the site and utilities work in Sequence Four.



UTILITIES PHASING

- PRIMARY UTILITY CORRIDOR**
 - SEQUENCE ONE
 - SEQUENCE TWO
 - SEQUENCE THREE
 - SEQUENCE FOUR
 - FUTURE
- ANCILLARY UTILITY CORRIDOR**
 - SEQUENCE ONE
 - SEQUENCE FOUR
 - FUTURE
- PROPOSED RELOCATION OF DUKE ENERGY NATURAL GAS LINE**
 - SEQUENCE THREE
 - SEQUENCE FOUR

- NODE FOR LINKING EXISTING & PROPOSED UTILITIES**
- MANHOLE & UNDERGROUND VAULT CONNECTIONS**
- UNDERGROUND VAULT FOR TELECOMMUNICATIONS**
- EXISTING SUPPLY AND FEEDER LINES**
 - OE OVERHEAD ELECTRIC
 - UT UNDERGROUND TELEPHONE
 - W WATER
 - SS SANITARY
 - G NATURAL GAS
- EXISTING DUKE ENERGY NATURAL GAS TRANSMISSION LINE**



DEVELOPMENT AREAS 2 & 3 – POTENTIAL DEVELOPMENT CAPACITY

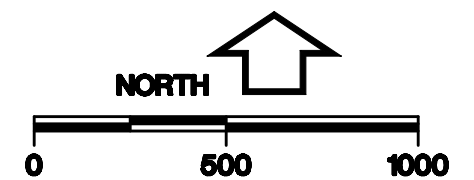
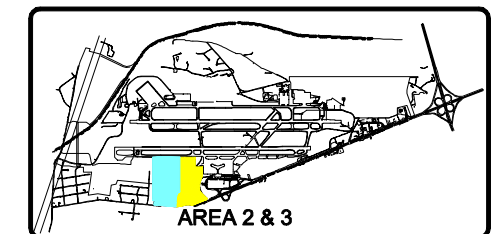
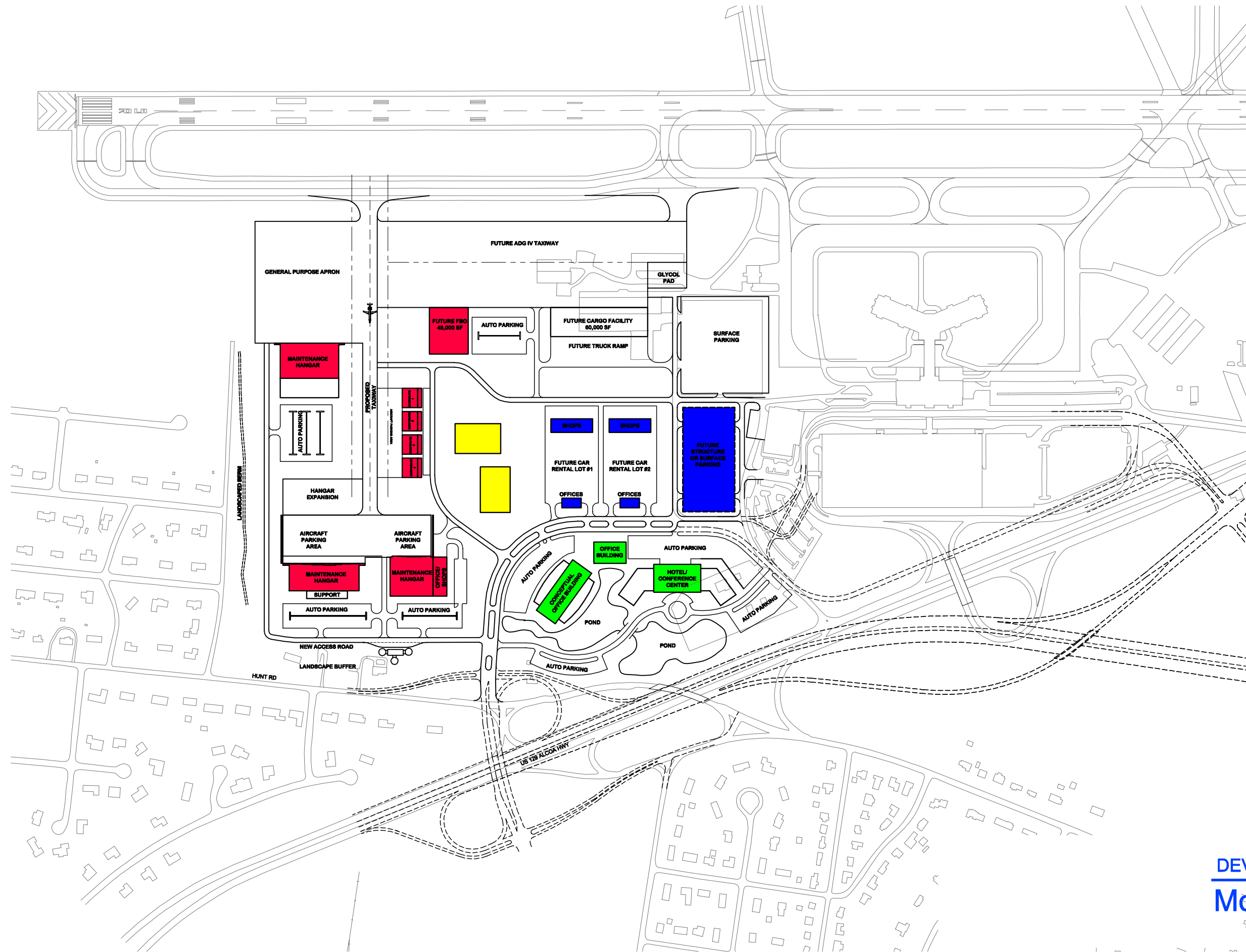
Areas 2 and 3 constitute that part of the Airport referred to as The West Development Area. This part of the Airport is currently undergoing the initial phase of

infrastructure improvements in preparation for the development of aviation related facilities.

Areas 2 and 3 are strategically located relative to the existing Airport facilities, and provide the opportunity for multiple types of aviation facilities.

Potential Development Area	140 acre
Building Area	1,000,000 square feet
New Apron Area	1,200,000 square feet
New Taxiway	1,800 linear feet
New Roadway	14,000 linear feet
AFFF System	One New System

RENDERING



DEVELOPMENT AREAS 2 & 3 – LAND USE PLAN

Area 2 is located immediately adjacent to the newly renovated terminal building, parking structure, and a hotel. The potential for development in this area of approximately 80 acres could best be utilized by terminal support type facilities; airline cargo, airline support offices, auto parking for passengers and employees, supplemental fuel storage and expansion or relocation of the Aircraft Rescue and Fire Facility (ARFF). In addition, hotels and other aviation related office space also present strong potential for development consideration.

The potential for Area 3 is most suited for facilities requiring direct airfield access. The acreage for Area 3 is approximately 64 acres. The size of the area instills limitations as to the size of the facilities that could be developed within this area. The extent of the land preparation necessary to provide developable sites within the area warrants that the type of facilities will be limited to those types that will provide a significant economic impact to the community and region. MRO facilities, Fixed Based Operator (FBO) facilities, large corporate hangars are compatible with the space available. Should the development within the area be limited to a single

facility, the size of the facility may have greater flexibility.

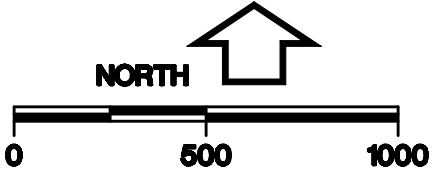
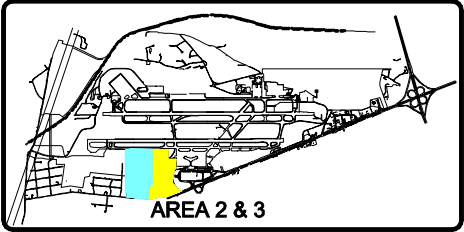
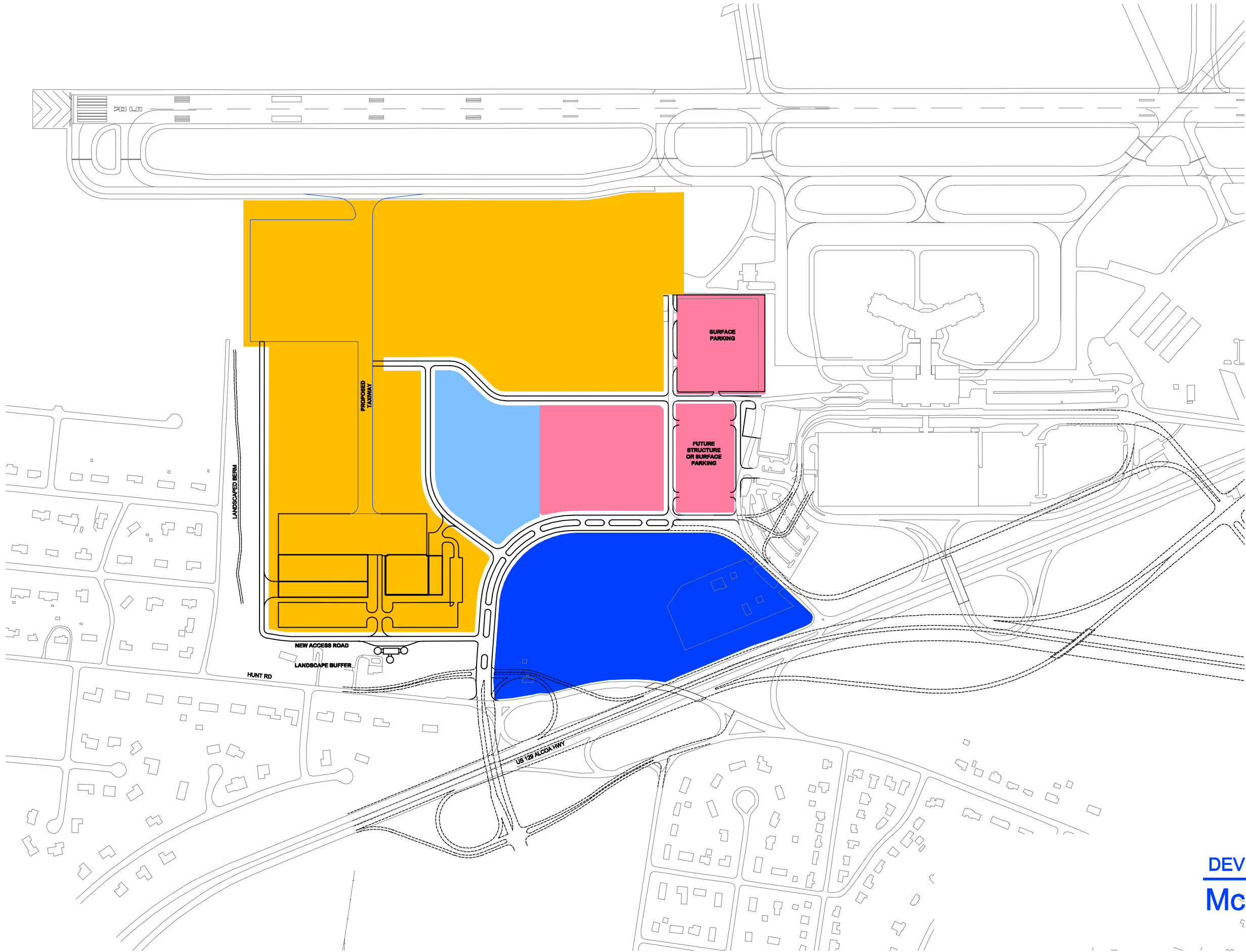
Feasible Building Areas

The feasibility for building areas within Areas 2 and 3 is controlled by three factors. First, the Object Free Area (OFA) for Taxiway 'A' must be protected. This will dictate the proximity to the taxiway that facilities can be developed. The standard OFA for Design Group IV aircraft, as specified by the FAA, should be the minimum protected area considered in planning the specifics of any

development within Areas 2 and 3. Second, the transitional surface as specified in PART 77 will control the height of any structure developed within Areas 2 and 3. Third, the topography of the area will, in part, impact the location of specific building areas both physically and economically. The system for the management of the storm water within Areas 2 and 3 will impact the areas for any building construction. The locations of any building structures relative to the drainage way enclosures will be dictated by use, and the requirements of the facility insurer.

LAND USE PLAN

- AVIATION FACILITIES
- AVIATION FACILITIES/ TERMINAL SUPPORT
- TERMINAL SUPPORT
- AVIATION RELATED BUSINESSES



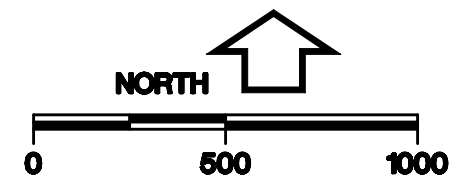
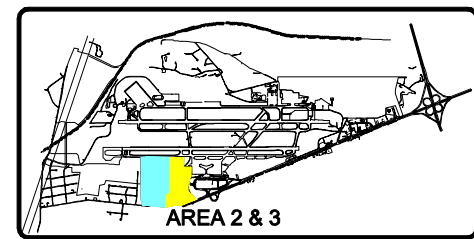
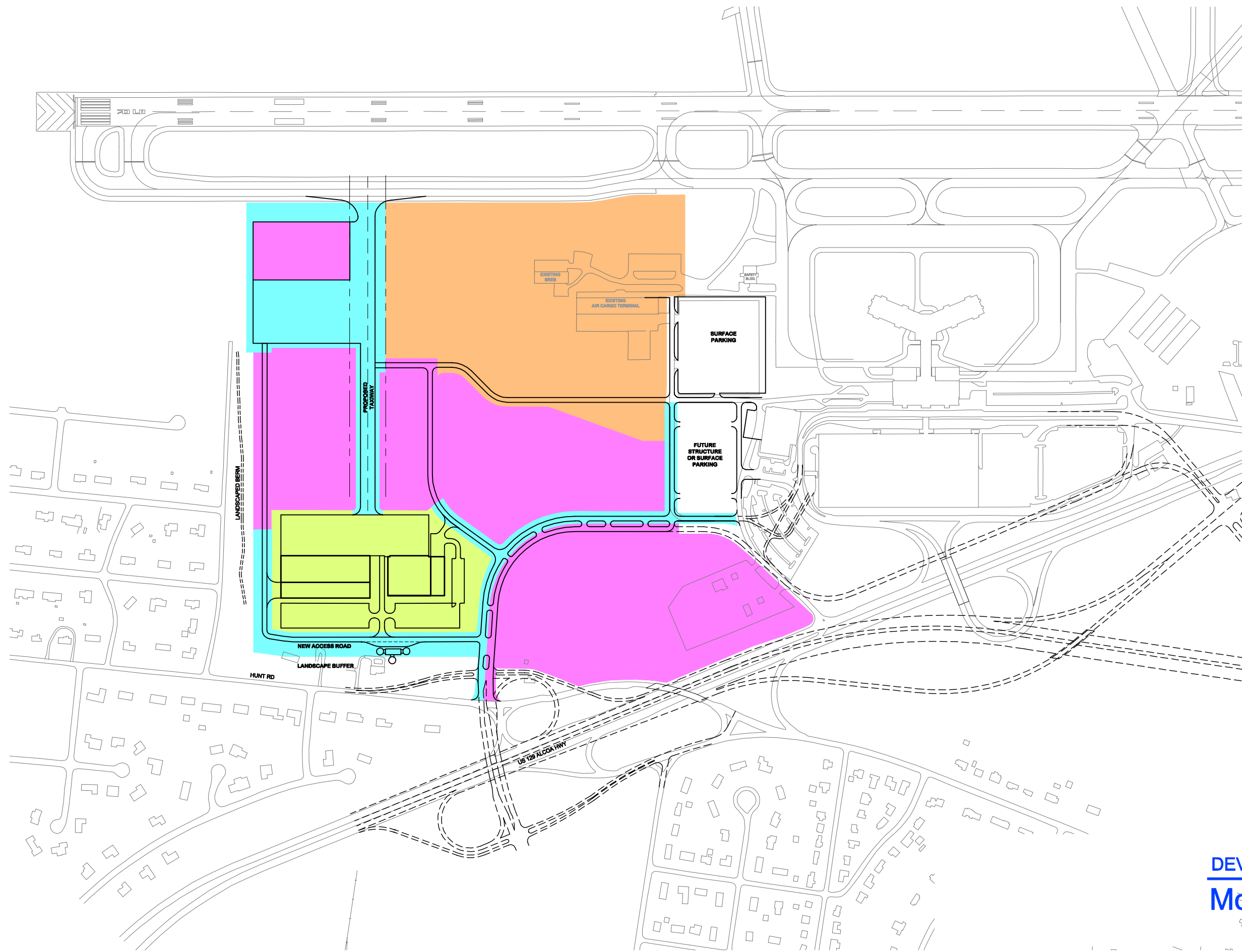
DEVELOPMENT AREAS 2 & 3

McGhee Tyson Airport



DEVELOPMENT AREAS 2 & 3 – PHASING PLAN

The development of Areas 2 & 3 is anticipated to occur in four phases. The initial phase constructs the changes in the topography necessary for the establishment of the General Purpose Apron, access roads, and utilities. Subsequent phases of the grading will include earthwork for specific building sites, and additional roads taxiways and aprons.



DEVELOPMENT AREAS 2 & 3 AIRSIDE AND LANDSIDE ACCESS

Airside Access

Area 2:

Airfield access to existing/new facilities in this area will be from Taxiway 'A'. Due to the proximity of the facilities, short access ramp connections would be the extent of the new airfield access. Westerly expansion of the of the terminal apron into Area 2 is a possibility should expansion of the terminal need to occur.

A vehicle circulation drive within the AOA of this area currently exists serving the existing cargo building and the airfield maintenance facility. Changes to this road will be required for compatibility with future airfield access and aircraft parking.

