Louis Armstrong New Orleans International Airport

LONG-TERM INFRASTRUCTURE DEVELOPMENT PLAN

April 2013

Crescent City Aviation Team

TABLE OF CONTENTS

INTRODUCTION

A 2007 Strategic Development Plan was completed to establish requirements and review the opportunities for development at the Louis Armstrong New Orleans International Airport. The Plan also identified three long-term development alternatives to accommodate the future growth at the airport. The alternatives evaluated were a South option; West option; and a North option, which was identified initially as the preferred alternative.

Given the recovery efforts after Hurricane Katrina, a final decision for a preferred long-term development alternative was deferred. The Strategic Development Plan was updated in 2010. The Plan update confirmed the North option as the preferred alternative to meet the long-term needs at the airport.

In August 2011, New Orleans Mayor Mitchell J. Landrieu requested the New Orleans Aviation Board undertake an in-depth and robust analysis of the options for a new airport terminal facility. The requested analysis was to focus on: design, financial feasibility, environmental impact, and land use. Four consultant teams and a program management team were selected to perform these analyses and to provide a recommendation on a preferred terminal alternative. The teams have completed their analysis that confirms the North option is the preferred alternative.

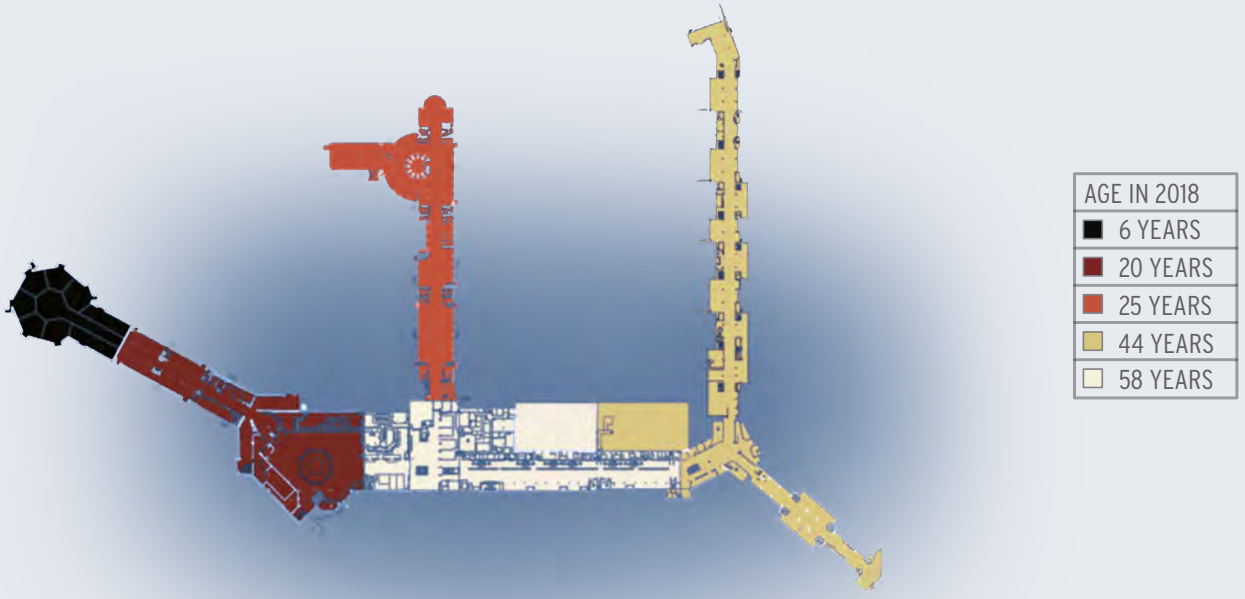
PURPOSE AND NEED

The need for a new airport terminal and ancillary development has been identified for many years. This need is driven by several factors.

AGING INFRASTRUCTURE

Portions of the existing airport terminal were constructed over a half century ago. Over the years, the terminal has been adapted to the changing aviation industry that has seen aircraft evolve from turbo-prop planes to current modern Group VI aircraft, such as the Airbus A380. Significant portions of the terminal essentially remain as originally designed. These areas of the terminal now have to accommodate functions and technologies that were not anticipated at the time of facility construction.

Existing building mechanical and electrical systems have reached their useful life and will require replacement. Base building elements will also necessitate replacement due to age-related issues and require modification to accommodate changing security requirements.



VEHICULAR ACCESS CONSTRAINTS

The western access to the existing terminal is constrained and currently functioning at a marginal level of service. This is due to several factors, inclusive of the roadway intersection configuration at Airline Drive and Airport Access Road. The enplaning and deplaning roadway system is also constrained during peak passenger traffic periods.

I-10 access from the west to the current terminal location is also inefficient due to the lack of a direct connection to Airport Access Road. There is not a feasible alternative to provide this access due to airspace restrictions associated with the north-south runway approach.

OPERATIONAL ISSUES

The current terminal facility comprises approximately 1.2 million square feet of conditioned space. This exceeds the area necessary to function for projected airline passenger volumes at the airport. The additional space still requires budget commitments for utilities and maintenance that is unwarranted.

Presently, the terminal cannot accommodate efficient passenger and baggage screening. Split passenger security check points add additional manpower and cost to the process. Wait times are also impacted at peak periods due to the present configuration. Baggage screening is currently handled by individuals processing single bags through screening machinery at multiple ticket counter locations throughout the terminal. This process affects baggage screening processing speed and creates the potential for baggage not meeting flight departure times.

Concessions are an important factor for passengers and airport revenue. The existing terminal and concourses do not provide for the proper balance of pre- and post-security concessions. Passengers are also restricted to using only concessions located within their departure concourse once through security due to the lack of post-security concourse connection. This situation impacts passenger selection, as well as lost revenue to concessionaires and the airport.

ALTERNATIVES ANALYSIS

OBJECTIVES

The purpose of the current study is to provide an objective analysis of the four site alternatives identified for potential terminal and ancillary development. The analysis reviews the overall airport development to determine the highest and best use for all aspects of the airport property and the corresponding effects on the area surrounding the airport. As part of the analysis, the airport has developed operational improvement objectives to be incorporated into the schemes which mitigate the issues previously identified. As such, the alternatives reflect the development impacts on the terminal and associated facilities in order to achieve the objectives.

IDENTIFICATION OF ALTERNATIVES

Four proposed alternatives have been identified and studied. These alternatives are referred to as the Refurbishment, South, West, and North Alternatives. Each proposed alternative has been reviewed to determine the optimal configuration of the terminal and the resultant airport property and operational implications. See Figures 1 through 4 for graphic representations of analyzed alternatives.

