Nashville International Airport

BNA MASTER PLAN
NASHVILLE INTERNATIONAL AIRPORT

Master Plan Update
Technical Advisory Committee Meeting

June 13, 2019

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Agenda

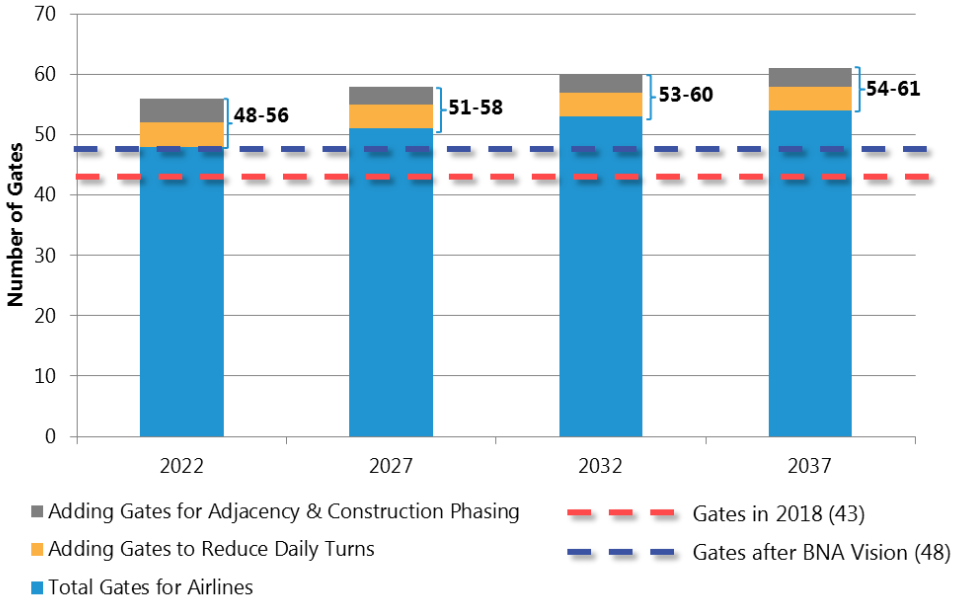
- Welcome and Introductions
- Terminal Facility Requirements
- Landside Facility Requirements
- General Aviation & Cargo
- Airfield Development Update
- Terminal Development Update
- Landside Development Update



Terminal Facility Requirements

Gate Requirements

	Master Plan[1]	
Year	**Activity Level**	**Gates Required**
2022	18 MAP	48 – 56
2026	-	-
2027	20 MAP	51 – 58
2032	22 MAP	53 – 60
2037	24 MAP	54 – 61



MAP: Millions of Annual Passengers

Notes:

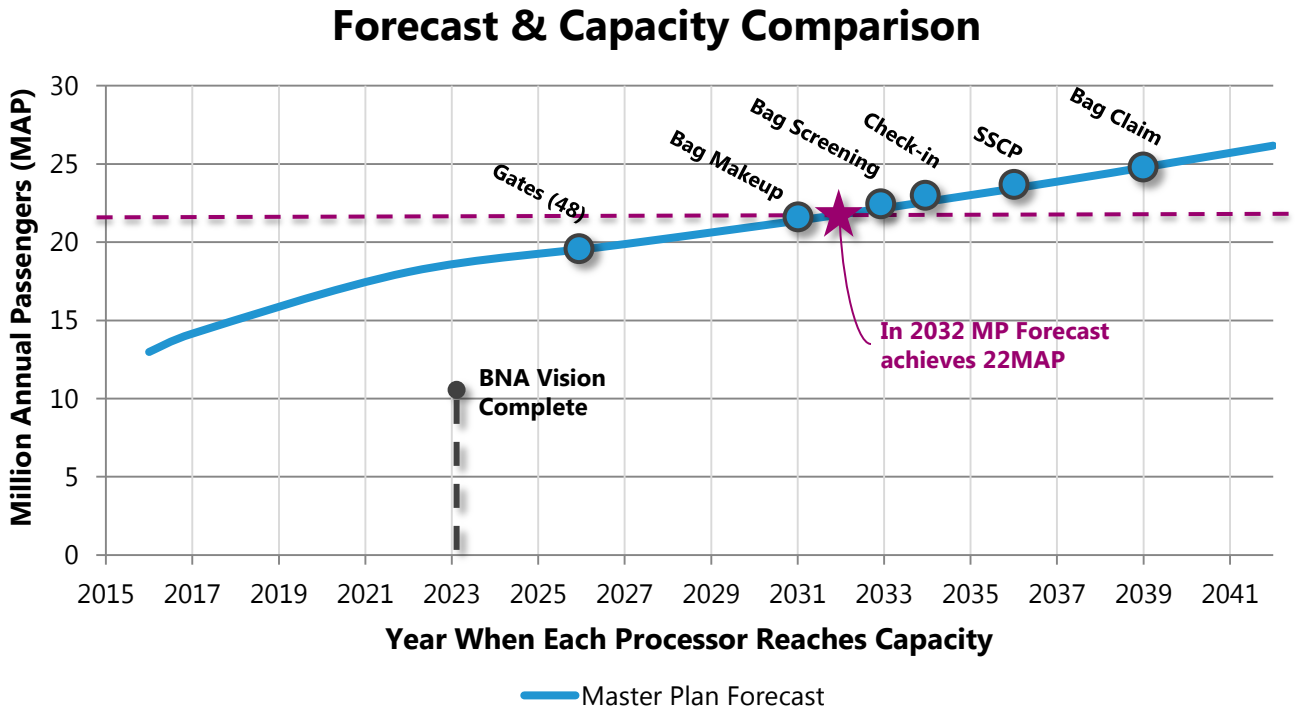
1. *The Master Plan gate requirements were evaluated with a range:*

- *Low range of gate count would require higher gate utilization and limited flexibility during construction to relocate airlines*
- *High range of gate count provides gate utilization similar to existing and flexibility during construction to relocate airlines*

Terminal Processor Capacity

Key Takeaway:

- After activity levels reach 22 MAP, the key processors will gradually reach capacity and need to be addressed



Terminal Facility Requirements - Ticketing



BASELINE
(Post-BNA Vision)

48 Check-in Counters

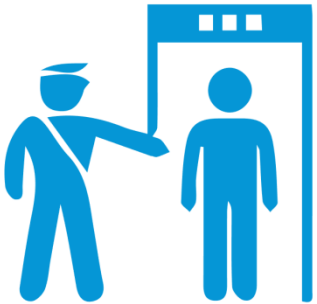
52 Bag Drop Positions

FUTURE REQUIREMENTS

57 (2032) ➡ **62** (2037)

53 (2037)

Terminal Facility Requirements – Security Checkpoint



	BASELINE (Post-BNA Vision)		FUTURE REQUIREMENTS	
Security Lanes	24		25 (2037)	
Screening Area (s.f.)	35,527		37,000 (2032)	38,540 (2037)
Queue Area (s.f.)	7,125		10,500 (2032)	11,370 (2037)

Terminal Facility Requirements - Baggage

	BASELINE (Post-BNA Vision)		FUTURE REQUIREMENTS	
 Bag Screening	26,460	Baggage Screening Area (s.f.)	29,750 2037	
	8	Explosive Detection System (EDS) Machines	10 2037	
 Bag Makeup	54,255	Baggage Makeup Area (s.f.)	84,320 2032	89,280 2037
 Bag Claim	12	Domestic Bag Claim Devices	13 2037	

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Terminal Facility Requirements - Amenities



Concessions



Pre-Security Public Restrooms

	BASELINE (Post-BNA Vision)		FUTURE REQUIREMENTS			
	123,273	Concessions Area (s.f.)	135,000		148,010	
			2032		2037	
Female Restroom Fixture Counts	29	Departures Floor	38	41	44	47
	32	Arrivals Floor	36	39	44	47
			2022	2027	2032	2037
Male Restroom Fixture Counts	25	Arrivals Floor		26	29	31
				2027	2032	2037

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Landside Facility Requirements