Area 3:

Airfield access to new facilities in this area will also be from Taxiway 'A'. The location of the facilities within the area will dictate the extent of a new lateral taxiway

needed to provide the aircraft access. The initial development within this area includes a general purpose aircraft apron, located adjacent to Taxiway 'A' that the Airport Authority will control for general uses.

Two possible scenarios can achieve the vehicular circulation within this area. The first scenario will be to develop a roadway outside of the object free area of the new lateral taxiway. This roadway may be separate from, or incorporated as a part of, any aircraft parking aprons. The second scenario will be to utilize the lateral taxiway. The second scenario will not maintain the desired levels of vehicle/aircraft segregation. FAA approval of this scenario would be required, with the possibility the lateral taxiway would need to be an FAA non-controlled area for aircraft movements.

A line of site study, identifying the extent of direct visibility between the Air Traffic Control Tower observation cab and the airfield facilities, has been conducted. As a result of a combination of factors that include location and height of the tower, topography, and

existing/proposed taxiway elevations, the line of site is blocked for a portion Taxiway 'A'. As a result of a combination of factors that include location and height of the tower, topography, existing/proposed taxiway elevations, and future buildings, the line of site for portions, or all of the future taxiway into the Area 3, will also be blocked. The condition of the inadequate line of site will result in the FAA not controlling those portions of the airfield access within the area affected by the condition. Coordination between the Airport Authority and the FAA is recommended to evaluate alternatives including technological monitoring systems, and changes to the tower and existing buildings, that will eliminate the line of site conflicts.

Landside Access

Area 2:

A landside roadway system will be required for access within and through the area. The primary road will

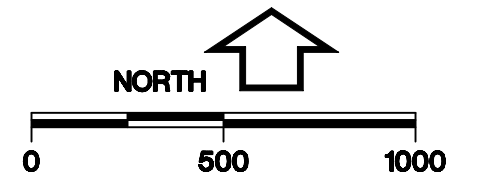
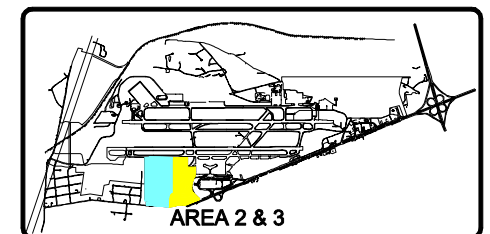
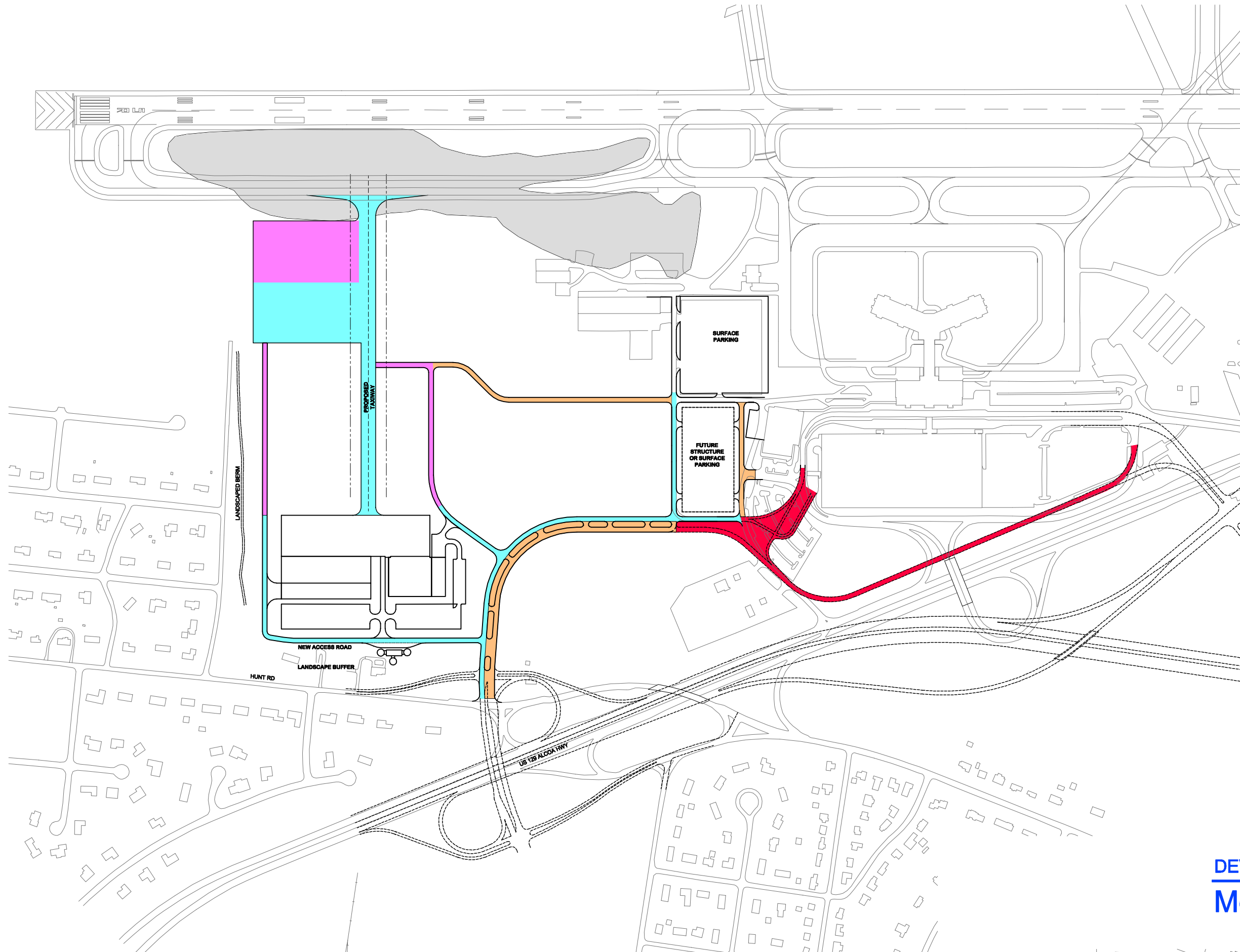
intersect with Hunt Road near the existing exit from Alcoa Highway. The ultimate development of the primary road will include links to the existing roadway within the terminal area. This link will impact the existing parking area at the Hilton Hotel, and require modifications for exiting the parking garage toll- booth area.

Circulation roads within the area will be developed as the development of the area occurs.

Close coordination will have to be made with the City of Alcoa and the Tennessee Department of Transportation regarding any improvements that may be made to Alcoa Highway, including new grade separated interchanges.

AIRSIDE AND LANDSIDE ACCESS

- ACTC LINE OF SIGHT SHADOW AREA
- PHASE 1 ACCESS
- PHASE 2 ACCESS
- PHASE 3 ACCESS
- PHASE 4 ACCESS
- FUTURE PHASE ACCESS



DEVELOPMENT AREAS 2 & 3

McGhee Tyson Airport



DEVELOPMENT AREAS 2 & 3 – GRADING PLAN

The existing topography of the areas dictates that an extensive amount of earthwork will be required to establish compatible elevations for the development of specific facilities. Portions of Areas 2 and 3 have been excavated under the initial phase of the development in order to provide material for the construction of a deep fill in the vicinity of the General Purpose Apron. Material has also been borrowed from other areas on the airport sufficient for the fill. Subsequent phases of grading will

require that substantial amounts of material must be obtained from outside of Areas 2 and 3 in order to complete filling of the lower areas to provide a changed topography sufficient to accommodate future development.

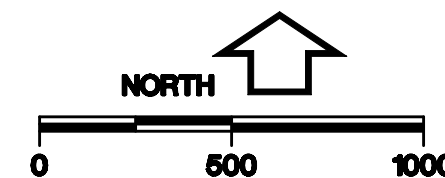
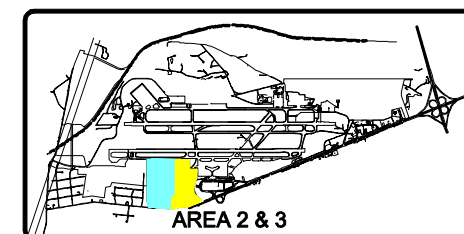
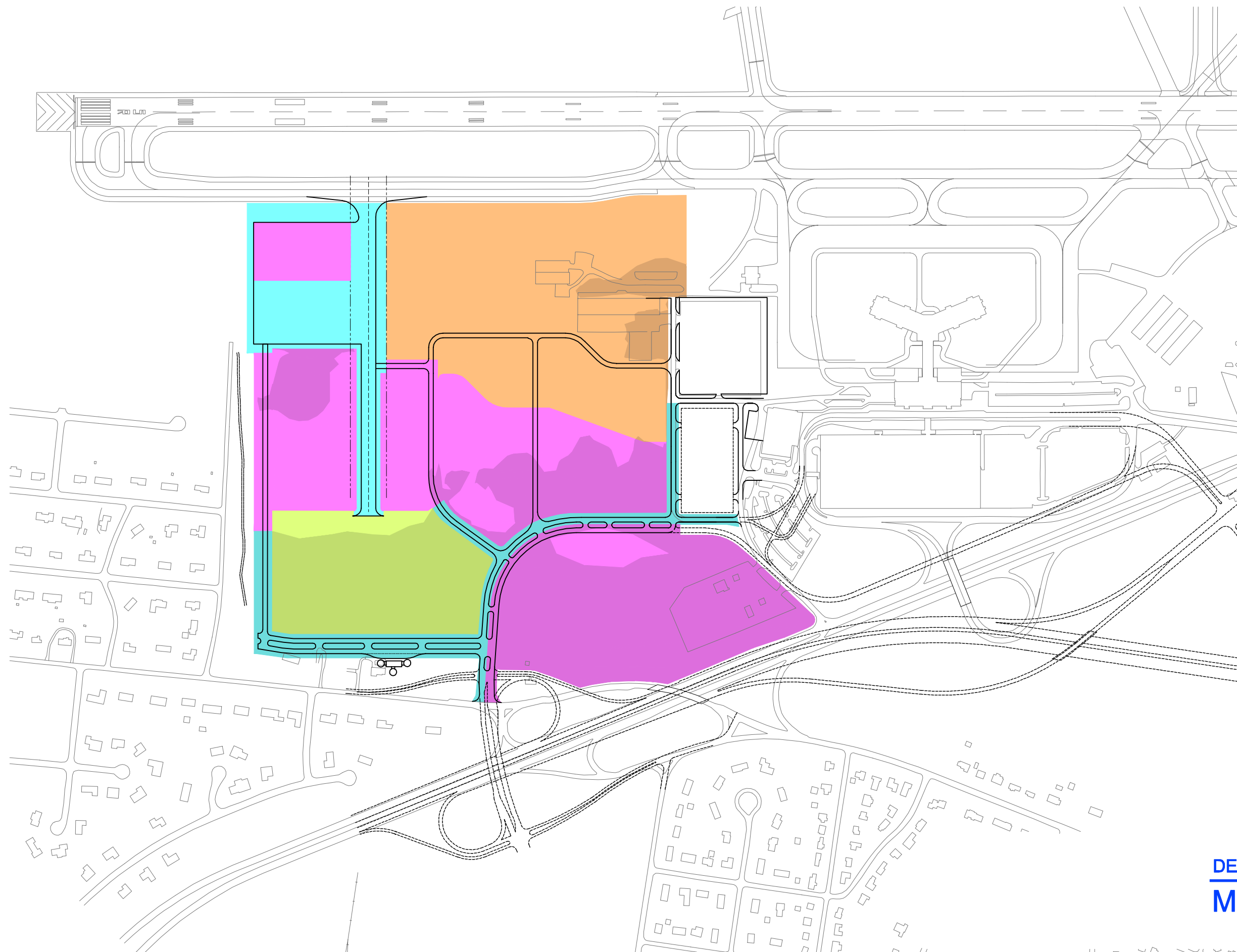
It is estimated that full development of Areas 2 and 3 will require an additional quantity of approximately 1.1M cubic yards of material to be imported from outside of

development limits. The majority of this imported material will be required for the fill required under Phase 4.

Grading of the Area will be performed in 4 phases, consistent with the phasing of the development.

GRADING

- PHASE 1 CUT
- PHASE 1 FILL
- PHASE 2 CUT
- PHASE 2 FILL
- PHASE 3 CUT
- PHASE 3 FILL
- PHASE 4 CUT
- PHASE 4 FILL



DEVELOPMENT AREAS 2 & 3

McGhee Tyson Airport



DEVELOPMENT AREAS 2 & 3 – STORM WATER MANAGEMENT

Two major drainage ways traverse Areas 2 and 3 from a northeasterly to southwesterly direction. The larger of the two drainage ways passes storm water from areas east of Alcoa Highway. Storm water from the areas of the Alcoa Highway right of way, the existing general aviation facilities, the terminal and apron facilities, the parking garage and surface lots, the Hilton Hotel facilities, and Areas 2 and 3 also contributes to runoff passing through this drainage way. The smaller of the drainage ways

receives storm water runoff primarily from the airfield, with additional contribution from parts of Areas 2 and 3. Enclosure of these two drainage ways within the development limits will be required for full development of the area.

Each of the two drainage ways terminates at the existing regional detention basin on the Airport located southwest of the two runways, and northeast of the CSX railroad. In

addition storm water runoff from Benford Heights, Armona, and the Tennessee Air National Guard facility also contribute to the pond detention requirements. This pond was originally designed to accommodate the detention of storm water for a 100-year, 24-hour storm frequency, and a maximum discharge of 678 cubic feet per second that met pre-existing conditions.

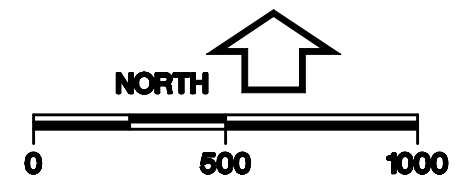
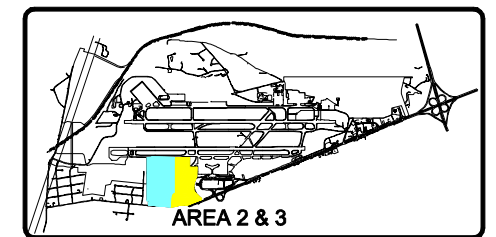
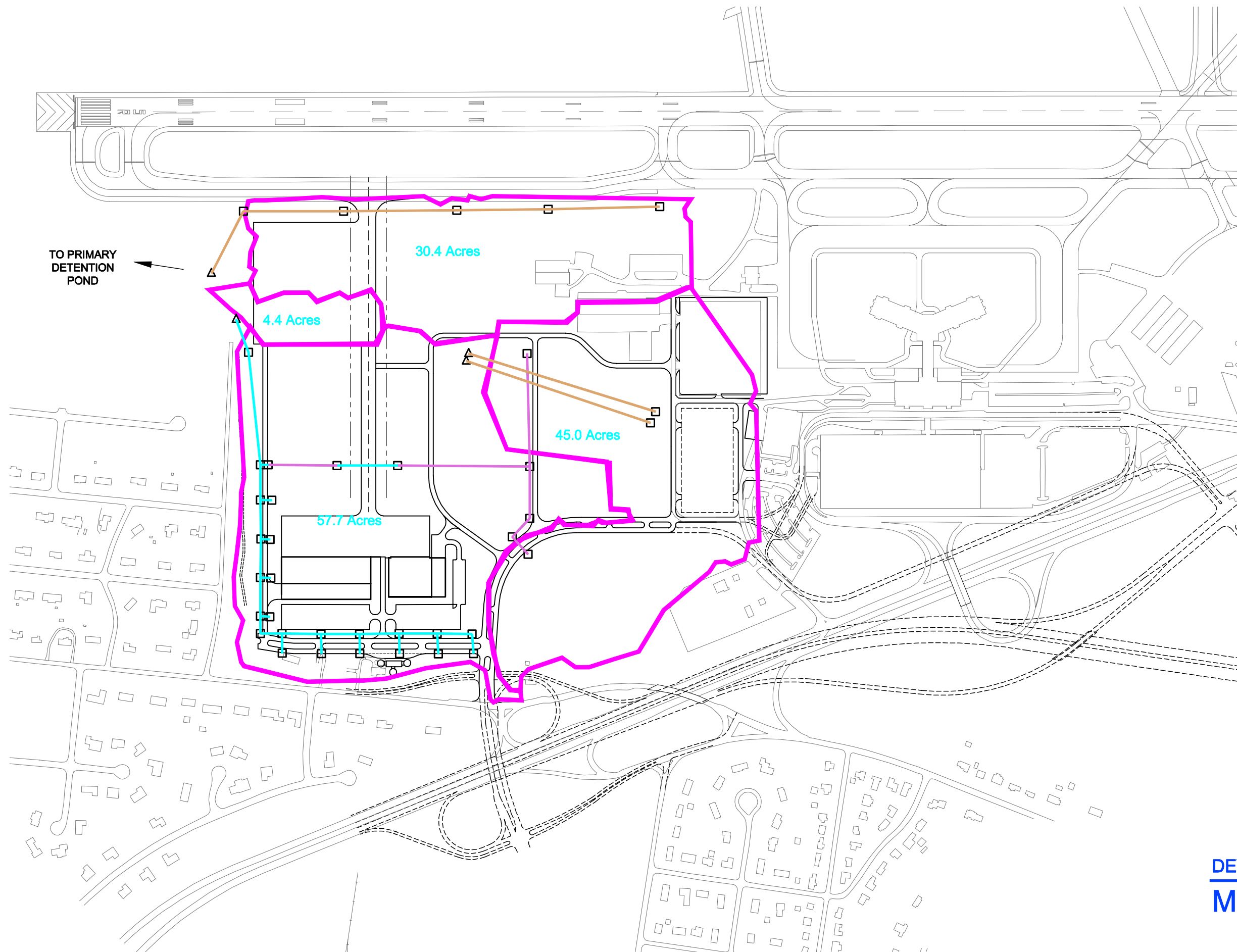
The pond has recently been enlarged for the purposes of obtaining borrow material for the construction of the deep fills in Area 3. Further enlargement of the pond detention capacity is possible to provide material needed for the remaining fills in Areas 2 and 3.