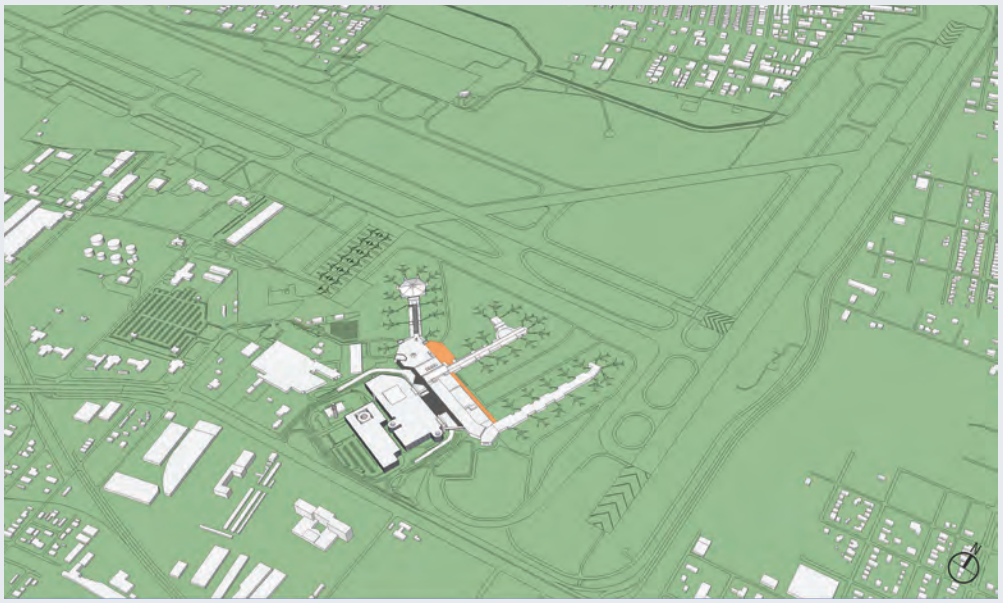
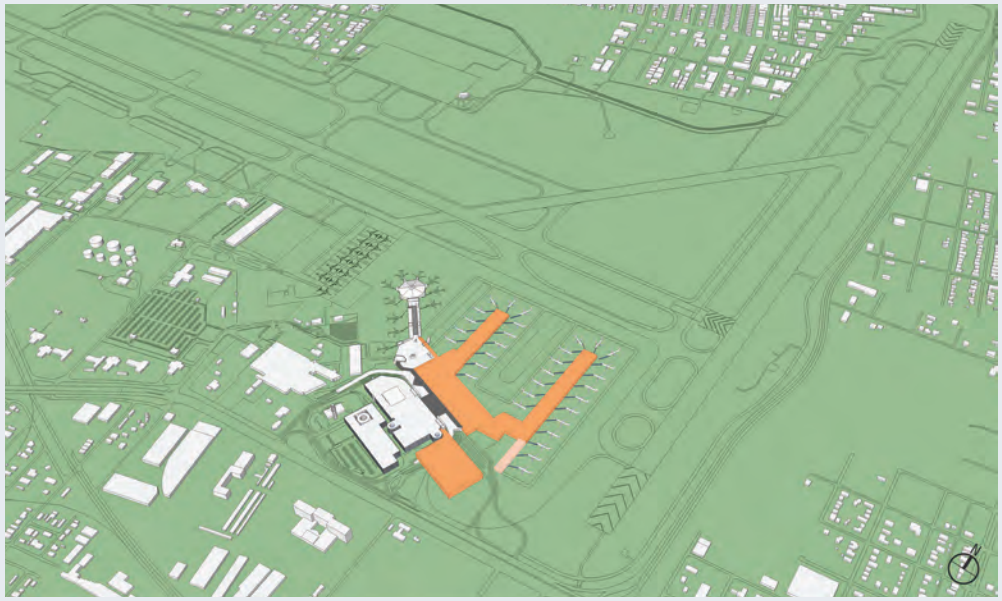


Figure 1

REFURBISHMENT ALTERNATIVE

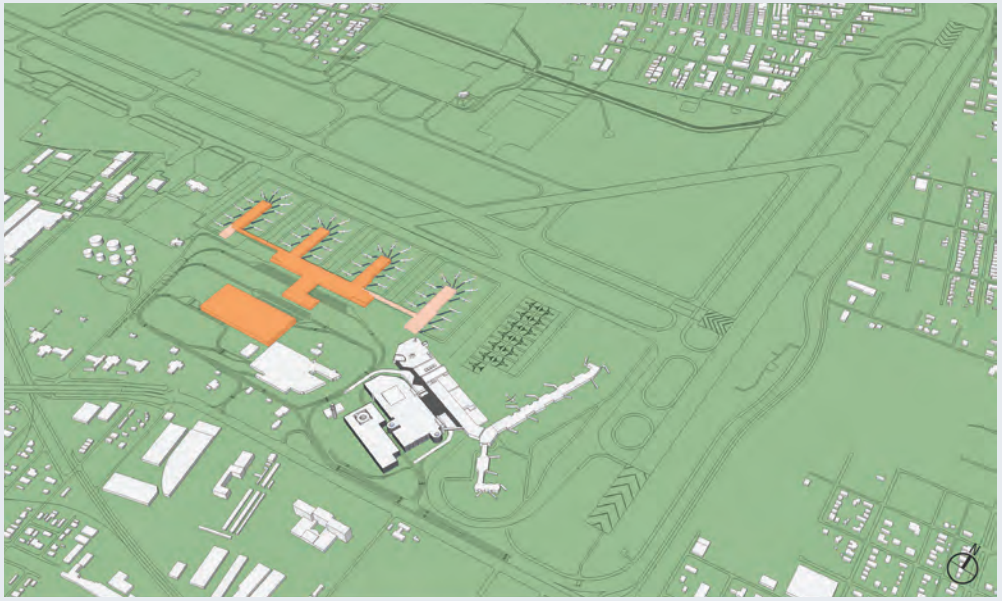
- Construct security screening checkpoint (SSCP)
- Construct connector between concourses
- Replace mechanical and electrical systems
- Reconfigure concessions
- 37 gates initial/42 gates planning horizon



SOUTH ALTERNATIVE

- Demolish existing terminal and Concourses A, B, and C
- Construct new terminal and two new concourses on existing site
- New concession configuration
- Provides SSCP
- Provides connector between concourses
- 30 gates initial/42 gates planning horizon