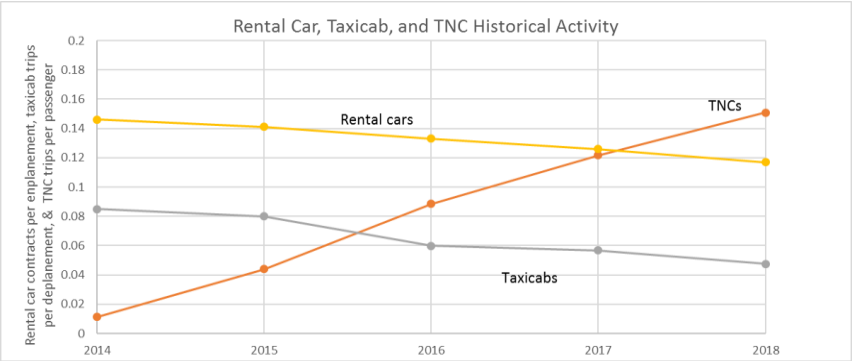
Ground transportation mode shares have significantly changed since 2014…

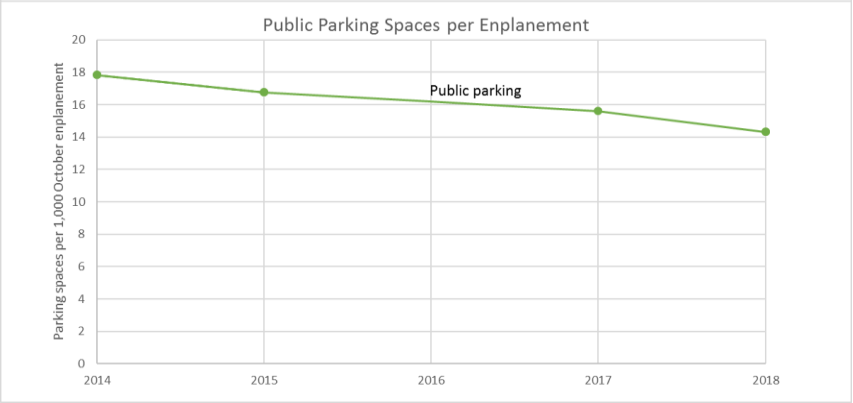
Use of TNC's (Uber and Lyft) has increased dramatically since 2014.

Since 2014, peak month passengers increased 51%, so parking and rental car demand has increased despite market share erosion

Since 2014, peak month activity, *on a per-passenger basis:*

- Parking space demand ⬇ 20%
- Rental car transactions ⬇ 20%
- Taxicab pickups ⬇ 44%





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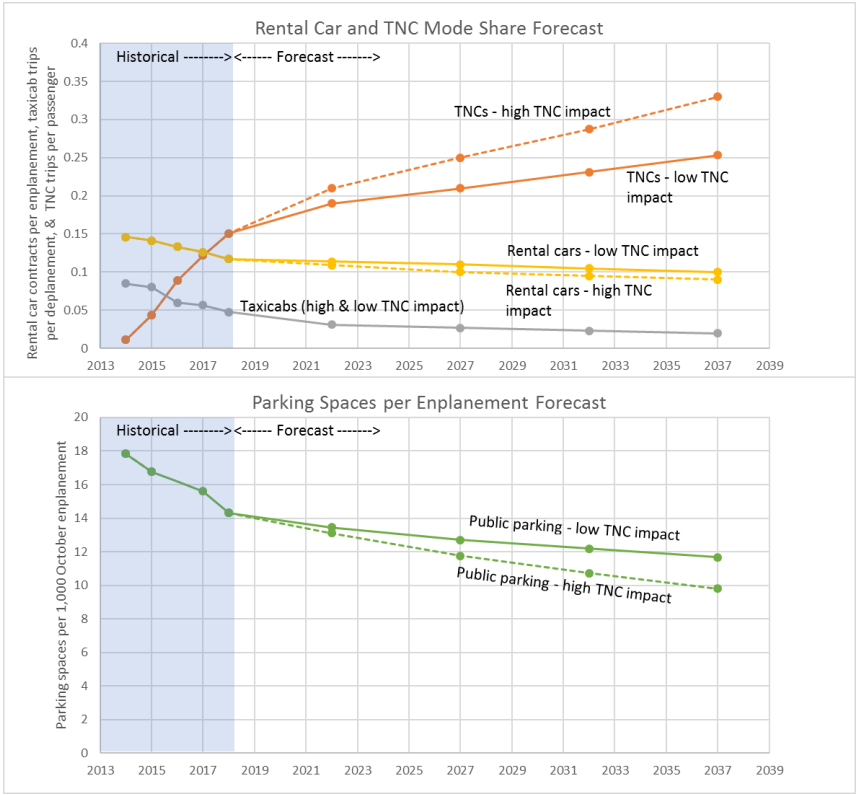
…and mode share forecast reflects current and projected trends