STORM WATER MANAGEMENT

LEGEND

- △ OUTLET
- INLET
- PHASE 1 PIPE
- PHASE 2 PIPE
- PHASE 3 PIPE
- PHASE 4 PIPE

- DRAINAGE BASIN
- BASIN



DEVELOPMENT AREAS 2 & 3

McGhee Tyson Airport



DEVELOPMENT AREA 2 AND 3 – EXISTING UTILITIES

Water Distribution System

The Airport's main water service feed is a 12" Ø waterline that originates at Hunt Road in the vicinity of the Alcoa Highway interchange and traverses northeast across Site Two to Cargo Building Road and the Hilton Hotel. This 12" Ø line continues north along Cargo Building Road, and ultimately splits off to the east to provide potable water and fire protection service to the McGhee Tyson Terminal building and west to serve the: Snow Removal and Equipment Storage Facility; Crash, Fire and Rescue Facility; and Air Cargo Building. A water supply connection also runs south along Cargo Building Road to the existing Avis and National car rental facilities located with Development Area Two.

Sanitary Sewer

Most of the land contained within these two sites is undeveloped. An existing 6" Ø force main, connected to

a sewer line at Alcoa Highway provides sanitary sewer service for the Terminal Building, Hilton Hotel, and car rental agencies currently located within Area Two. An 8" Ø sanitary sewer line traverses Area Four from the Liberty Street Pump Station to Ambrose Street in Benford Heights Subdivision. Several 8" Ø sewer lines located within Area Three exist from when a portion of the site contained houses that were purchased through land acquisition by the Airport Authority. These lines are still in operation, providing sanitary sewer connection to lines serving the Maintenance and Air Cargo Buildings located in the northern portion of Area Two.

The existing lift station and 4" Ø line linking these buildings with the sewer system hook-up at Ambrose Street will have to be removed, and the older 8" Ø lines abandoned to allow construction in Area Three. Earth fill material brought in to raise the elevation of portions of Area Three for construction of aviation-related projects will allow the installation of gravity sewer systems to serve facilities being proposed.

Natural Gas

Gas service in the area is currently supplied by 2" Ø and 4" Ø gas pipelines located along Hunt Road, just to the South of Areas Two and Three. There is sufficient system capacity to support existing facilities and most proposed uses, however as buildings are constructed, new 2 and 3-inch PE gas lines will need to be installed to create a complete gas service loop around development sites.

Electrical

With minimal existing development on these sites, only a few overhead and underground electrical lines are in place within Areas Two and Three. Currently, the Maintenance, Air Cargo, and Fire & Rescue Buildings, and the Hilton Hotel receive their electrical service from underground distribution lines running from Alcoa Highway north along Cargo Building Road to the Air Cargo Apron. Two #4/0, 13.2 kV electrical lines are

presently being installed near Area Two. These underground distribution lines are being fed from Alcoa Highway and when completed, will traverse around the existing surface parking area in route to serving the Terminal Building.

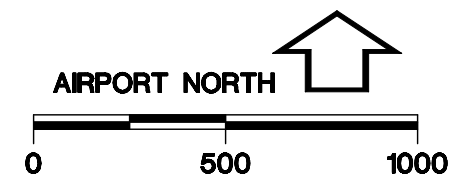
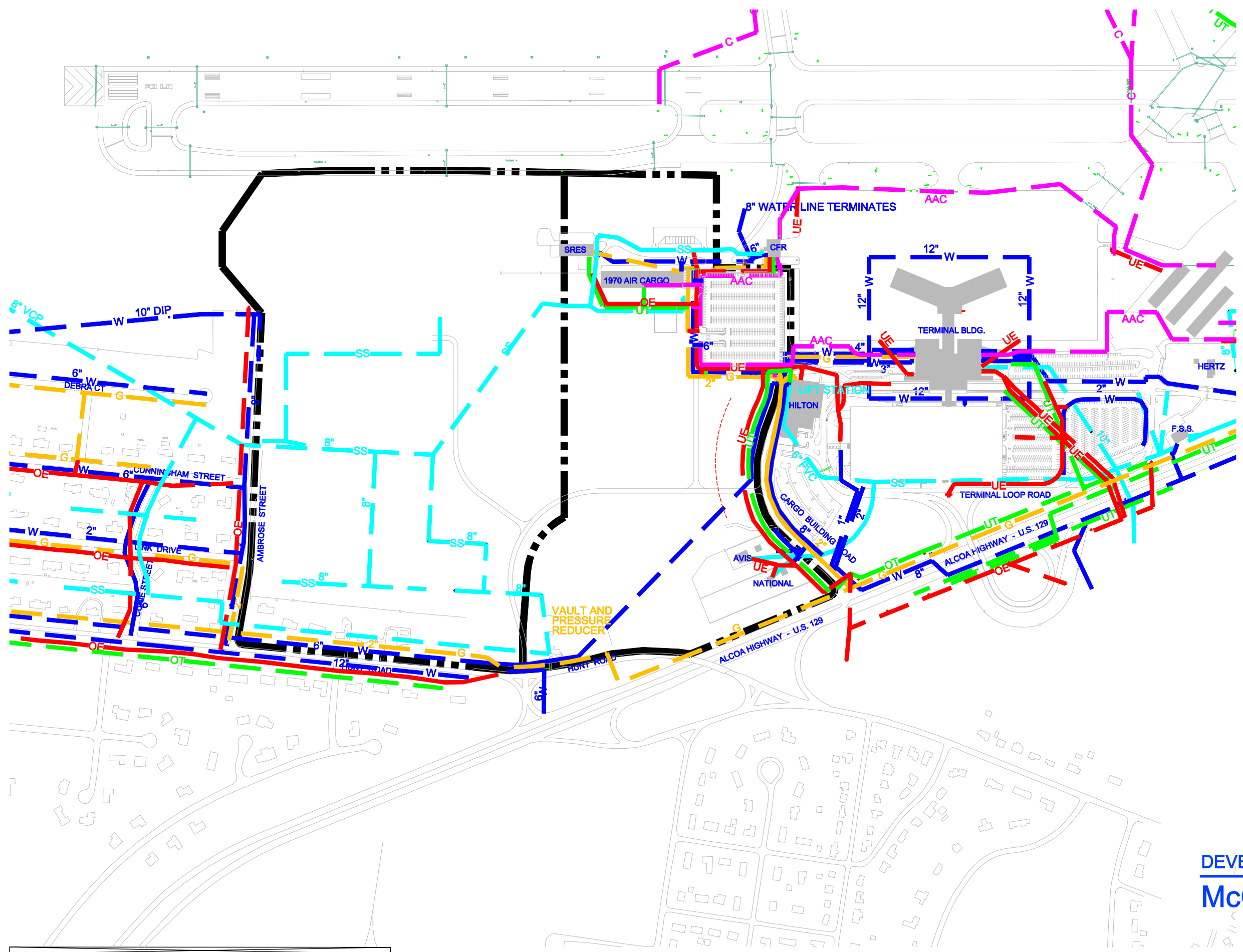
Communication

Overhead and underground Bell South telephone lines located along Alcoa Highway provide communications services to the Terminal Building, the Hilton Hotel, the Maintenance Building, the Air Cargo Building, and the Crash, Fire, and Rescue Building. An Intermediate Distribution Frame, located in Room 1214 of the Terminal Building serves as the physical connection between the Bell South lines and the Airport Authority communications systems.

EXISTING UTILITIES

LEGEND

OVERHEAD ELECTRIC	— OE —
UNDERGROUND ELECTRIC	— UE —
UNDERGROUND TELEPHONE	— UT —
OVERHEAD TELEPHONE	— OT —
WATER	— W —
SANITARY	— SS —
GAS	— G —
MKAA COMMUNICATIONS	— AAC —
FAA POWER	— P —
FAA COMMUNICATIONS	— C —



DEVELOPMENT AREAS 2 & 3
McGhee Tyson Airport



DEVELOPMENT AREAS 2 & 3 – PROPOSED UTILITITES

Utilities Extensions –

Existing utilities in the area of Hunt Road, at the proposed Alcoa Highway Interchange will be brought to a terminal point and a utility manhole will be constructed. This structure will serve as the linkage between existing utilities and a proposed Primary Utility Corridor. Within this dedicated corridor all utilities will be located underground for Areas Two and Three, including: a 12” Ø potable water line; a 10” Ø sanitary sewer line; eight #4/0, 13.2 kV, 3-phase, dual primary-feed electrical lines; a 6” Ø gas distribution line; and six (4” Ø) 24/100 fiber optic & copper conduits. From the proposed manhole, the

corridor will run along the west side of the proposed Entrance Boulevard at the Alcoa Highway Interchange. Following this roadway alignment to the east into Area Two, the corridor will branch-off to the north at two locations; the first being at the west side of Future Car Rental Lot No. One and the second being at the east side of Future Car Rental Lot No. Two. This latter leg of the primary utility corridor continues north to the Glycol Pad, but not before branching to the east towards the Terminal Building.

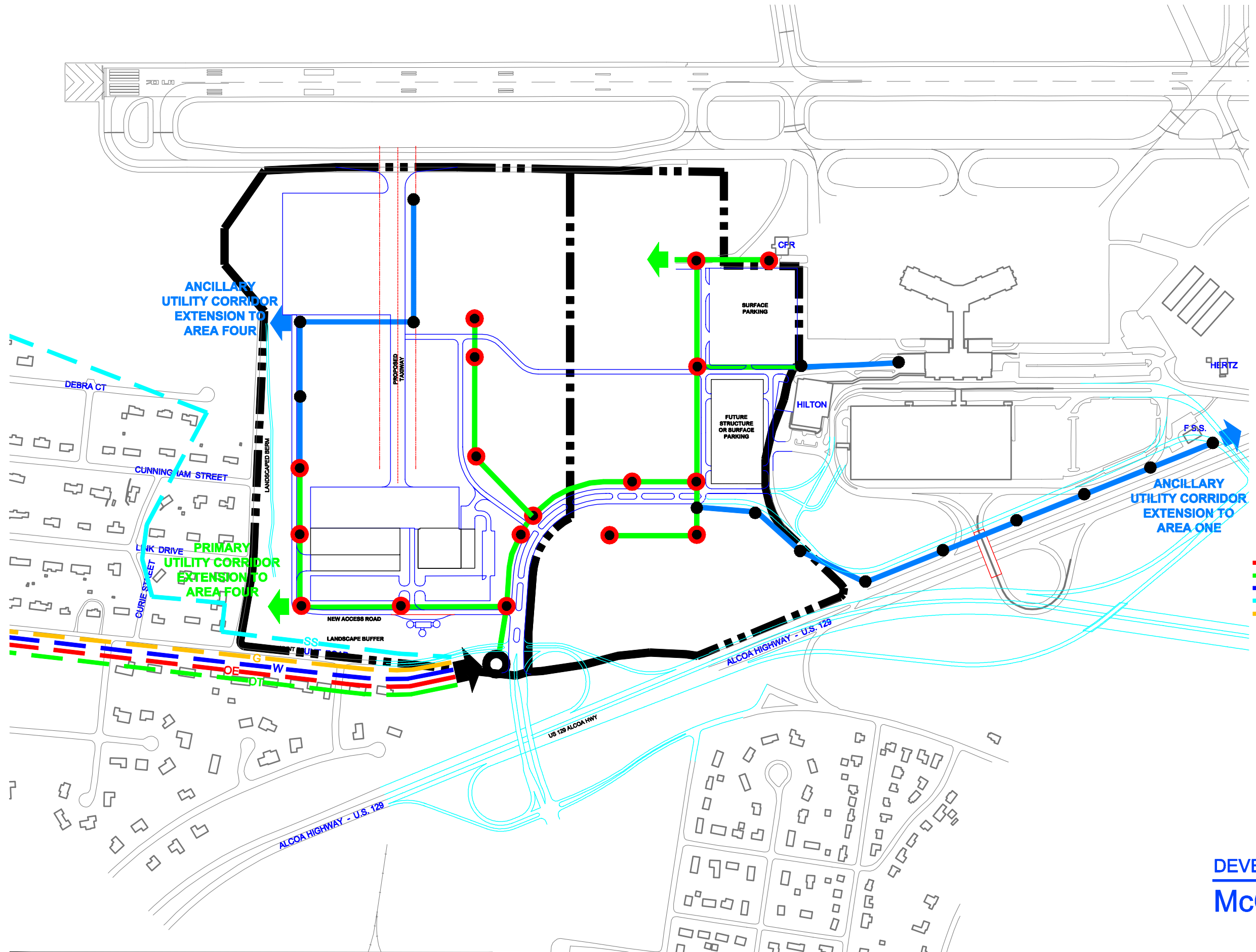
At the Glycol Pad, the primary corridor terminates and tees into an ancillary fiber optics corridor. Another

ancillary corridor feeds off of the primary corridor serving the proposed commercial development area along Alcoa Highway near the Hilton Hotel and Terminal Building. This fiber optics corridor travels east through the commercial area, parallels Alcoa Highway, and then turns north along Wrights Ferry Road. At the intersection of Wrights Ferry Road and Judson Drive, it will connect with fiber optics located at a proposed manhole planned for Area One utilities.

Area Three will be provided utilities distribution from a primary corridor extending west along the new access road near the proposed Maintenance Hangars located

north of Hunt Road. The last leg of this primary utility corridor turns north and parallels Ambrose Street for approximately 750’, where at its terminus it becomes an ancillary corridor containing fiber optics. This corridor traverses north and ends at the General Purpose Apron, but not before branching-off to the east and then terminating in the area of the Future FBO.

PROPOSED UTILITIES



- PRIMARY UTILITY CORRIDOR**
 - (1) - 12" POTABLE WATER LINE
 - (1) - 10" SANITARY SEWER LINE
 - (8) - #4/0, 13.2kV COPPER ELECTRICAL LINES
 - (1) - 6" GAS DISTRIBUTION LINE
 - (6) - 4" - 24/100 FIBER OPTICS & COPPER CONDUITS

- ANCILLARY UTILITY CORRIDOR**
 - (6) - 4" - 24/100 FIBER OPTICS & COPPER CONDUITS

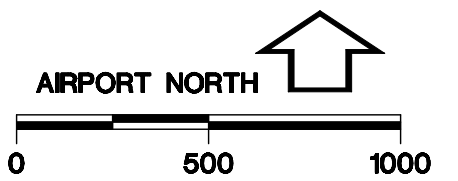
● **NODE FOR LINKING EXISTING & PROPOSED UTILITIES**

● **MANHOLE & UNDERGROUND VAULT CONNECTIONS**

● **UNDERGROUND VAULT FOR TELECOMMUNICATIONS**

EXISTING SUPPLY AND FEEDER LINES

- OVERHEAD ELECTRIC
- OVERHEAD TELEPHONE
- WATER
- SANITARY
- GAS



DEVELOPMENT AREAS 2 & 3

McGhee Tyson Airport



DEVELOPMENT AREAS 2 & 3 – UTILITIES PHASING

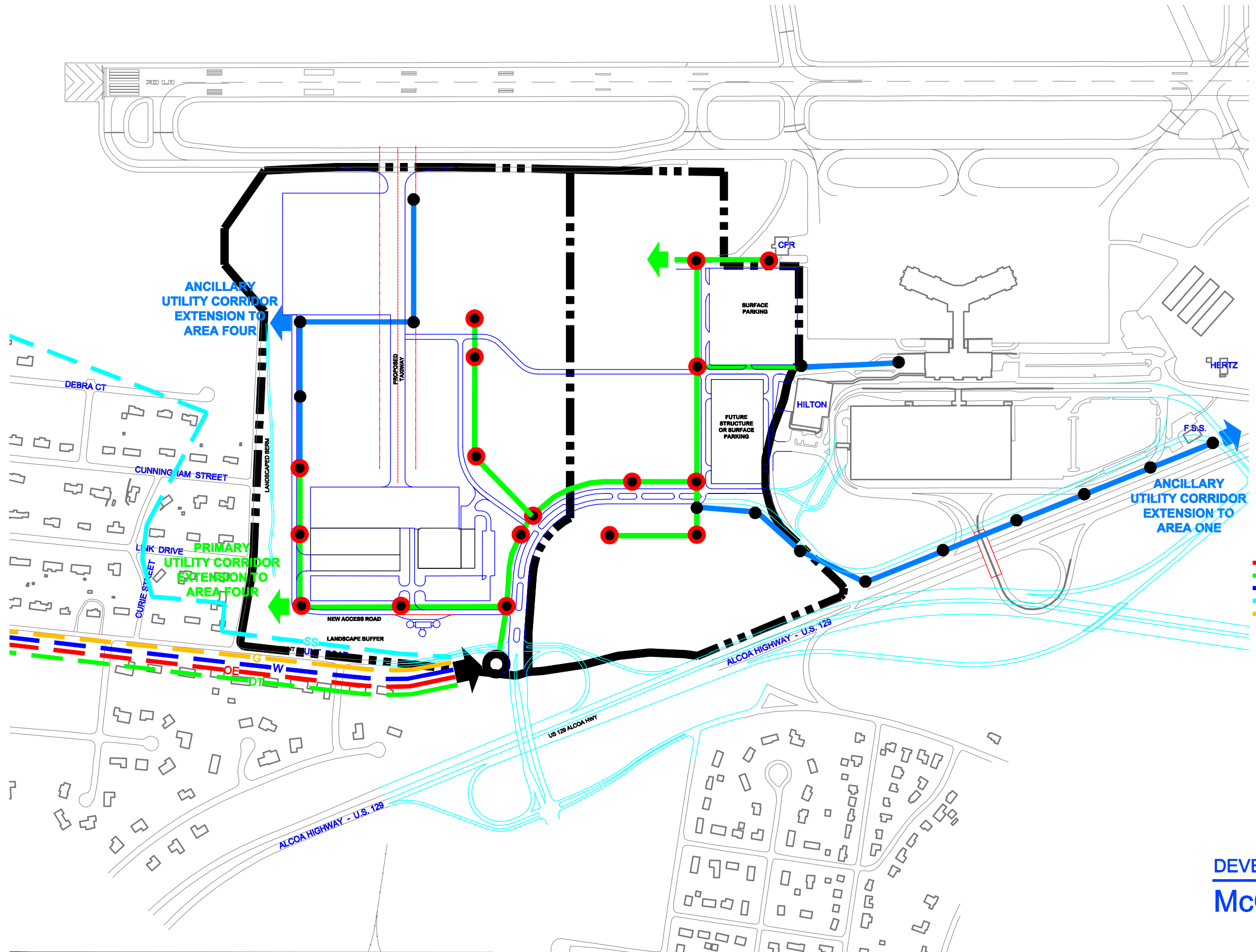
The phasing of utilities for Area 2 & 3 has been determined based on the studied evaluation of land use potential and the feasibility of development, the proximity to existing supply and feeder lines, the functional relationships of existing and proposed facilities, and the cost considerations for mass grading and storm water drainage system installations.