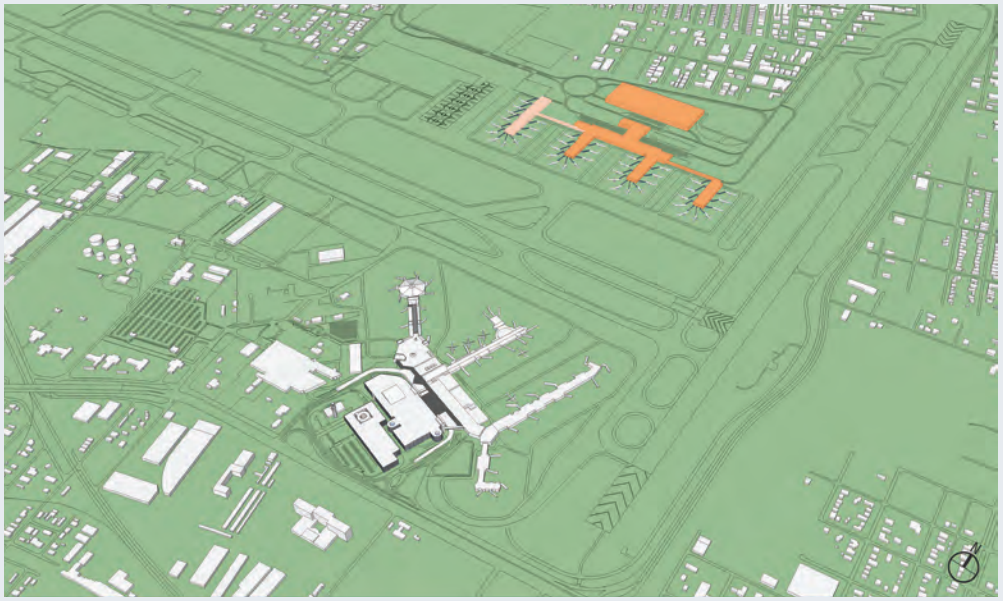
Figure 2



WEST ALTERNATIVE

- New terminal and concourses
- Balanced concession program
- Provides SSCP
- Provides connector between concourses
- 30 gates initial/42 gates planning horizon
- New short-term parking

Figure 3



NORTH ALTERNATIVE

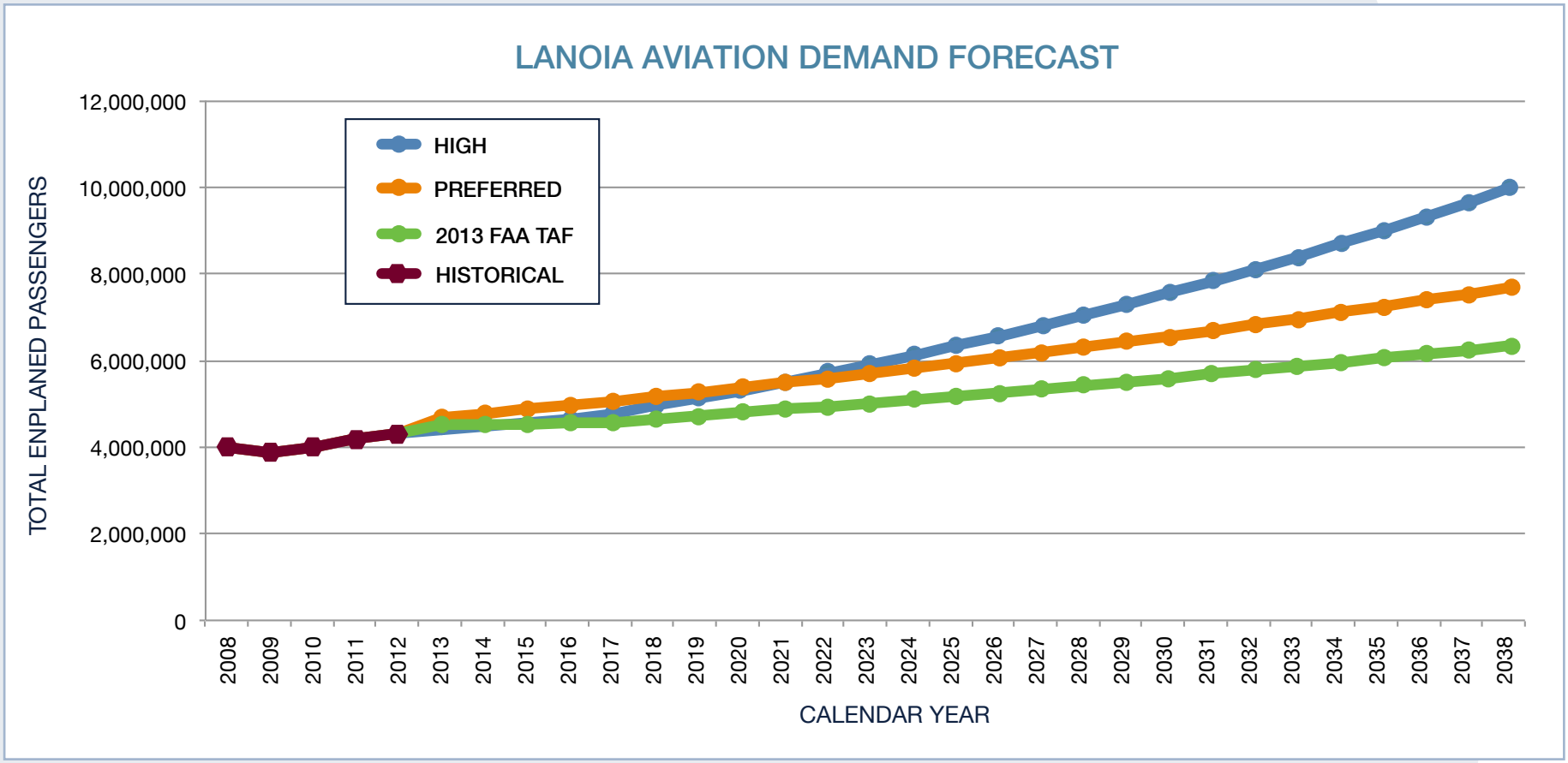
- New terminal and concourses
- Balanced concession program
- Provides SSCP
- Provides connector between concourses
- 30 gates initial/42 gates planning horizon
- New short-term parking with rental cars
- Improved I-10 access

Figure 4

Extensive analysis of several factors has been performed to determine a preferred alternative for the future development of the Louis Armstrong New Orleans International Airport. This analysis has included:

- Environmental consideration
- Financial analysis
- Repurposing of existing facilities
- Design factors

In order to establish a base level for comparison of these four alternatives, existing data has been reviewed and new forecasts have been developed. The new forecast requirements for design have been identified and are reflected in Graph 1. For a planning horizon of 30 years (2018-2048), 2018 estimated enplanements are 4.6 million. Airport terminal enplaning passengers are expected to grow by approximately 2% per year over the duration of the planning horizon.



Graph 1

ENVIRONMENTAL

An initial environmental evaluation of the four alternatives has been conducted. This evaluation focused on six key areas: noise, light emission, air quality, traffic, wetlands, and environmental justice. The process has included evaluation of impacts from both the completed facility, as well as impacts during construction. Initial coordination with appropriate agencies, such as the Federal Aviation Administration (FAA) and Native American tribes, has been a part of this procedure. The evaluation process has not identified any significant impacts for the four identified alternatives.

KEY ELEMENTS

Below is a brief description of key elements analyzed for each alternative. Each description contains a table summarizing various factors for the North Alternative. A complete listing of factors for each alternative is available in the technical report.

LANDSIDE

The primary landside evaluation factors include airport access and parking facilities. The North and West Alternatives provide for a new roadway that will be designed and sized to accommodate the current and future demands of the terminal. The Refurbishment and South Alternatives rely on the existing roadway system. The entrance to the existing roadway access system performs at a Level of Service that will not sustain future traffic growth. The North and West Alternatives also provide greater opportunities for future on-site parking. The Refurbishment and South Alternatives rely to a great degree on the existing parking structures, which provide little opportunity for growth.