- Expect recent trends to continue, but at reduced rates
- Near-term: continued maturation of TNC services
- Longer-term: increasing use of car-sharing and increasing share of autonomous and connected vehicles
- Estimated a “low” and “high” scenario reflecting these trends



Public Parking – Programmed capacity will meet 2037 demand under the Low TNC Impact Scenario

CURRENT CAPACITY	PROGRAMMED CAPACITY, POST 2023		FUTURE REQUIREMENTS (Baseline Passenger Forecast) 2022 (18 MAP)	2027 (20 MAP)	2032 (22 MAP)	2037 (24 MAP)	NET
4,031	11,783	Garages, Lot A, valet storage	7,500	7,950	8,350	8,750	3,033
6,769	5,875*	Remote	5,100	5,650	5,950	6,200	(325)
		Holiday**	1,050	850	900	950	(950)
10,800	17,658	Total	13,650	14,450	15,200	15,900	1,758

** Long term lot capacity reduces as a result of TARI roadway configuration.*

*** Holiday represents the difference between the "Busy Day" and "Design Day" requirement*

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Rental Car service facilities are significantly constrained, reducing efficiency

CURRENT CAPACITY		FUTURE REQUIREMENTS			
		2022	2027	2032	2037
45	Customer counters (units)	43	45	46	47
18.0	Ready/return (acres)	19.0	20.2	21.1	22.0
2.6	Fuel/wash (acres)	4.6	4.9	5.0	5.3
2.2	Short-term storage (acres)	7.9	8.4	8.8	9.2
27.0	Remote storage (acres)	15.9	16.9	17.6	18.4
49.8	Total (acres) *excl. counters*	47.4	50.4	52.5	54.9

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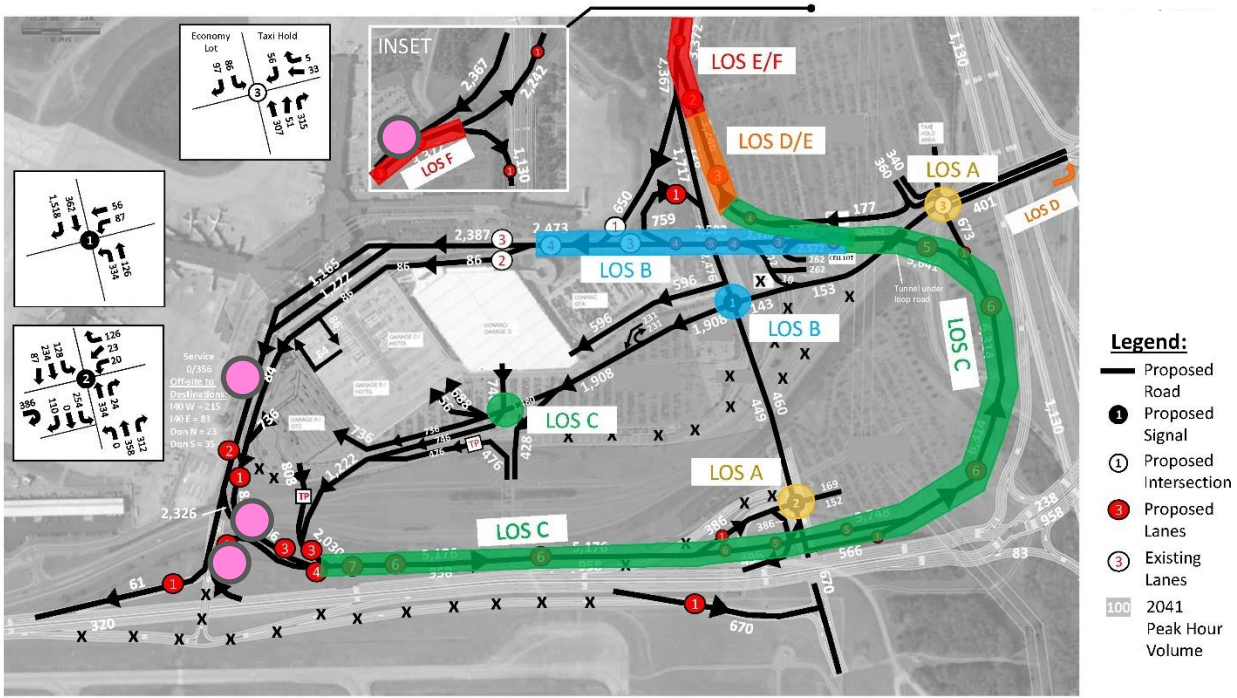
LANDSIDE - ROADWAY AND CURBSIDE REQUIREMENTS