Utilizing these site considerations, it is recommended that Phase One Utilities be installed that follows the new perimeter road along the west of site 3, south of 2 & 3 and east side of site 2. The will provide the primary infrastructure for the development of sites 2 & 3.

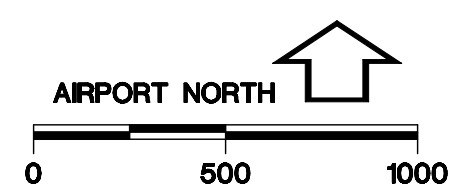
The Phase Two Utilities consists of installing utilities in the area to serve the aviation related and terminal support

facilities as well as the aviation related business along Alcoa Highway.

PROPOSED UTILITIES



- PRIMARY UTILITY CORRIDOR**
 - (1) - 12" POTABLE WATER LINE
 - (1) - 10" SANITARY SEWER LINE
 - (8) - #4/0, 13.2kV COPPER ELECTRICAL LINES
 - (1) - 6" GAS DISTRIBUTION LINE
 - (6) - 4" - 24/100 FIBER OPTICS & COPPER CONDUITS
- ANCILLARY UTILITY CORRIDOR**
 - (6) - 4" - 24/100 FIBER OPTICS & COPPER CONDUITS
- NODE FOR LINKING EXISTING & PROPOSED UTILITIES**
- MANHOLE & UNDERGROUND VAULT CONNECTIONS**
- UNDERGROUND VAULT FOR TELECOMMUNICATIONS**
- EXISTING SUPPLY AND FEEDER LINES**
 - OVERHEAD ELECTRIC
 - OVERHEAD TELEPHONE
 - WATER
 - SANITARY
 - GAS



DEVELOPMENT AREAS 2 & 3

McGhee Tyson Airport



DEVELOPMENT AREA 4 – POTENTIAL DEVELOPMENT CAPACITY

Development Potential

Area 4 is located immediately adjacent to both the Benford Heights and Armona residential subdivisions, and within the corporate limits of the City of Alcoa. Any development that occurs within Area 4 should be sensitive to the adjoining property uses.

Area 4 possesses potential for the development of aviation related facilities requiring direct airfield access. The shape of the developable area, which contains 94 acres, is controlled by the limits of the subdivisions and location of the drainage ways from Area 3. The shape of the area is most conducive to smaller individual facilities, in comparison to the potential for Areas 1 and 3.

Buffer Areas

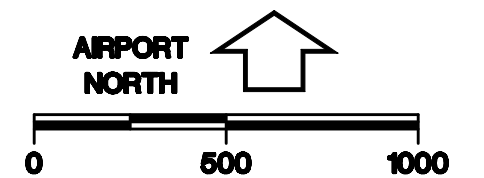
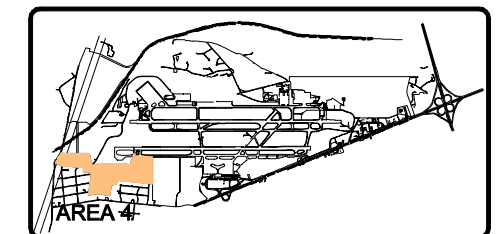
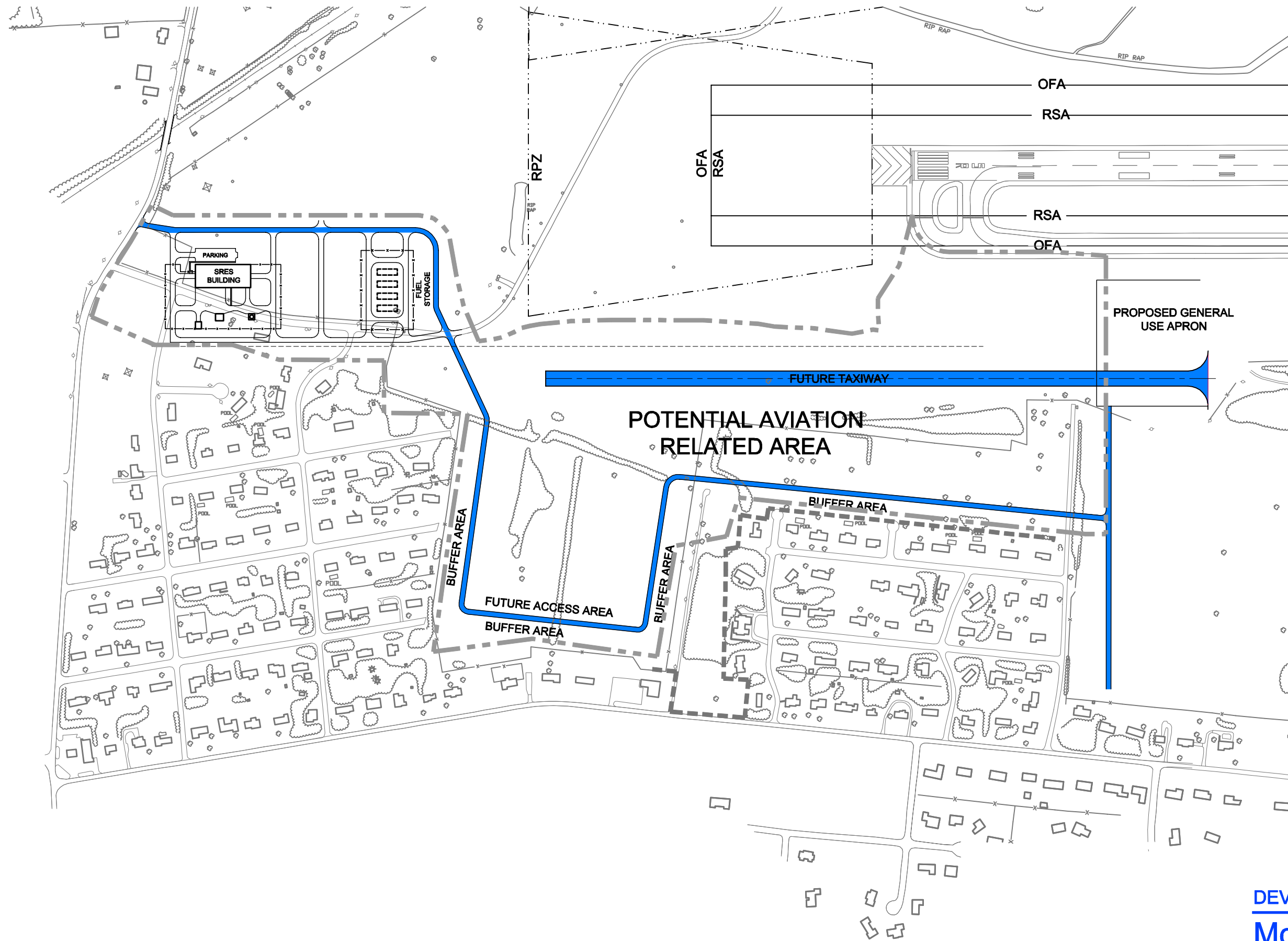
Landscape buffer areas should be considered between any Airport developments and the residential subdivisions. Historically, the City of Alcoa Planning Commission has required that a buffering system be incorporated into any airport development plans within their jurisdictional boundaries as a condition for approval.

Feasible Building Areas

Building locations within Area 4 will be limited to south of any future taxiway servicing the area, and the pocket of land between the two subdivisions. Limitations on the building areas are controlled by the topography of the area and the limits of the subdivisions.

Potential Development Area	95 Acres
Building Area	TBD
New Apron Area	TBD
New Taxiway	2,900 linear feet
New Roadway	12,000 linear feet

RENDERING



DEVELOPMENT AREA 4

McGhee Tyson Airport

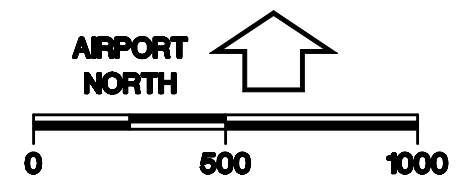
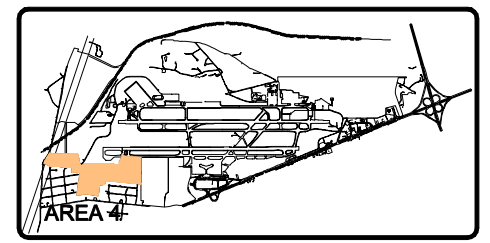
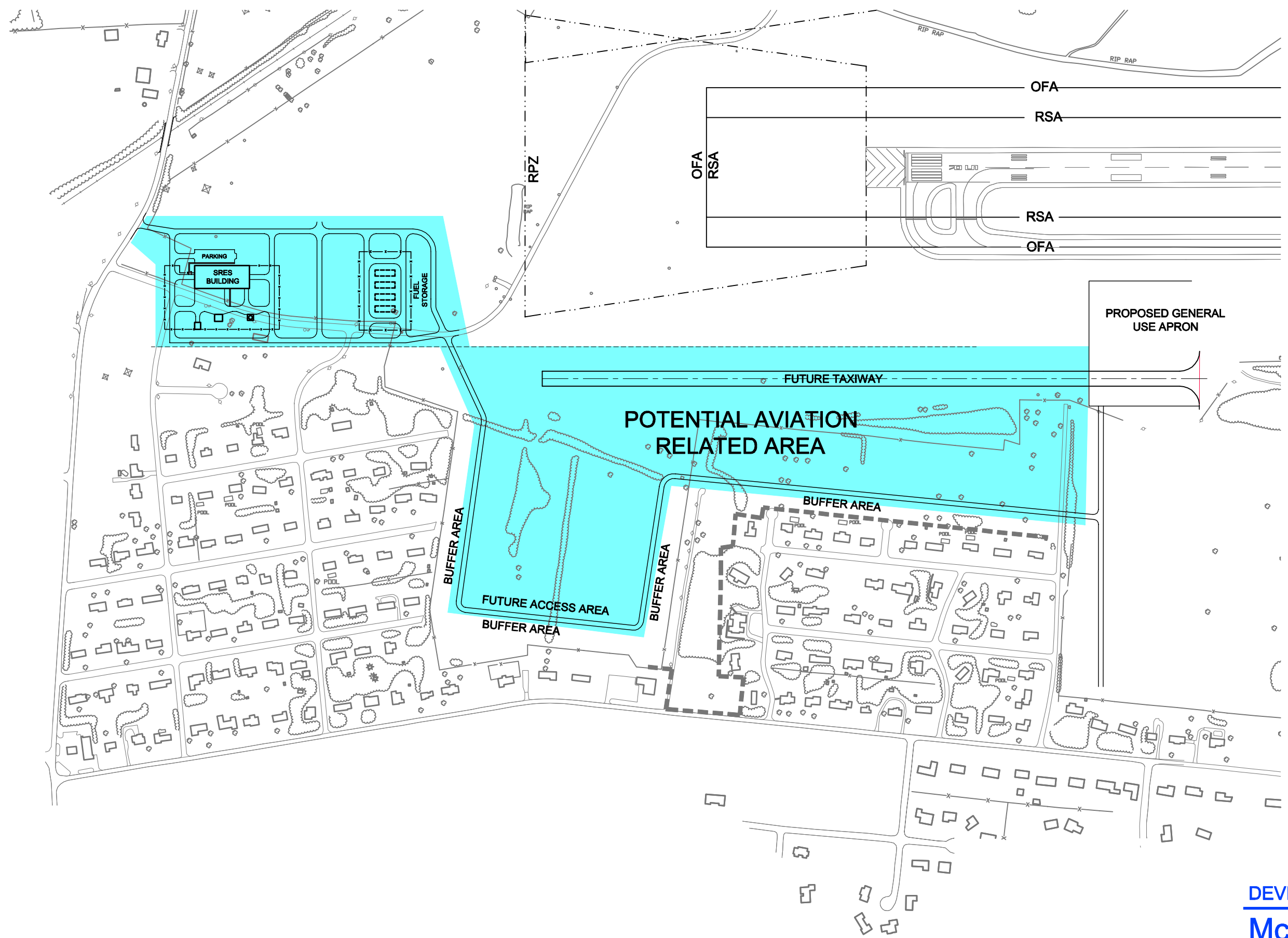


DEVELOPMENT AREA 4 – PHASING

For the purpose of this plan, the development of this area is anticipated to occur in a single phase. As the Airport Authority proceeds with plans for this area, the phasing should be reviewed and modified as appropriate to meet the needs and demand for any facilities that might be considered.

PHASING PLAN

TOTAL AREA DEVELOPMENT - NO SEQUENCING



DEVELOPMENT AREA 4

McGhee Tyson Airport



DEVELOPMENT AREA 4 – AIRSIDE AND LANDSIDE ACCESS

Airside Access

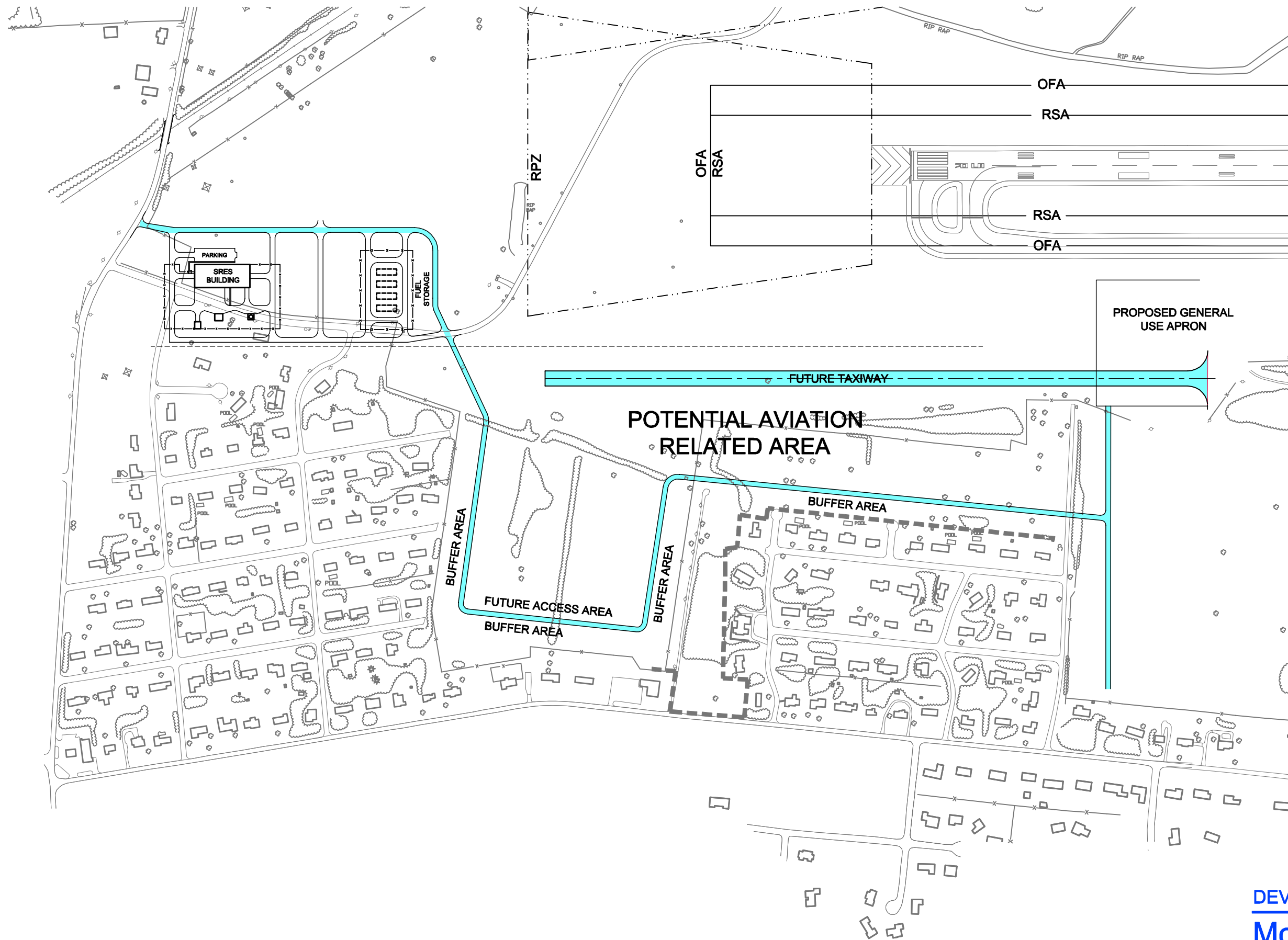
The potential of airfield access to this new development area would be by a new taxiway that parallels the alignment of Taxiway 'A'. Based on the constraints imposed on the area by the presence the subdivisions and topographical conditions, the taxiway would best serve smaller types of aircraft. Access to individual development facilities would be by way of ramp connections from the taxiway to new aircraft parking aprons.