Elements	North
Arrival/Departure Roadways	
Arrival Lanes	7
Departure Lanes	7
Elevated Roadway	No
Terminal Parking	
Short-Term	3,000 Space Garage
Long-Term	5,000 Space Garage (Reuse) 3,500 Space Surface Lot on South

Table 1

Elements Required for Opening	North
Off-Airport Roadways Improvement	
Interstate 10	No
Airport Access Road	No
Airline Drive	No
Aberdeen Boulevard	Yes
Bainbridge Boulevard	Yes
Public Transit Access	Yes
Rental Car Access	Yes

Table 2

The North Alternative provides the best opportunity for future development of revenue-generating facilities on the south and southwest side of the airport's property.

Analysis concluded a preference for the North Alternative. Tables 1 and 2 summarize the airport access and parking facilities associated with the North Alternative. Figure 5 depicts access routes for north site development.

TERMINAL

Several terminal related factors were considered for determining a preferred alternative. The primary difference between terminal alternatives is that the West and North Alternatives propose construction of entirely new terminal buildings, thus allowing provision of a terminal which meets the airport's objectives for consolidated security screening checkpoint (SSCP), post security concessions, and other operational improvements. The West Alternative also includes provision of new Airport Administration offices and replacement of specific support facilities based on required demolition of existing facilities to accommodate operations.

The Refurbishment and South Alternatives involve renovation or phased replacement in place of the existing terminal complex, and thus require a complex series of construction stages in order to complete the construction/renovation. The complexity of the construction adds additional base construction costs as well as potential cost escalation based on unforeseen conditions. The limited remaining useful life of the facilities associated with these alternatives decreases the value of the required capital expenditures for construction/renovation.

The North Alternative provides the best opportunity to repurpose the remaining terminal/concourse facilities on the south side of the airport's property.

Analysis concluded a preference for the North Alternative. Table 3 summarizes the terminal elements associated with the North Alternative.

The configuration of the North Alternative provides for enhanced terminal passenger flow and greater revenue capabilities as shown in Figure 6.

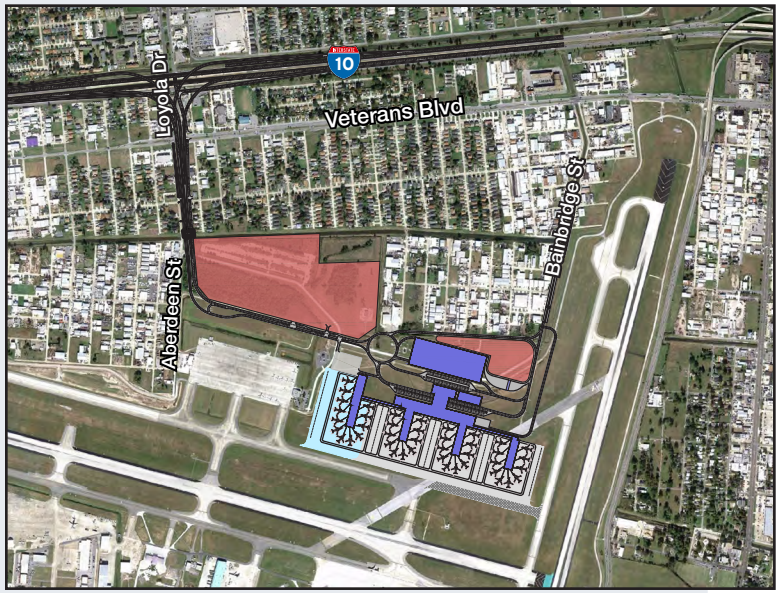
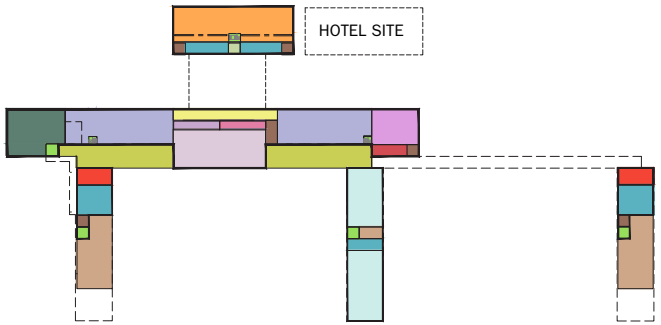


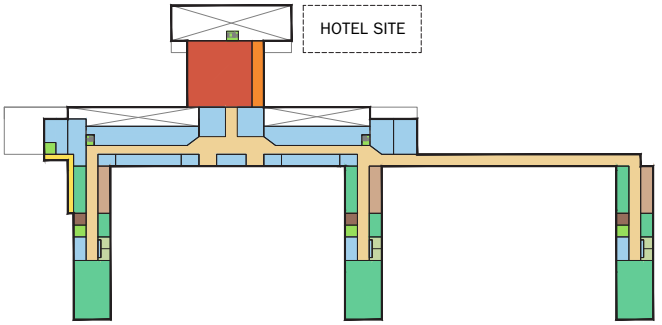
Figure 5

Elements	North
Terminal Area	645,440 SF
Concessions Area	79,148 SF
Secure Connection Between Concourses	Yes
Ticketing Positions	60
SSCP Lanes	14 to16
Baggage Systems	
In-line Screening	Yes
Claim Devices	7
AutomatedCurbside Check-in	Yes
Consolidated Loading Dock	Yes
Updated Infrastructure	Yes
Construction Phasing	Isolated site – minimal operational impact

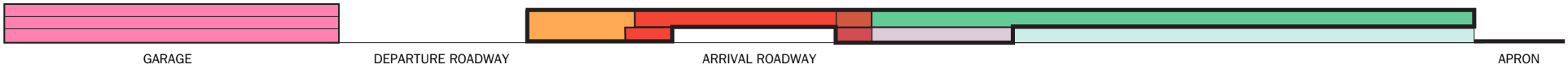
Table 3



NORTH - BLOCK DIAGRAM - APRON LEVEL



NORTH - BLOCK DIAGRAM - CONCOURSE LEVEL



NORTH - BLOCK DIAGRAM - BUILDING SECTION

AREA COLOR
AIRLINE OPERATIONS
BAGGAGE HANDLING SYSTEM
STORAGE
EXIT PASSAGE
AIRLINE TICKETING OFFICE
VERTICAL CIRCULATION
AIRPORT ADMINISTRATION OFFICE
BAGGAGE CLAIM
BAGGAGE SERVICE OFFICE
CONTROLLED BAGGAGE INSPECTION SYSTEM
IN BOUND BAGGAGE TUG DRIVE
INTERNATIONAL ARRIVAL
INTERNET TECHNOLOGY
LOADING DOCK
MECHANICAL
NON-SECURE PUBLIC CIRCULATION
OUT BOUND BAGGAGE
TICKETING LOBBY
PARKING
CONCESSIONS
HOLD ROOMS
RESTROOMS
SECURE PUBLIC CIRCULATION
SECURITY SCREENING CHECKPOINT
STERILE CORRIDOR
TRANSPORTATION SECURITY ADMINISTRATION

Figure 6 - Proposed Terminal Block Diagrams

AIRSIDE

The primary airside considerations include the amount of new apron construction and the proximity of the terminal to the runways. The West Alternative results in a significantly longer taxi distance to the threshold of Runway 01-19 (north-south runway) than the other alternatives, which may negatively impact airline operations. It also requires a significant amount of demolition and relocation of existing facilities. The Refurbishment and South Alternatives present difficulty in improving the apron pavement while maintaining operations. The complexity of the construction phasing adds significant costs.