Roadways – Master Plan identified roadway segments that may require expansion in the future

Terminal Access Roadway Improvement (TARI) and Master Plan Findings



- Master Plan will reflect TARI assumptions and findings
- Key links (●) may become congested if there is future variation from TARI assumptions
- Alternatives will evaluate ability to expand links

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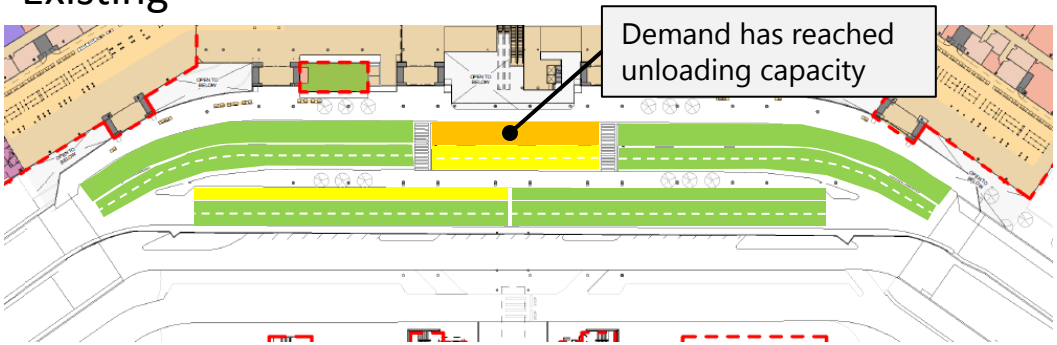
Departures Level ("High" TNC Impact)

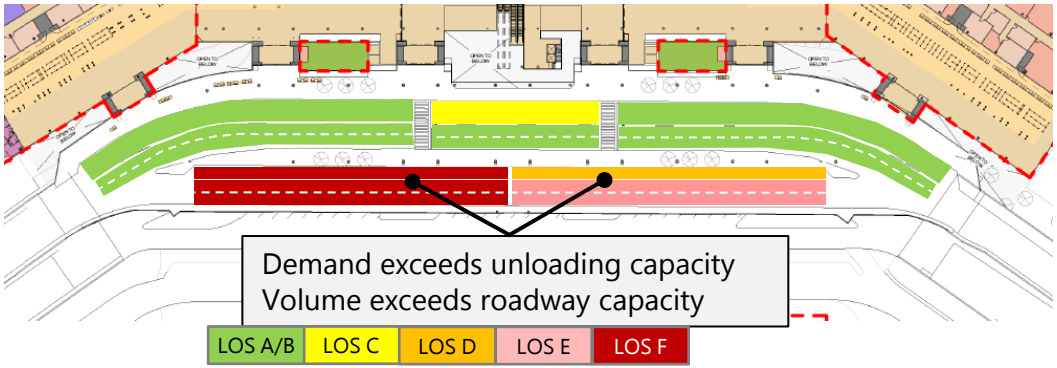
Existing



Requirement

- Total curb (inner plus outer) is sufficient
- Requires minor shift of demand to outer curb and/or to northern curb zone