The vehicular circulation within this area would be a roadway paralleling the new taxiway, with the location outside of the taxiway object free area limits. This roadway would connect to the future Airport Snow Removal and Equipment Storage building site off of Louisville Road.

Landside Access

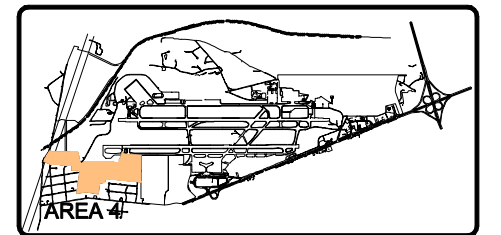
A new landside roadway through Area 4, with connections at Louisville Road, and Area 3 will be required to provide the landside access throughout this area. In order to maximize the developable space within the area, it is recommended that the roadway follow the

property limits of the perimeter of the Benford Heights and Armona subdivisions. Considering the sensitivity of the development adjacent to the subdivisions, a landscape buffer between the road and private properties is recommended.



AIRSIDE AND LANDSIDE ACCESS

DEVELOPMENT ACCESS



DEVELOPMENT AREA 4

McGhee Tyson Airport



DEVELOPMENT AREA 4 – GRADING & STORM WATER MANAGEMENT

Grading Plan

The existing topography of the area dictates that a moderate amount of earthwork will be required to establish compatible elevations for the development of aviation related facilities. Material that is onsite will be moved in a cut and fill operation. It is anticipated that the grading can be accomplished to approximately a balance of cut and fill when split

between AIP and non-AIP eligible work. The gross amount of earthwork for the total area is estimated to be approximately 300,000 cubic yards.

Storm Water Management

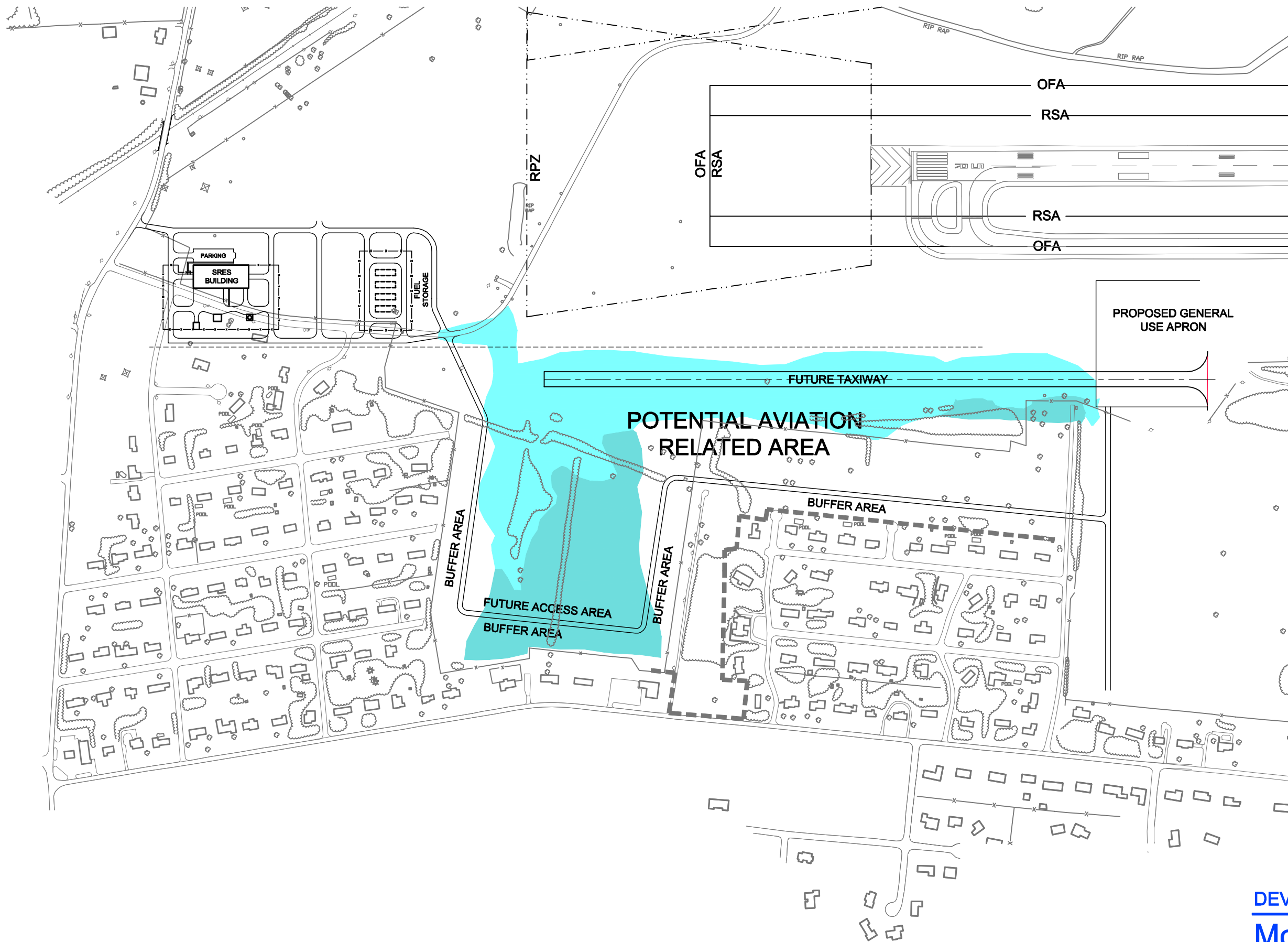
The natural slope of the terrain directs the majority of the runoff from this area into the existing detention basin located at the western boundary of

the Airport, as referenced for Areas 2 and 3. A major drainage way, known as the South Lateral Ditch, passes a portion of the northern limits of the area, emptying in the existing basin.

Potential development within this area is expected to increase the storm water runoff from this area by approximately 40%. The existing basin has sufficient detention capacity to detain the runoff of a

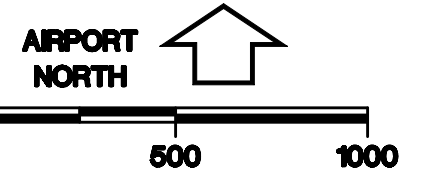
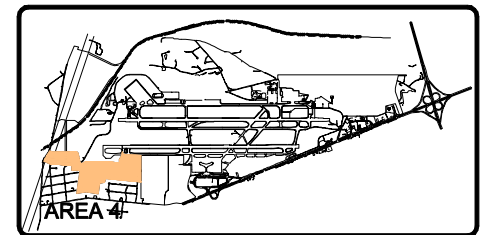
post-developed condition. There are no changes to the detention basin needed as a result of any development occurring within this area.

Closed drainage systems should be included with the development of roads and the taxiway within this area. The size of the pipe shall be determined for the specific development that occurs.



GRADING PLAN

- SEQUENCE 1 CUT
- SEQUENCE 1 FILL



DEVELOPMENT AREA 4

McGhee Tyson Airport



DEVELOPMENT AREA 4 – EXISTING UTILITIES

Water Distribution System

The Benford Heights Subdivision, located at the eastern end of this proposed development area is served with potable water by a 6" Ø line. This supply line runs north along Ambrose Street, and is feed by a 12" Ø primary water line at the intersection of Hunt Road and Ambrose Street. Several 2" Ø and 6" Ø lines provide water to the approximately 50 homes in the subdivision. Running parallel to Hunt Road, a 6" Ø water line serves four homes and one church n the center portion of Area Four and all of Armona Subdivision at the western end. To the north of Benford Heights, a 10" Ø water line travels from east to west and crosses half of Area Four before turning northeast and paralleling Liberty Road.

Sanitary Sewer

An 8" Ø sanitary sewer line connection at Louisville Road, near Holloway Street provides service access to the west end of this development area at Armona Subdivision. The homes in the subdivision are served with a 6" Ø force main system and a pump station located at Liberty Street. An 8" Ø sewer line running northwest across Area Four feeds the pump station with discharge from Benford Heights. At Ambrose Road, the 8" Ø main terminates and the subdivision is served with a network of 6" Ø sewer lines. It is at this system terminus that connections occur for sewer lines within Development Areas Two & Three. Ultimately, a 6" Ø force main discharges sanitary waste from the Liberty Street Pump Station into an existing gravity system on the south side of Hunt Road.

Natural Gas

A major 12" Ø natural gas transmission line, owned by Duke Energy, and located off of Louisville Road provides the point of connection for a 4" Ø United Cities Gas supply line. This line, located near the intersection of Liberty Street and Louisville Road supplies Armona Subdivision with natural gas through a network of 2" Ø distribution lines. Another 4" Ø supply line runs east along Hunt Road, past Dogwood and Whippoorwill Roads until reaching Benford Heights Subdivision, where it provides natural gas to the subdivision through 2" Ø lines.

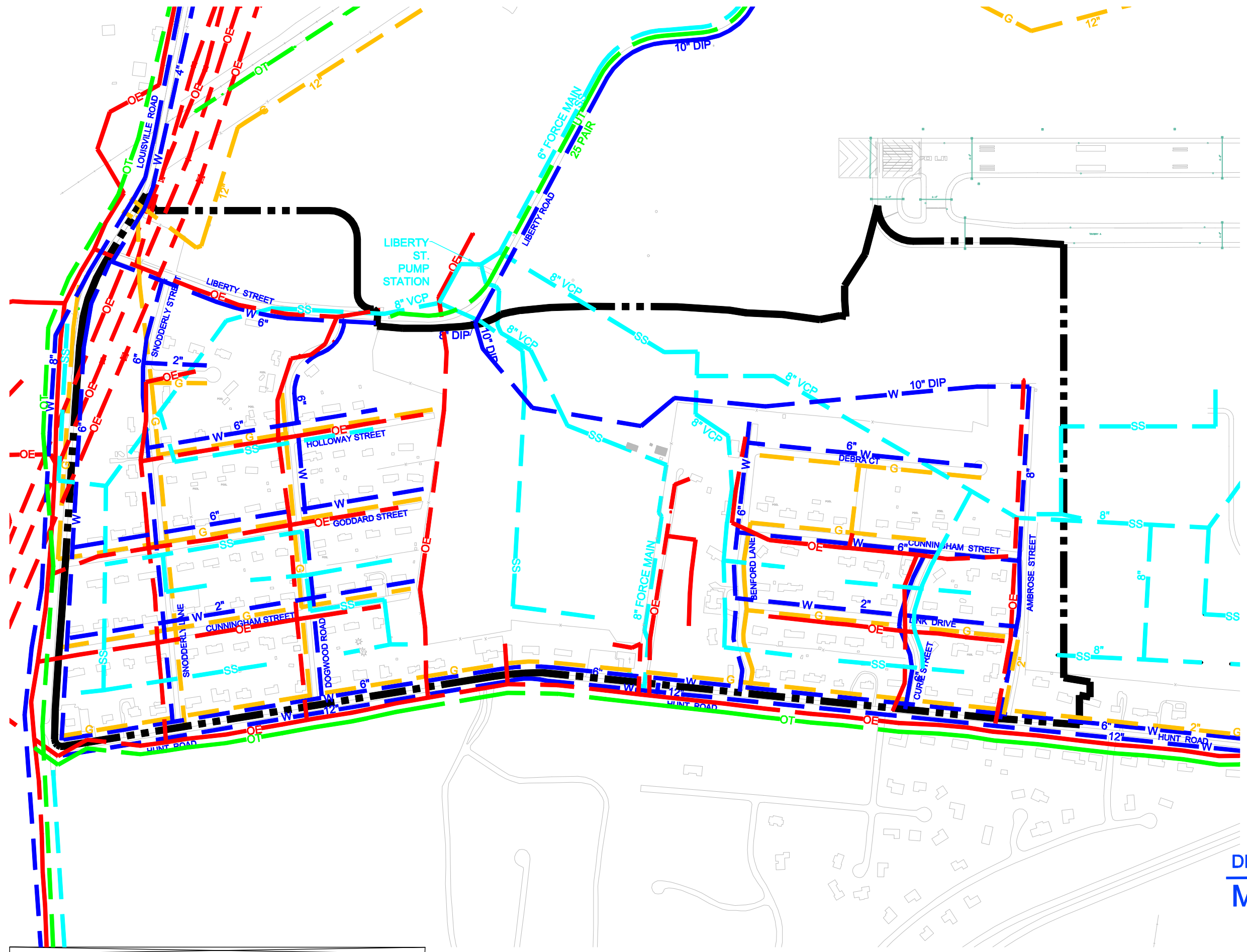
Electrical

At the extreme northwestern tip of Area Four, paralleling Louisville Road, and having minimal impact on this site is a TVA high-voltage power line right-of-way. However, the Airport Authority has made contact with TVA to

discuss long-term plans to lower the electrical transmission towers within the approach area of Runway 5R. Also in the area, running north and south along Louisville Road, and east and west along Hunt Road are overhead electrical lines, which provide power to the homes located in this mostly rural setting and to both Armona and Bedford Height Subdivisions. Other overhead electrical distribution lines travel north-south across the site, including lines along Ambrose and Whippoorwill Roads, and add to Four at the eastern boundary of Armona Subdivision.

Communication

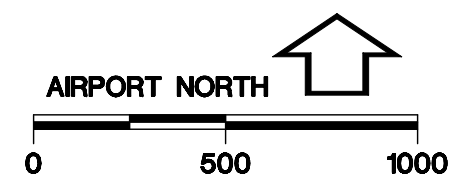
Overhead Bell South telephone lines located along Louisville and Hunt Roads provide residential phone service to Bedford Heights and Armona Subdivisions through a grid system of overhead lines. Neither underground telephone cables nor fiber optic conduits are present on Area Four.



EXISTING UTILITIES

LEGEND

OVERHEAD ELECTRIC	— OE —
UNDERGROUND ELECTRIC	— UE —
UNDERGROUND TELEPHONE	— UT —
OVERHEAD TELEPHONE	— OT —
WATER	— W —
SANITARY	— SS —
GAS	— G —
MCAA COMMUNICATIONS	— AAC —
FAA POWER	— P —
FAA COMMUNICATIONS	— C —



DEVELOPMENT AREA 4 – PROPOSED UTILITIES

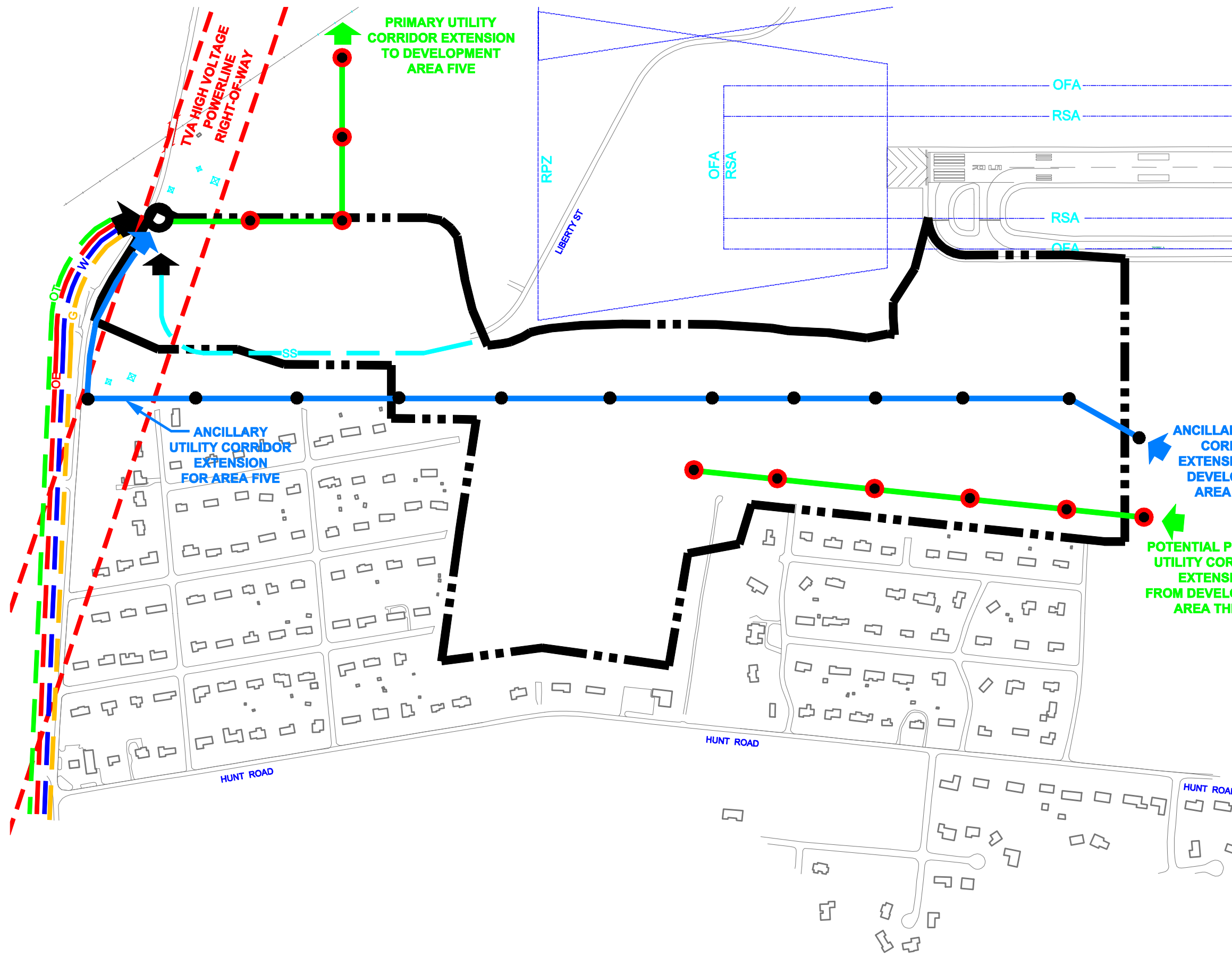
Utilities Extensions –

After the Primary Utility Corridor for Areas Two and Three is installed, its terminus at the western boundary of Area Three near the intersection of Ambrose Street and Hunt Road, will serve as the connection point for extension of the corridor into Area Four. A manhole will be installed at this terminal point, and the utility corridor will be located along a proposed boulevard paralleling

Hunt Road at the southern boundary of Area Four. The alignment for this Primary Utility Corridor will extend to Louisville Road, ending at the western boundary of Area Four near the intersection of Hunt and Louisville Roads. The proposed underground utilities to be located in this corridor include: a 12" Ø potable water line; a 10" Ø sanitary sewer line; eight #4/0, 13.2 kV, 3-phase, dual primary-feed electrical lines; a 6" Ø gas distribution line; and six (4" Ø) 24/100 fiber optic & copper conduits.