The North Alternative provides expansion opportunity for a future parallel taxiway to Runway 10-28 (east-west runway), greatly improving aircraft movement. The Refurbishment, South and West Alternatives are limited to using the existing taxiway configurations.

The North Alternative provides the best opportunity for future development on the south and southwest side of the airport's property.

Analysis concluded a preference for the North Alternative. Table 4 summarizes the airside elements associated with the North Alternative.

Elements	North
Gates (2018/2048)	30/42
Remaining Overnight Positions	13
Single/Dual Taxilanes	Single
Demolished Apron Pavement	41,600 SY
New Apron Pavement	203,800 SY
Navigational Aids and Airfield Electrical Vault	Relocate ASR/RTR and Airfield Electrical Vault
Hydrant Fueling	None

Table 4

FINANCIAL OVERVIEW

The following is a presentation of financial information and proposed schedule, based on a evaluation of the alternatives.

The primary cost/schedule issue is initial capital costs benchmarked against long-term or recurring operational and maintenance costs. While the Refurbishment Alternative has a competitive initial base construction cost, the expense to replace the terminal after only 20 years results in a higher life-cycle cost. The complex construction phasing and construction duration results in a higher initial capital cost for the South Alternative. The West Alternative is more costly, based on the demolition of existing facilities and relocation of tenants, as well as the additional square footage required to accommodate airport administrative functions. The base construction costs for the North Alternative is extremely competitive based on limitation of unforeseen conditions, simplified construction phasing, and reduced construction duration benchmarked against other alternatives.

A detailed financial analysis was performed based on initial base construction costs and anticipated operation and maintenance costs over a select period of time based on current outstanding debt.

Analysis concluded a preference for the North Alternative. Table 5 summarizes the cost and scheduled elements associated with the North Alternative and incudes costs for facilities demolition and the repurposing of Concourse D.

Elements	North
Project ROM* Cost (Including Design and Construction)	$650M
Operational Costs	
Maintenance	Low
Energy	Low
Construction Schedule	
Estimated Start	Mid-2014
Estimated Completion	Mid-2018
Estimated Duration	48 Months

* Rough Order of Magnitude

Table 5

FUNDING

Based on the financial analysis that was completed, sources and uses of funds are identified in Table 6.

Sources	($ Millions)	Uses	($ Millions)
FAA Airport Improvement Program Grants	97.05	Terminal Building	455.72
TSA Grants	21.44	Airfield and Apron	40.45
LA State Aviation Fund Grants	26.74	Site Prep, Utilities, and Infrastructure	87.37
Passenger Facility Charge Collections	207.25	Airport Roads	17.41
General Airport Revenue Bonds	267.53	Parking Structure	49.05
NOAB Capital Funds	30.00		
City of New Orleans	0.00		
TOTAL	**650.00**	**TOTAL**	**650.00**

Table 6

The project will be paid for with the airport's self-generated funds along with federal and state aviation funds. The City of New Orleans will not fund any part of the new structure. By law, airport funding cannot be used off site. This construction is an investment in the city's future.

BENEFIT-COST ANALYSIS OVERVIEW

A benefit-cost analysis (BCA) was performed as part of the alternatives analysis. The BCA is a systematic framework for evaluating the incremental costs and benefits of the terminal development program relative to the base case of refurbishing the existing terminal. The key economic variables evaluated include:

- Airport cost savings (capital, operations, and maintenance)
- Incremental airport revenue
- Commercial aircraft variable operating costs
- Commercial passenger travel time
- Non-passenger (meters and greeters) time savings
- Vehicle operating costs/vehicle miles traveled

The BCA results are summarized using a single metric–net present value (NPV). A positive NPV means that the alternative yields positive net benefits over the base case refurbishment of the existing terminal. The results of the BCA concluded that the North Alternative provides the highest positive NPV.