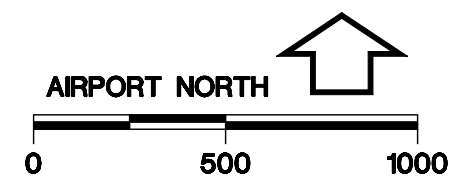
At the end of the primary corridor, an Ancillary Utility Corridor containing only fiber optic/copper conduits will extend north along Louisville Road for approximately 1500 feet. At that point, this ancillary corridor will turn east and travel parallel to a proposed access road located just north of the aviation-related buildings and hangars proposed for Area Four, eventually connecting to the fiber optics at Area Three.

Utilities Phasing – (Need Mass Grading & Storm Water Drainage System Proposals From LPA Before This Section Can Be Written).



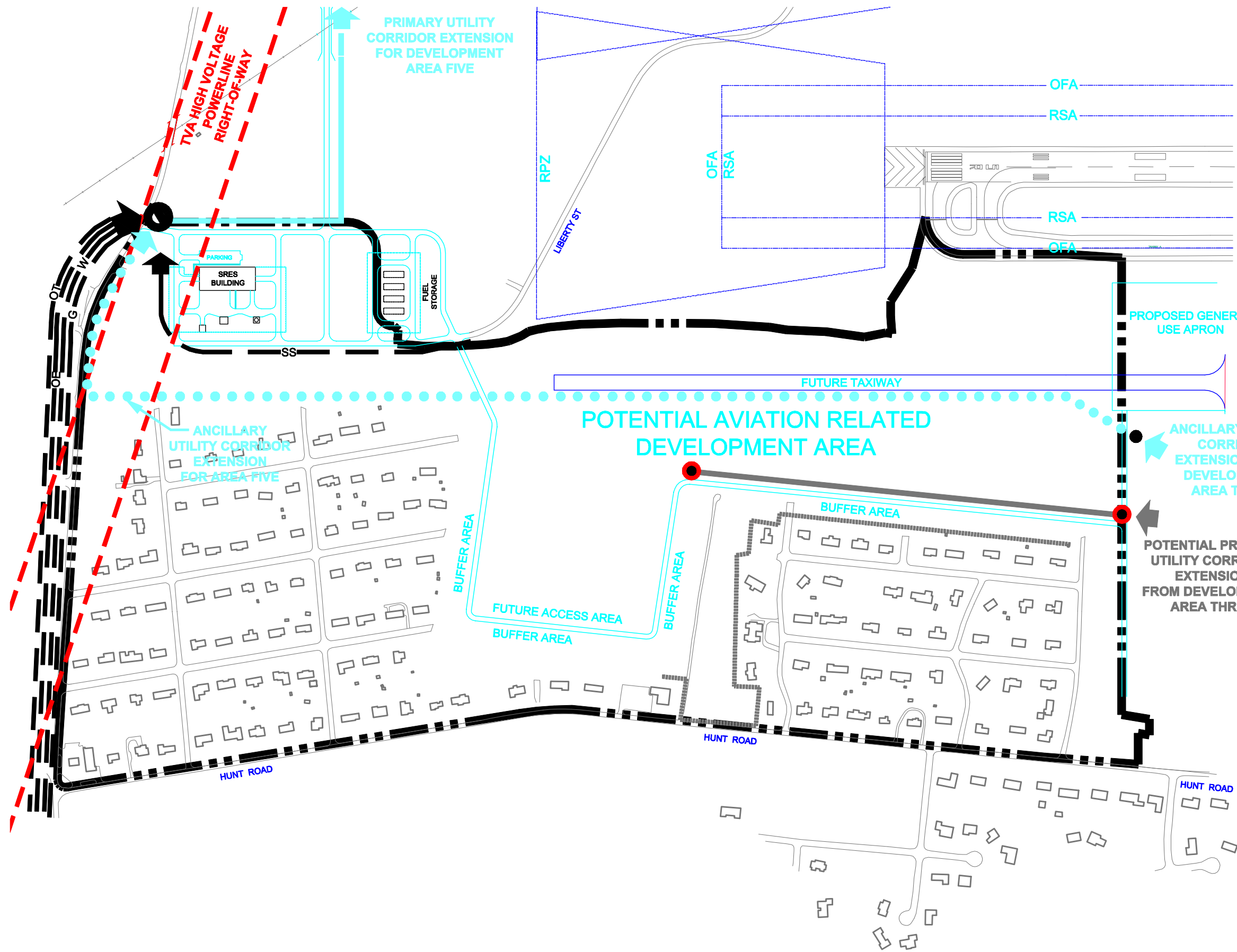
PROPOSED UTILITIES

- PRIMARY UTILITY CORRIDOR**
 - (1) - 12" POTABLE WATER LINE
 - (1) - 10" SANITARY SEWER LINE
 - (8) - #4/0, 13.2kV COPPER ELECTRICAL LINES
 - (1) - 6" GAS DISTRIBUTION LINE
 - (6) - 4" - 24/100 FIBER OPTICS & COPPER CONDUITS
- ANCILLARY UTILITY CORRIDOR**
 - (6) - 4" - 24/100 FIBER OPTICS & COPPER CONDUITS
- NODE FOR LINKING EXISTING & PROPOSED UTILITIES**
- MANHOLE & UNDERGROUND VAULT CONNECTIONS**
- UNDERGROUND VAULT FOR TELECOMMUNICATIONS**
- EXISTING SUPPLY AND FEEDER LINES**
 - OVERHEAD ELECTRIC
 - OVERHEAD TELEPHONE
 - WATER
 - SANITARY
 - NATURAL GAS
- EXISTING TVA RIGHT-OF-WAY**



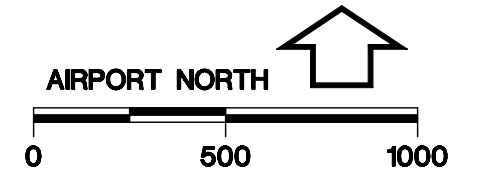
DEVELOPMENT AREA 4 – UTILITIES PHASING

For the purpose of this plan, the development of this area is anticipated to occur in a single phase. As the Airport Authority proceeds with plans for this area, the phasing should be reviewed and modified as appropriate to meet the needs and demand for any facilities that might be considered.



UTILITIES PHASING

- PRIMARY UTILITY CORRIDOR**
 - SEQUENCE ONE
 - FUTURE
- ANCILLARY UTILITY CORRIDOR**
 - SEQUENCE ONE
- NODE FOR LINKING**
 - EXISTING & PROPOSED UTILITIES
- MANHOLE & UNDERGROUND VAULT CONNECTIONS**
 -
- UNDERGROUND VAULT FOR TELECOMMUNICATIONS**
 -
- EXISTING SUPPLY AND FEEDER LINES**
 - OE OVERHEAD ELECTRIC
 - OT OVERHEAD TELEPHONE
 - W WATER
 - SS SANITARY
 - G NATURAL GAS



DEVELOPMENT AREA 5 – POTENTIAL DEVELOPMENT CAPACITY

The greatest potential for development in this area is for industrial type uses. The Airport Authority owns approximately 236 (Proffitt Farm) acres west of Louisville Road. The Blount County Industrial Board owns approximately 232 (Burkhart farm) acres adjoining the Proffitt Farm. Due to the rural setting of these properties, industrial development is a strong potential and compatible use.

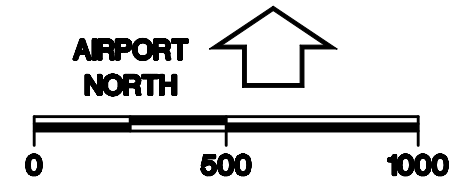
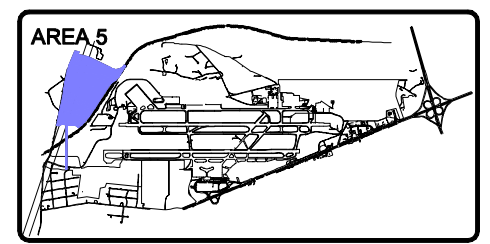
The use of Area 5 for industrial purposes is compatible with the Airport and presents an opportunity to provide support to the potential development to the west. Linkage to the Airport for non-aviation equipment is possible. Immediate access to rail service is also possible.

Constraints on the extent of development within the area will be dictated by the need to protect existing

environmental conditions within the area, and the terrain of the property. Expansion of the area northward may be possible with long-term growth of the airport.

Potential Development Area	160 Acres
Building Area	935,000 square feet
New Apron Area	None
New Taxiway	None
New Roadway	5,500 linear feet
Railroad Spur	2,250 linear feet

RENDERING



DEVELOPMENT AREA 5

McGhee Tyson Airport



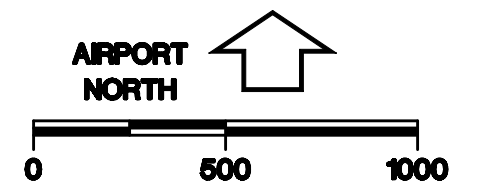
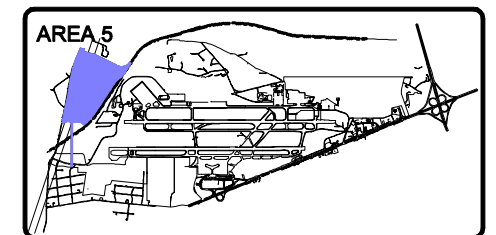
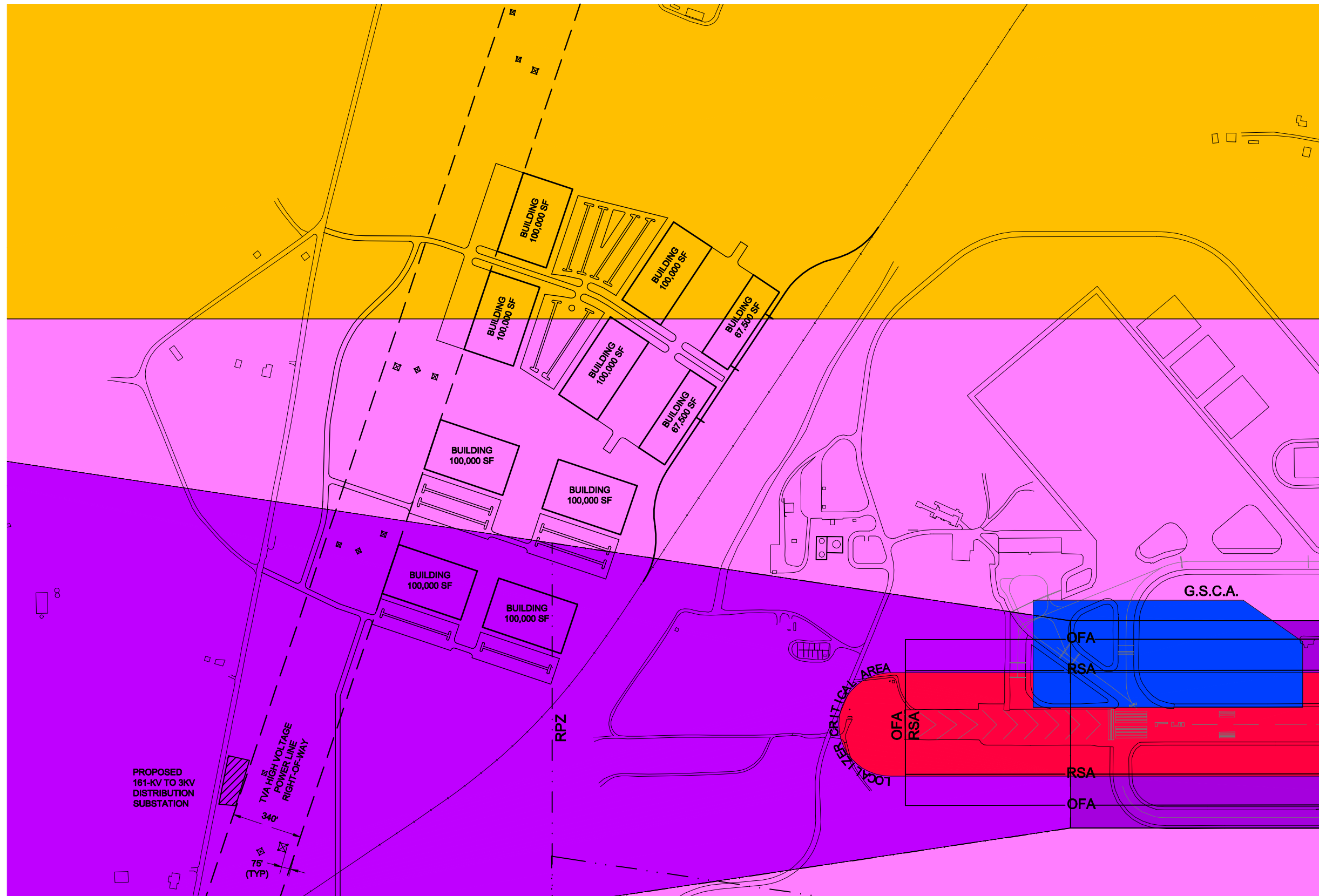
DEVELOPMENT AREA 5- FEASIBLE BUILDING AREA

Area 5 is in close proximity to the approach to Runway 5L. Any development that occurs within Area 5 must be compatible with the specific conditions for the runway approach as set forth by the Federal Aviation Administration. The most demanding conditions as set forth by Part 77 of the Federal Aviation Administration Regulations, TERPS, and the signal transmission for the Instrument Landing System must be reviewed and incorporated to assure the compatibility of development

within this area. The specific locations and height of any structures will be controlled by the requirements of the FAA. The FAA must review any proposed plan within Area 5, prior to the start of construction. The FAA will render an opinion regarding the impacts that the location and height of any structure will have on the runway approach, and recommend acceptance or rejection of the plan.

FEASIBLE BUILDING AREA

- PRIMARY SURFACE - EL 923.0'
- APPROACH SURFACE - 50:1 SLOPE
- TRANSITION SURFACE - 7:1 SLOPE
- HORIZONTAL SURFACE - EL 1131.0'
- LOCALIZER CRITICAL AREA
- GLIDE SLOPE CRITICAL AREA



DEVELOPMENT AREA 5

McGhee Tyson Airport

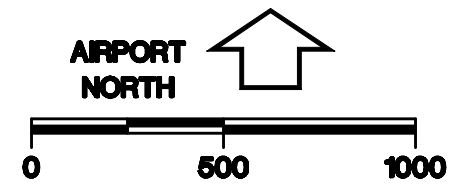
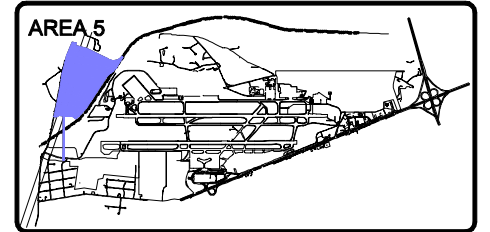
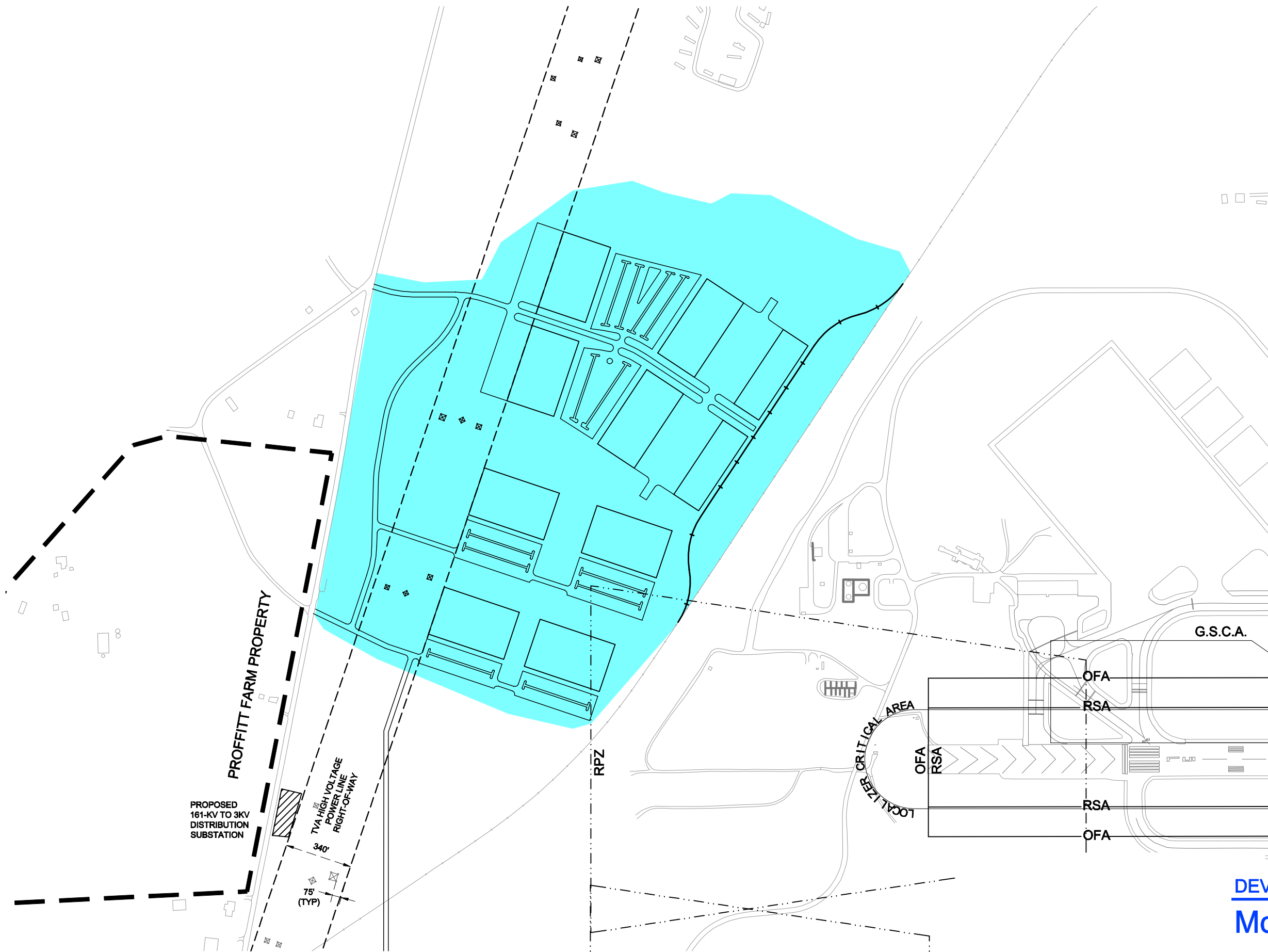


DEVELOPMENT AREA 5- PHASING

For the purpose of this plan, the development of this area is anticipated to occur in a single phase. As the Airport Authority proceeds with plans for this area, the phasing should be reviewed and modified as appropriate to meet the needs and demand for any facilities that might be considered.

PHASING PLAN

TOTAL AREA DEVELOPMENT - NO SEQUENCING



DEVELOPMENT AREA 5
McGhee Tyson Airport



DEVELOPMENT AREA 5 – AIRSIDE, LANDSIDE AND RAIL ACCESS

Airside Access

Due to the location of this area, airfield access for aircraft operations is not recommended. The topography of the area is not conducive to being economically developed for aircraft operations. Taxiway access may conflict with the runway approaches.

A vehicular road directly connecting Area 5 to Area 4 is feasible in the event that a link between the two areas is necessary. A roadway connection would serve for airport vehicles and equipment, and non-licensed transport vehicles that could not travel the public roadways.

Landside Access

Louisville Road provides the direct landside access to Area 5. Coordination with the Tennessee Department of Transportation will be required for permitting any improvements within the right of way of the highway.

The potential use of the area promotes the integration of large trucks as an integral part of the operation of facilities within the area. Sufficient space for the maneuvering of large trucks within the area must be considered in the allocation of specific development sites within the area.

A system of circulation roads and drives within the development area is necessary to minimize access points onto Louisville Road. The geometry and strength of the circulation roads must be adequate to accommodate large truck traffic.

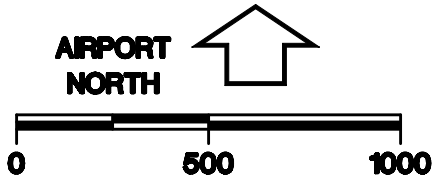
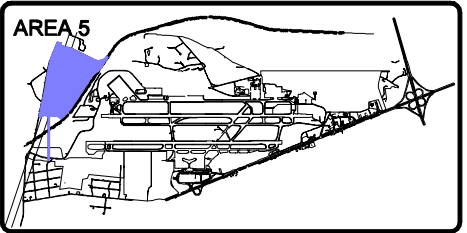
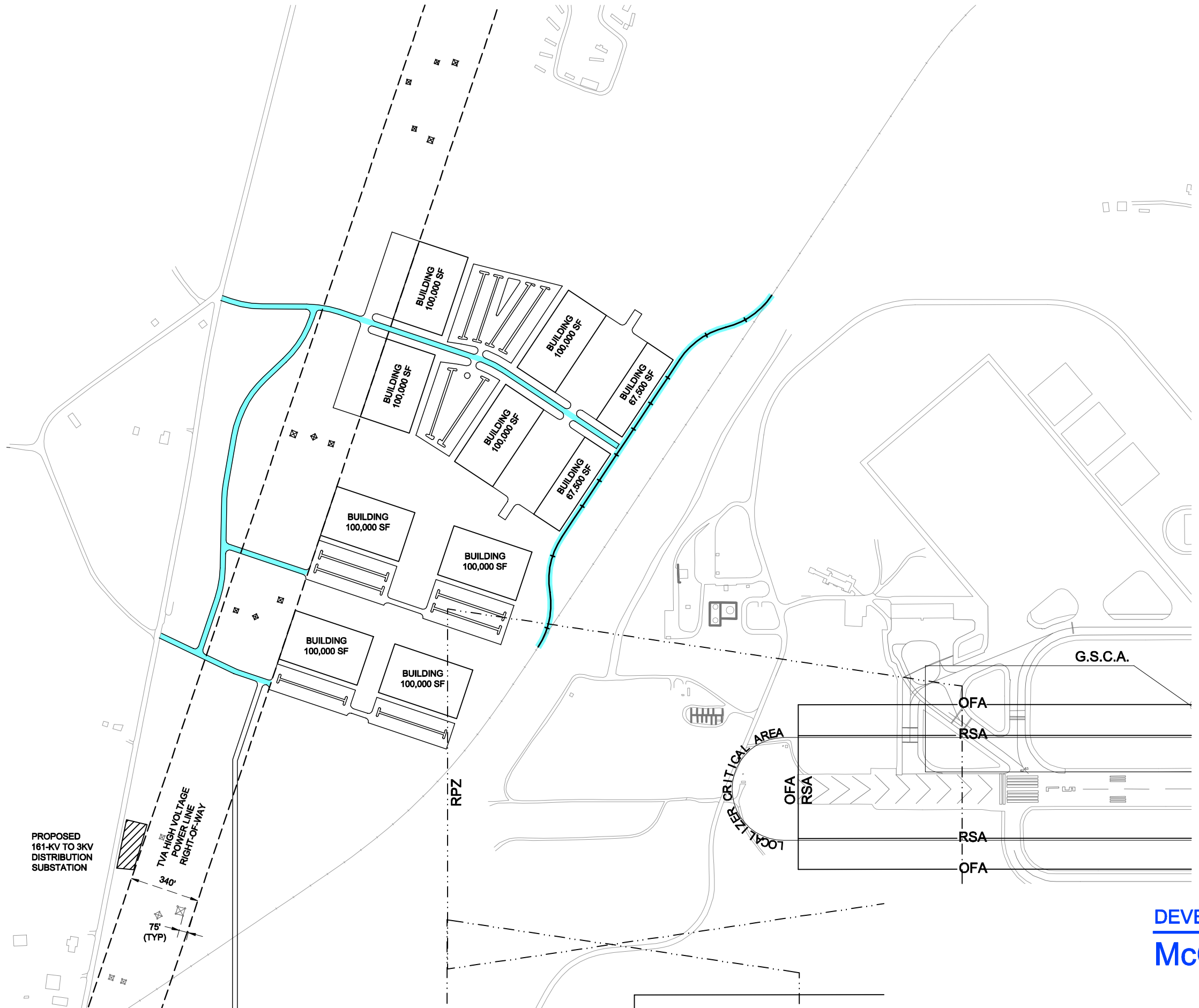
Rail Access

The CSX Railroad tracks immediately adjacent to Area 5 provides an excellent opportunity for the development of an intermodal link between rail, land, and air transportation. The terrain of the Area is in part compatible with the existing tracks, which would allow for the economical development of a railroad spur. The

spur could be an integral component of support for any future industrial type development that might occur within Area 5 and adjoining properties. Coordination with representatives of the CSX railroad would be necessary to generate the interest to realize the development potential.

LANDSIDE AND RAIL ACCESS

DEVELOPMENT ACCESS



DEVELOPMENT AREA 5
McGhee Tyson Airport



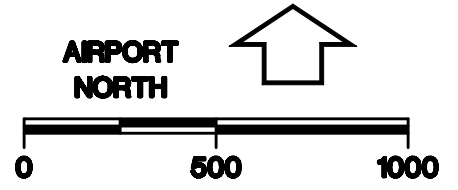
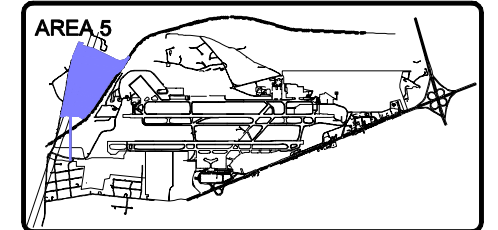
DEVELOPMENT AREA 5 – GRADING PLAN

The mass grading of Area 5 will require the moving of 1,234,000 cubic yards of material. The Area can be graded to a near balanced condition, and maintain compatible elevation grades for both landside and rail access.

In order to maximize the efficiency of the earthwork for the area, grading should occur in a single phase.

GRADING PLAN

- DEVELOPMENT CUT
- DEVELOPMENT FILL



DEVELOPMENT AREA 5

McGhee Tyson Airport



DEVELOPMENT AREA 5 – STORM WATER MANAGEMENT PLAN

The management of the storm water for Area 5 will be sensitive issue.

The existing terrain drains to Proffitt Creek, which is considered Waters of the United States. Portions of the area are adjacent to and within the 100-year flood plain. Therefore permits from the Army Corp of Engineers and the Tennessee Valley Authority will be required for development within this area.

Area 5 lies outside of the limits of any drainage area that attributes to an existing Airport storm water detention facility. Storm water detention will need to be incorporated into the development of this area.

Two separate drainage areas exist within the area. The two drainage areas are expected to be maintained, with modifications that result from the grading plan.

Two detention basins are recommended for full development of Area 5. Each basin should detain storm water runoff to a maximum of the pre-developed runoff conditions of 177 cfs for the north drainage area, and 237 cfs for the south drainage area. The detention capacity is estimated at 108,000 cubic feet for the north basin, and 119,000 cubic feet for the south basin.

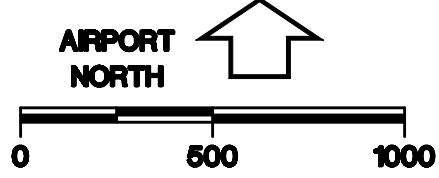
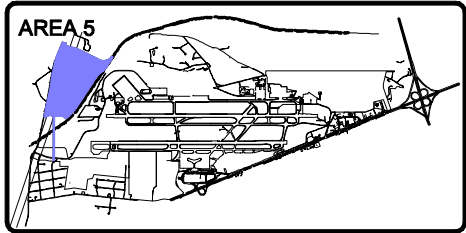
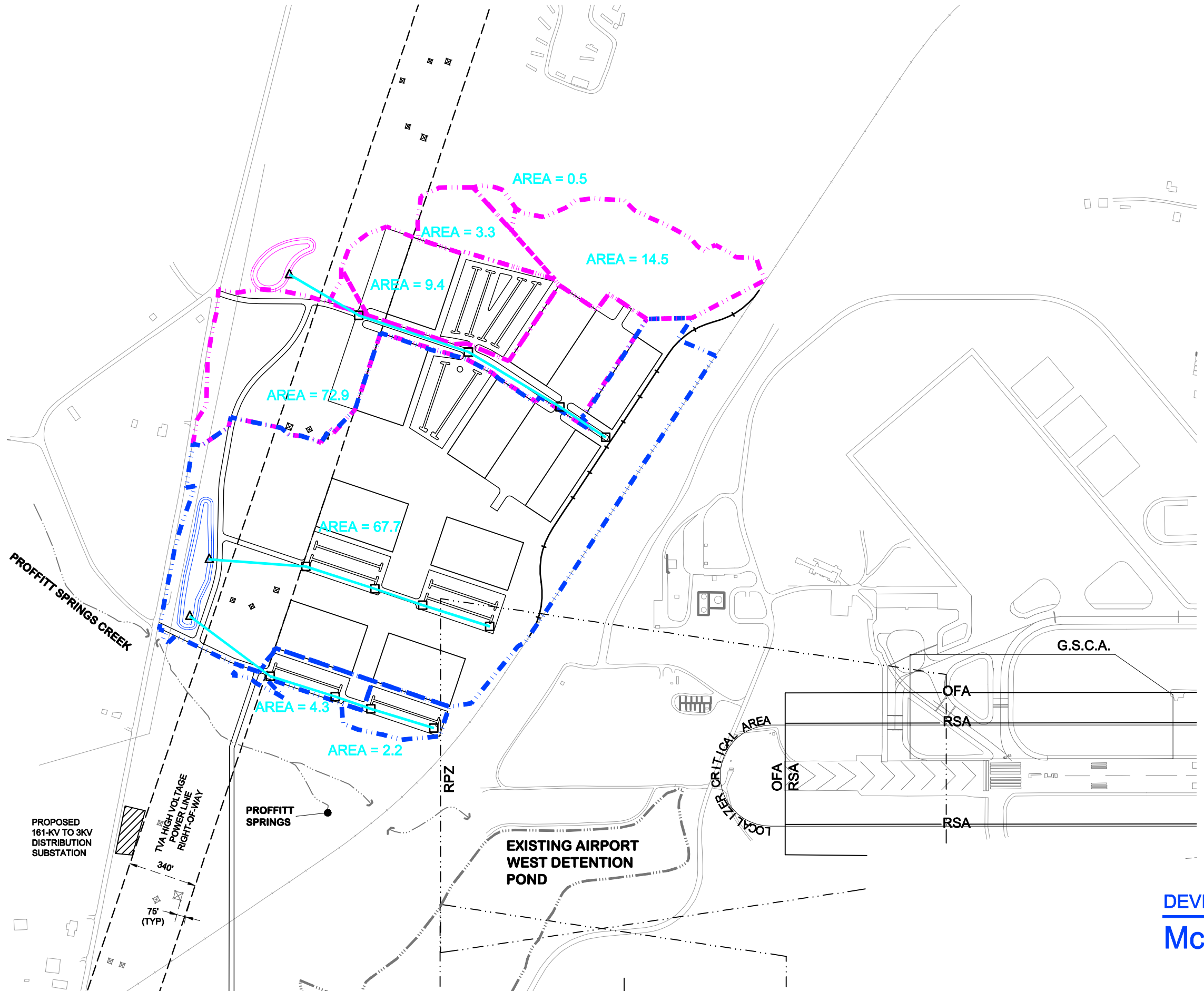
The trunk line storm sewer systems draining to each basin will consist of pipe in the range of 30-inch diameter

to 66-inch diameter. Drainage for site-specific developments will outfall into one of the two sewer systems.

STORM WATER MANAGEMENT

LEGEND

- △ OUTLET
- INLET
- PIPE
- DRAINAGE BASIN**
- BASIN 1
- BASIN 2



DEVELOPMENT AREA 5

McGhee Tyson Airport



DEVELOPMENT AREA 5 – EXISTING UTILITIES

Water Distribution System

An existing 6" Ø water line, running in a northerly direction along Louisville Road, serves the residential needs of this sparsely populated and very rural area. Although the City of Alcoa's water supply system is sufficient to handle the proposed types and levels of industrial development being planned for Area Five and possibly for the Airport-owned Proffitt Farm, significant new infrastructure will be required.

Sanitary Sewer

No existing sanitary sewer lines are located within this development area, but a new 8" Ø sewer line could feasibly be run from a connection with the existing 8" Ø

line located at Louisville Road in the Holloway Street area of Armona Subdivision.

Natural Gas

No existing natural gas lines are present within this development area. However, the same United Cities Gas distribution line located at Louisville Road and currently serving portions of Area Four, could provide the connection point for a new 4" Ø supply line for Area Five.

Electrical:

The same TVA high-voltage power lines that skirt the northwest corner of Area Four, continue their northerly

trek across this hilly, once-agricultural site. This TVA infrastructure is a major cultural and physical site feature consisting of three 161-kV lines, numerous transmission towers, and a 340'-wide right-of-way that bisects the site; creating a challenging opportunity for development. Overhead electrical service along Louisville Road is available, and is currently serving this area of sparse population, as well as a small masonry & wood building on the site that houses the FAA Middle Marker. At the north end of Area Five, electrical service is provided to one occupied house and two storage buildings located on Airport property. The City of Alcoa has plans to construct a 161-kV to 13-kV distribution substation on Area Five to accommodate future construction on all Airport Authority property. The new substation is planned to be

in operation by the summer of 2002, and will have eight total circuits and two 3-phase transformers.