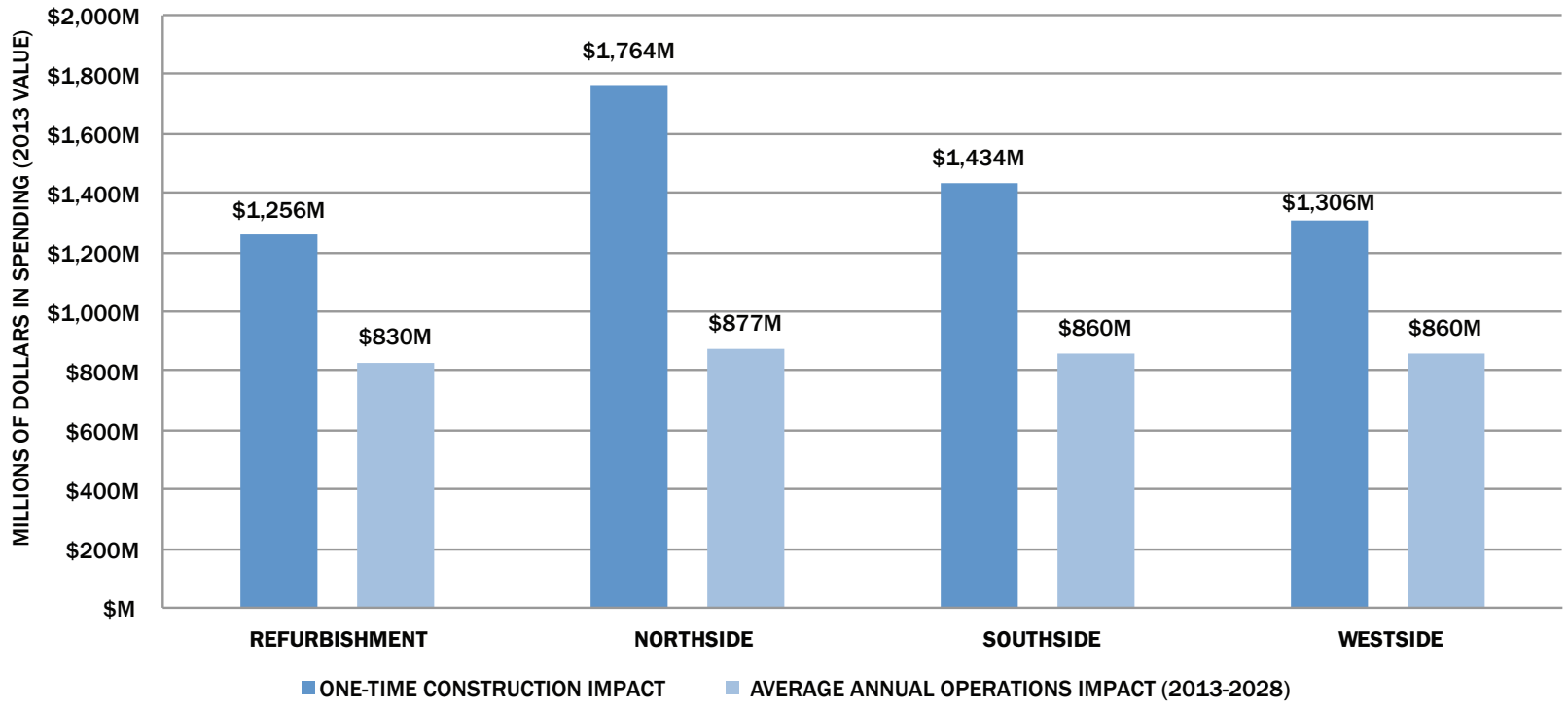
ECONOMIC IMPACT

An economic impact study was conducted based on implementation of each of the four alternatives. This study concluded that the North Alternative had the most significant short-term and long-term impact in relation to economic growth and job creation.

Graphs 2 and 3 indicate the projected economic impact for the construction of the North Alternative on the regional economy. The impact is represented by both, Total Spending (GOP) and Total Jobs.

The Northside Alternative's one-time construction impact on total spending in the regional economy is 39.4% greater than the Refurbishment Alternative. The Northside Alternative's average annual operations impact on total spending in the regional economy is 5.7% greater than Refurbishment over the given time horizon (2013-2028). This impact does not include the economic impact of tourism that is attributable to the airport, which is projected to be $3,285 million per year (2013-2028).

PROJECTED ECONOMIC IMPACT - TOTAL SPENDING (GDP)

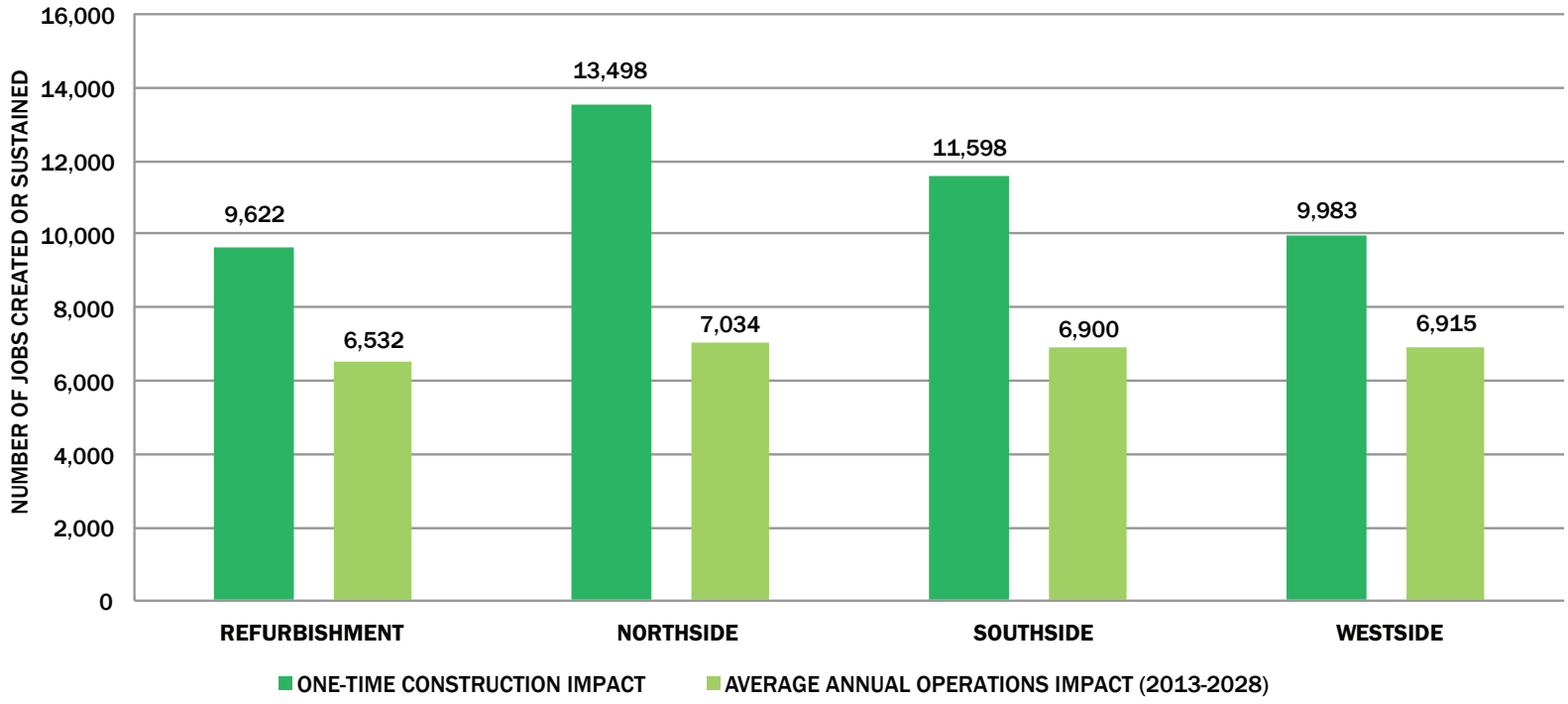


Source: LANOIA Economic Impact of Long Term Development Alternatives, TMG Consulting (March 2013)

Graph 2

The Northside Alternative's one-time impact on construction-related jobs in the regional economy is 40.3% greater than the Refurbishment Alternative. The Northside Alternative's average annual operations impact on sustained jobs in the regional economy is 7.7% greater than the Refurbishment Alternative, with an average impact over the given time horizon (2013–2028). This impact does not include the economic impact of tourism that is attributable to the airport, which is projected to add 34,449 jobs (2013-2028).

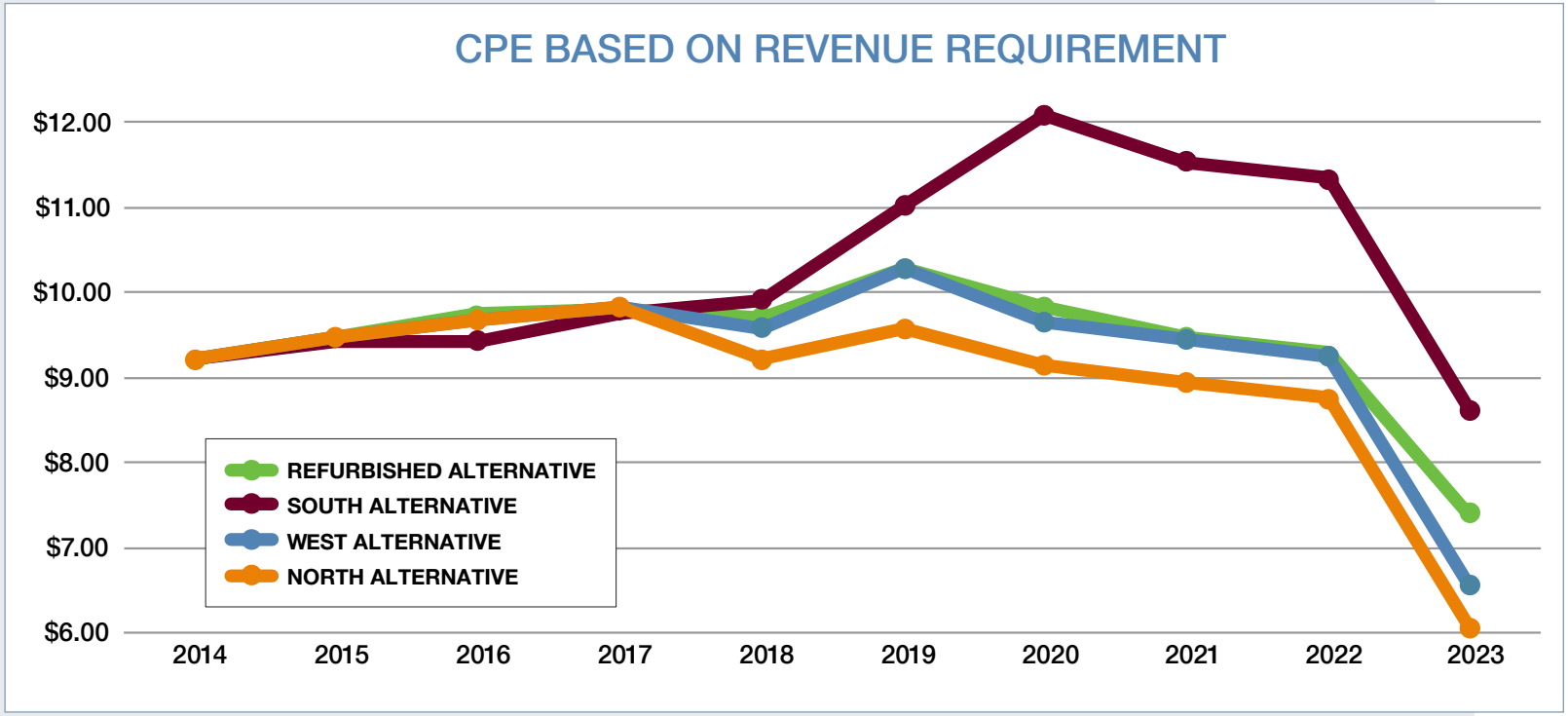
PROJECTED ECONOMIC IMPACT - TOTAL JOBS



Source: LANOIA Economic Impact of Long Term Development Alternatives, TMG Consulting (March 2013)

Graph 3

The financial feasibility included cost analysis over a 10-year period. The North Alternative transfers the least cost burden to the airlines, thus helping to increase tourism and the level of air service in our community (Graph 4).



Graph 4

LAND USE/REPURPOSING

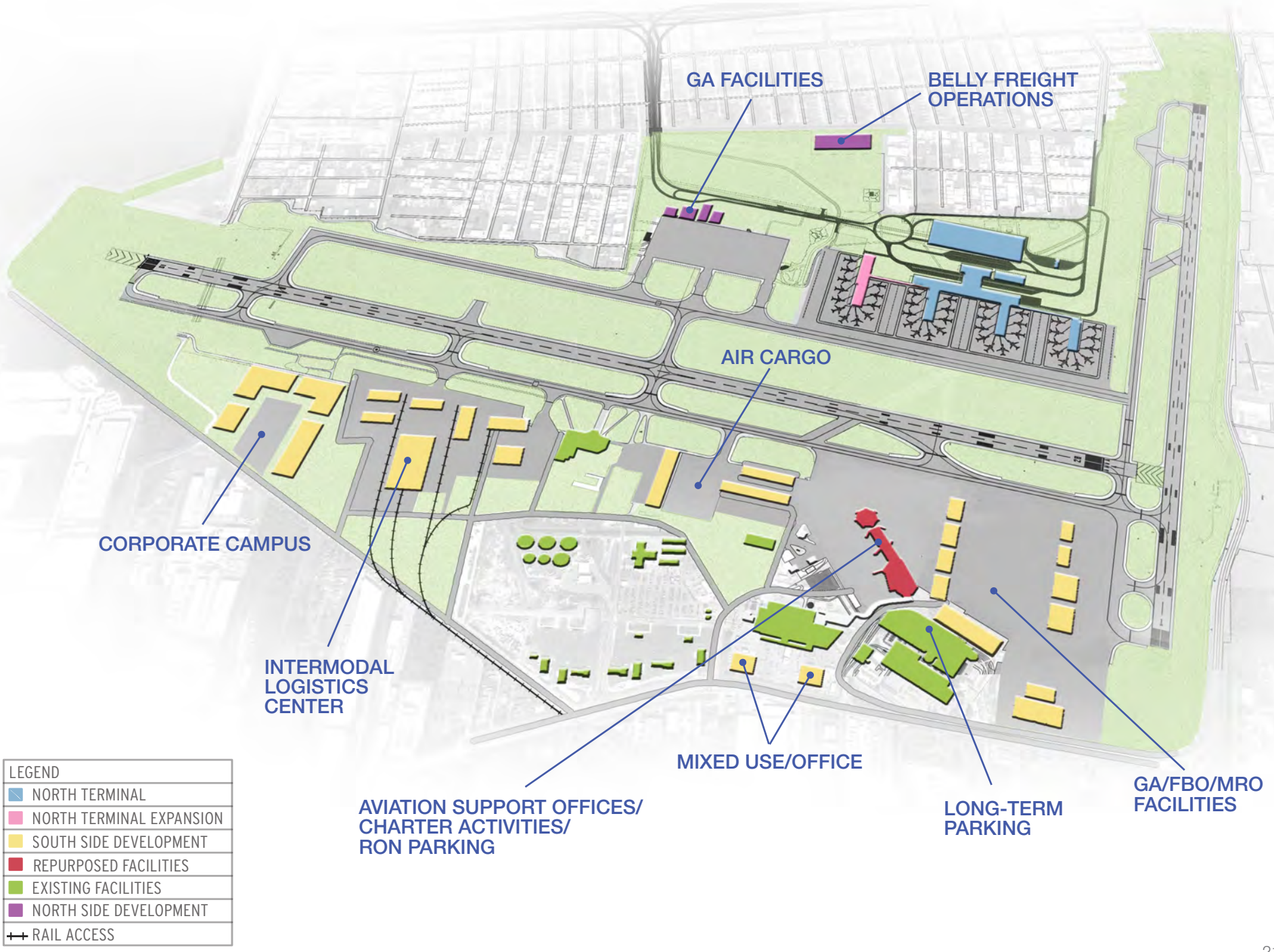
The airport presents one of the few opportunities in the region with property available for large-scale (generally 3 acres plus) development. This opportunity is expanded with the terminal complex located on the north side of the airfield, allowing for the south side of the airport property to be developed for various uses.