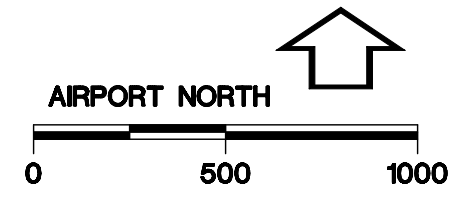
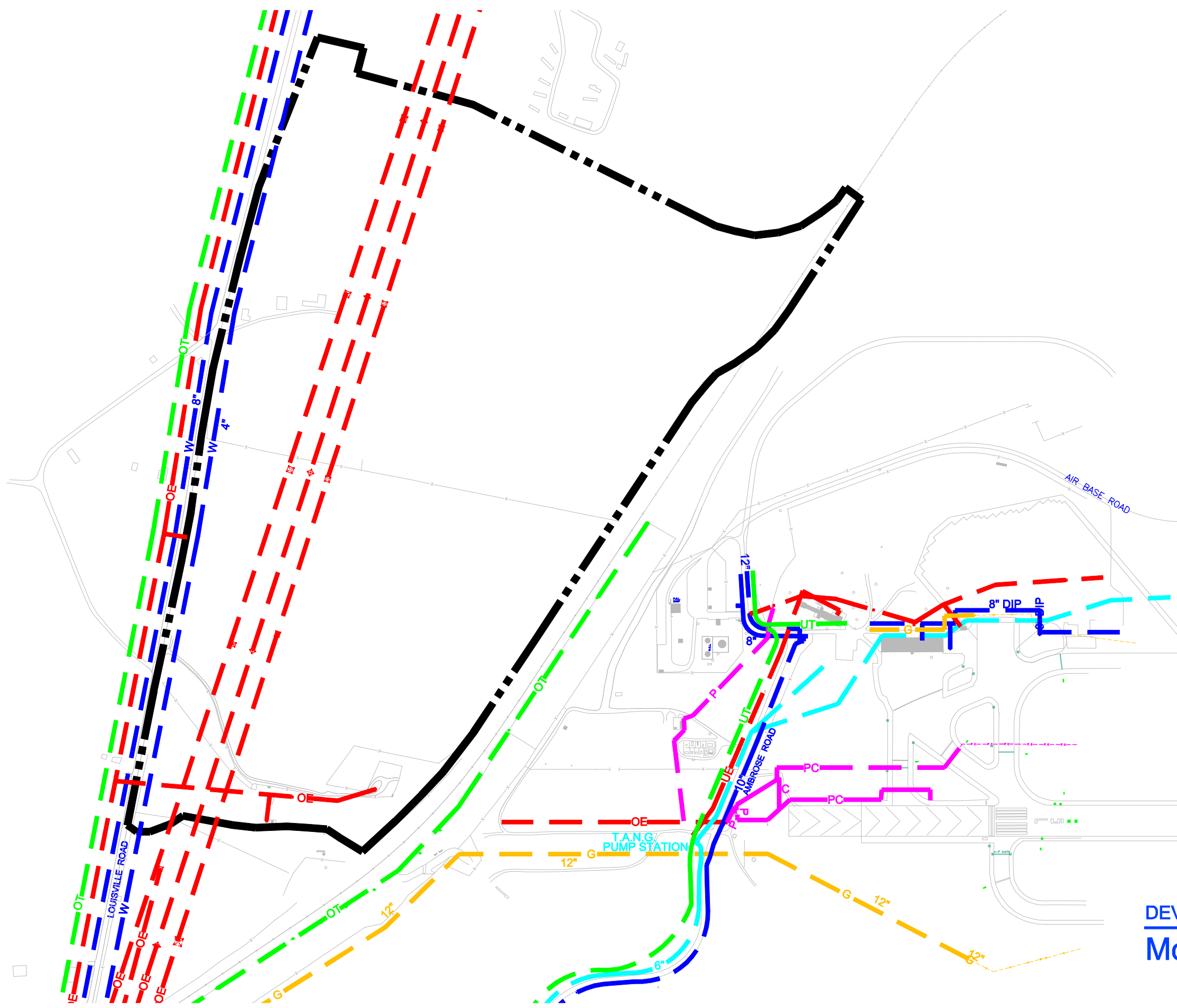
Communication

Telephone service in this development area is provided to one residential customer, who occupies the one house existing within Area Five property. Only Bell South overhead phone lines are in place along Louisville Road, and complete communications, security, and fire protection systems will have to be installed to accommodate the extensive facilities being proposed for construction.

EXISTING UTILITIES

LEGEND

OVERHEAD ELECTRIC	OE
UNDERGROUND ELECTRIC	UE
UNDERGROUND TELEPHONE	UT
OVERHEAD TELEPHONE	OT
WATER	W
SANITARY	SS
GAS	G
MKAA COMMUNICATIONS	AAC
FAA POWER	P
FAA COMMUNICATIONS	C



DEVELOPMENT AREA 5
McGhee Tyson Airport



DEVELOPMENT AREA 5 – PROPOSED UTILITIES

Utilities Extensions –

All utilities exist within proximity of Area Five, except for fiber optic lines. The remaining utilities are located near the intersection of Liberty and Louisville Roads between Development Areas Four and Five. These utilities will be brought to a terminus point and a manhole will be installed to serve as the connection between existing utilities and a proposed Primary Utility Corridor. Fiber optics will be provided to Area Five by extending a

proposed Ancillary Utility Corridor from Area Four to the new manhole.

The primary corridor will provide all underground utilities to the site, including: a 12" Ø potable water line; a 10" Ø sanitary sewer line; eight 4/0, 13.2 kV, 3-phase, dual primary-feed electrical lines; a 6" Ø gas distribution line; and six (4" Ø) 24/100 fiber optic & copper conduits. This corridor will travel north along Louisville Road to a proposed entry road at the north end of Area Five. From this intersection, the primary corridor will parallel the

proposed access road for approximately 3350'. An Ancillary Utility Corridor, containing fiber optics and copper conduits will extend from the terminus of this primary corridor, travel north and create a looped linkage back to the primary corridor at Louisville Road.

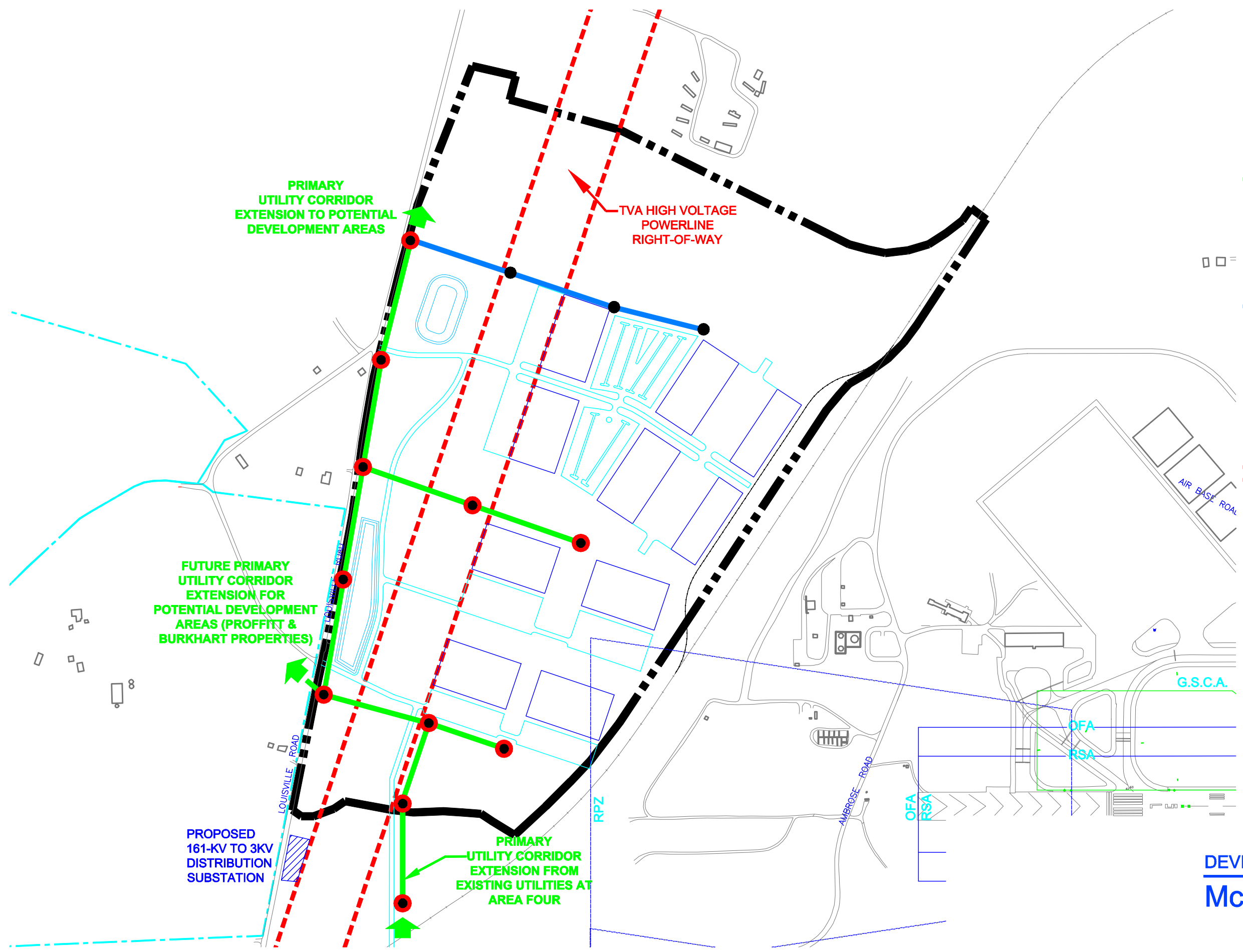
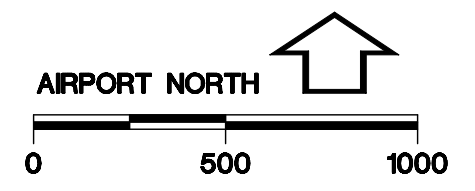
The City of Alcoa has plans to construct a new 161-kV to 13-kV electrical distribution substation on Development Area Five. The substation will consist of a total of eight circuits, four initially and four later, and will utilize #795

aluminum wire and two 3-phase transformers, with each unit being able to handle 22.5/37.5/42 MVA.

Utilities Phasing – (Need Mass Grading & Storm Water Drainage System Proposals From LPA Before This Section Can Be Written).

PROPOSED UTILITIES

- PRIMARY UTILITY CORRIDOR**
 - (1) - 12" POTABLE WATER LINE
 - (1) - 10" SANITARY SEWER LINE
 - (8) - #4/0, 13.2kV COPPER ELECTRICAL LINES
 - (1) - 6" GAS DISTRIBUTION LINE
 - (6) - 4" - 24/100 FIBER OPTICS & COPPER CONDUITS
- ANCILLARY UTILITY CORRIDOR**
 - (6) - 4" - 24/100 FIBER OPTICS & COPPER CONDUITS
- MANHOLE & UNDERGROUND VAULT CONNECTIONS**
- UNDERGROUND VAULT FOR TELECOMMUNICATIONS**
- EXISTING TVA RIGHT-OF-WAY**



DEVELOPMENT AREA 5
McGhee Tyson Airport



DEVELOPMENT AREA 5 – UTILITIES PHASING

The phasing of utilities for Area Five has been determined based on the studied evaluation of land use potential and the feasibility of development, the proximity to existing supply and feeder lines, the functional relationships of existing and proposed facilities, and the cost considerations for mass grading and storm water drainage system installations.

Utilizing these site considerations, it is recommended that Phase One Utilities be installed from the primary utility corridor extension for existing utilities at area Four, along Louisville Road.

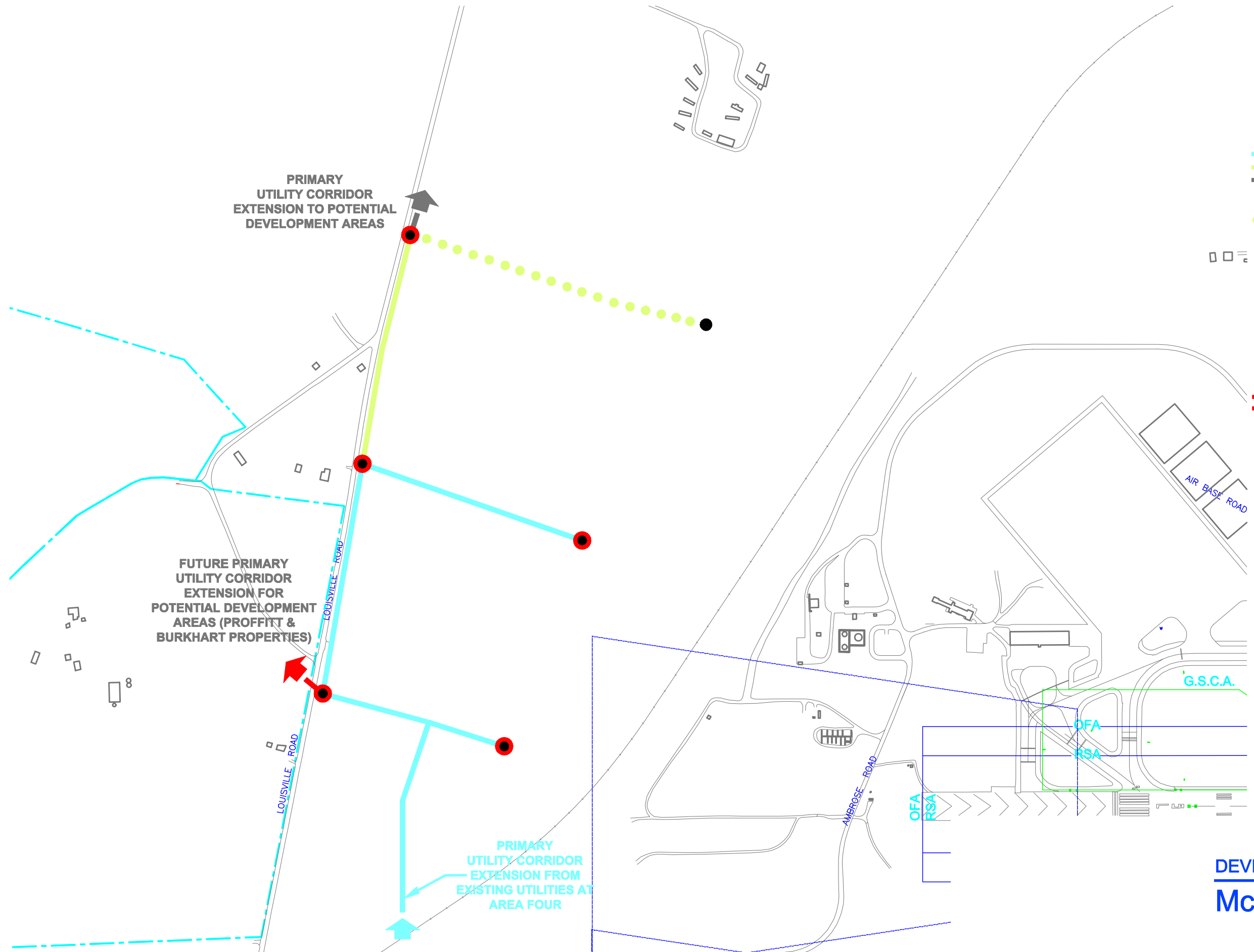
Phase One Utilities This corridor will travel north along Louisville Road to a proposed entry road at the north end of Area Five. From this intersection, the primary corridor

will parallel the proposed access road for approximately 1700'. The Utility Corridor, containing fiber optics and copper conduits will extend into the site at two locations.

Phase Two Utilities will extend along the remainder of the Louisville Road and into the northern most section of the site.

UTILITIES PHASING

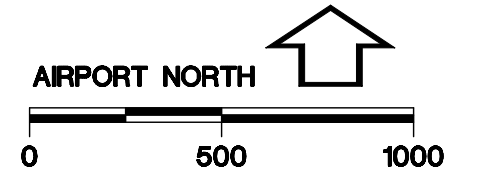
- PRIMARY UTILITY CORRIDOR**
 - SEQUENCE ONE
 - SEQUENCE TWO
 - FUTURE
- ANCILLARY UTILITY CORRIDOR**
 - SEQUENCE TWO
- NODE FOR LINKING EXISTING & PROPOSED UTILITIES**
- MANHOLE & UNDERGROUND VAULT CONNECTIONS**
- UNDERGROUND VAULT FOR TELECOMMUNICATIONS**
- EXISTING TVA RIGHT-OF-WAY**



PRIMARY UTILITY CORRIDOR EXTENSION TO POTENTIAL DEVELOPMENT AREAS

FUTURE PRIMARY UTILITY CORRIDOR EXTENSION FOR POTENTIAL DEVELOPMENT AREAS (PROFFIT & BURKHART PROPERTIES)

PRIMARY UTILITY CORRIDOR EXTENSION FROM EXISTING UTILITIES AT AREA FOUR



DEVELOPMENT AREA 5
McGhee Tyson Airport



REFERENCE CONTACTS

FRED FORSTER
President & CEO
Blount Partnership
Maryville, TN

GARY FARLOW, CED
Executive Vice President
Industrial Development Board
Maryville, TN

DAVID SWECKER
Operations Supervisor
United Cities Gas Company
Maryville, TN

GREG McCLAIN, CPE
Electric Utility Director
City of Alcoa Electric Department
Alcoa, TN

STEVEN REYNOLDS
Electrical Distribution Engineer
City of Alcoa Electric Department
Alcoa, TN

JOHN ROBERTS
Operations Technician
Duke Energy Company
Maryville, TN

KENNY WIGGINS
Director of Engineering & Public Works
City of Alcoa
Alcoa, TN

MARK ROSS
Construction Services Supervisor
City of Alcoa
Alcoa, TN

LARRY STARGEL
Chief Engineer
City of Alcoa Electric Department
Alcoa, TN

JOHN LAMB
Director, Planning Department
Blount County
Maryville, TN

TREVIS GARDNER
Airport Operations Manager
Knoxville Airport Authority
Alcoa, TN

TOM AIKEN
Director of Public Safety
Knoxville Airport Authority
Alcoa, TN

DAVID JONES
Senior Engineering Technologist
Knoxville Airport Authority
Alcoa, TN

JACQUELINE A. PARKS
Standards and Design Support
Tennessee Valley Authority
Knoxville, TN

CHRIS JONES
Corporate Signage
Tennessee Valley Authority
Knoxville, TN