The southwest quadrant of the airport provides a unique opportunity for complementary use. A key factor would be the development of an intermodal logistics park. Current Port of New Orleans facilities are located in the central business district (CDB). With the use of existing rail infrastructure and a new spur connection, freight can be transported from the Port to the airport on rail, and then transferred to trucks, minimizing truck traffic in the CBD, along I-10, and other arterial roads. Firms which make location decisions based on transportation logistics will appreciate the proximity of rail, road, water, and airport transportation modes. Based on land availability in the southwest quadrant, large office developments in a corporate campus atmosphere are also practical. This area also lends itself well to development of warehousing and certain manufacturing facilities.

With a northern terminal complex, existing Concourse D would be repurposed to accommodate airport administrative staff as well as potential support space for the FAA and Transportation Security Administration (TSA). The terminal may also be used for charter flight operations and remain-overnight (RON) parking positions for commercial airlines. The expense of repurposing and demolition is included in base costs.

The southeast quadrant of the airport property provides an opportunity to meet an existing high-level demand for general aviation use facilities, inclusive of hangars, fixed-base operators for private aircraft, and aircraft maintenance facilities. This use would repurpose the existing apron and provide convenient access to the airfield. Additionally, there is potential for mixed-use office buildings located along Airline Drive. Use of existing roadway infrastructure would be of benefit for access to these facilities.

A northern terminal complex will also provide the opportunity for an associated hotel, as well as additional retail services, such as convenience stores with automobile fueling. Further development of the existing general aviation area is also feasible.

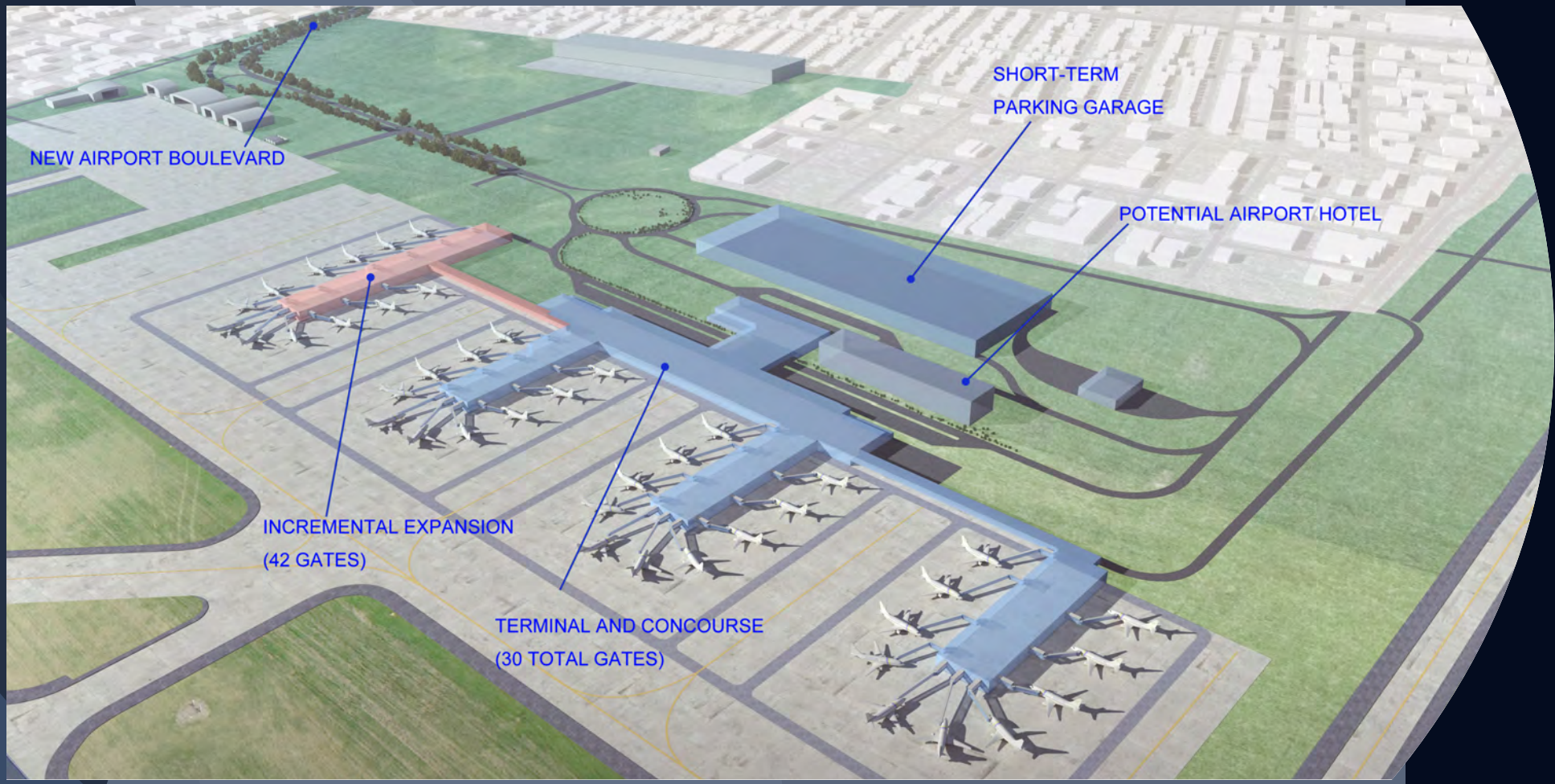

GA FACILITIES
BELLY FREIGHT OPERATIONS
AIR CARGO
CORPORATE CAMPUS
INTERMODAL LOGISTICS CENTER
MIXED USE/OFFICE
AVIATION SUPPORT OFFICES/ CHARTER ACTIVITIES/ RON PARKING
LONG-TERM PARKING
GA/FBO/MRO FACILITIES
LEGEND
NORTH TERMINAL
NORTH TERMINAL EXPANSION
SOUTH SIDE DEVELOPMENT
REPURPOSED FACILITIES
EXISTING FACILITIES
NORTH SIDE DEVELOPMENT
RAIL ACCESS

CONCLUSION

Based on identified strategic objectives, evaluation of critical infrastructure development elements, financial and environmental analysis, land use potential, and economic impact, the North Alternative is confirmed as the preferred alternative.

The North Alternative can be built in the shortest amount of time within the existing airport footprint, and without disruption to passengers and aircraft operations. Additionally, access from I-10 will be improved with an interchange to accommodate vehicular traffic from the east and west.

A new north facility creates the best opportunity for non-airline revenue, stimulates the most jobs for the community, and has the greatest economic impact on Kenner and Jefferson Parish.



*Terminal layout is conceptual and does not represent a final terminal design

CCAT

Crescent City Aviation Team