2037

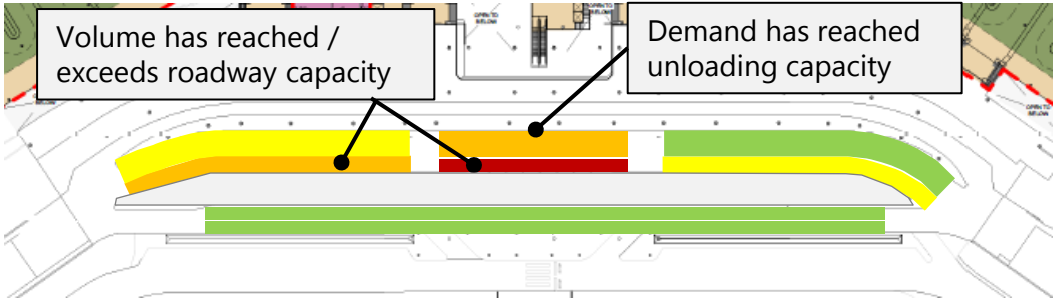


Requirement

- Total curb length (inner plus outer) is sufficient
- Requires some demand to shift to inner curb and to northern curb zones
- Roadway capacity is sufficient if curb demand is balanced between inner and outer curb

Arrivals Level ("Low" TNC Impact)

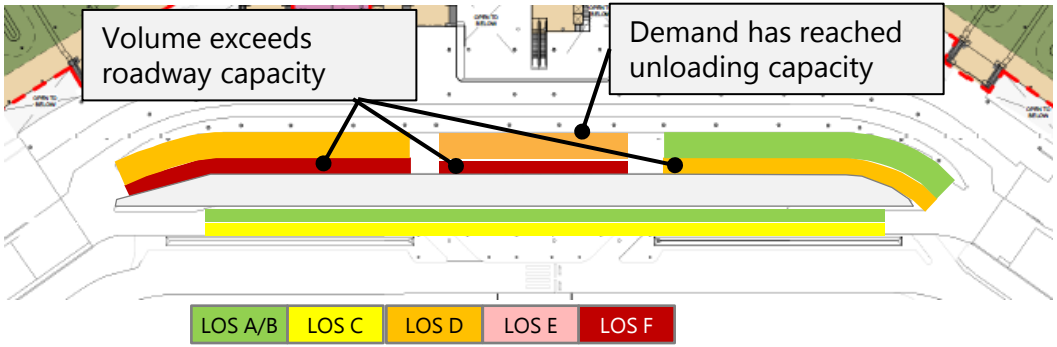
Existing



Requirement

- Total curb length (middle plus outer) is sufficient

2037



Requirement

- Total curb length (middle plus outer) is sufficient
- Requires continued shift of demand to outer curb
- Outer curb requires up to two lanes to accommodate increased volumes

GENERAL AVIATION FACILITY REQUIREMENTS

GA Facility Requirements



	EXISTING		FUTURE REQUIREMENTS		
Hangar	**529,260**	Hangar Area (s.f.)	**559,840** 2032	**655,310** 2037	
Apron Parking	**1,750,280**	Apron Size (s.f.)	**1,489,050** 2037		
FBO Terminal	**12,820**	FBO Terminal Area (s.f.)	**14,400** 2027	**16,000** 2032	**17,800** 2037
Vehicle Parking	**369,500**	Vehicle Parking Area (s.f.)	**420,700** 2037		

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AIR CARGO FACILITY REQUIREMENTS

Cargo Facility Requirements - Airside



		EXISTING		FUTURE REQUIREMENTS 2037
Parking Apron		**80,230**	Apron Area (s.y.)	**59,100**
Cargo Building Area	**Integrator Carriers (FedEx, DHL, etc.)**	**229,750**	Building Area (s.f.)	**71,900**
	Combination Carriers (i.e. Airlines)	**33,030**	Building Area (s.f.)	**31,100**

Cargo Facility Requirements – Landside

	EXISTING		FUTURE REQUIREMENTS 2037
Combination Carriers	26	Truck Dock Positions	19
	49,540	Truck Maneuvering Area (s.f.)	42,750
	25,250	Vehicle Parking Area (s.f.)	22,050
Integrator Carriers	91	Truck Dock Positions	44
	290,906	Truck Maneuvering Area (s.f.)	99,000
	183,570	Vehicle Parking Area (s.f.)	53,200

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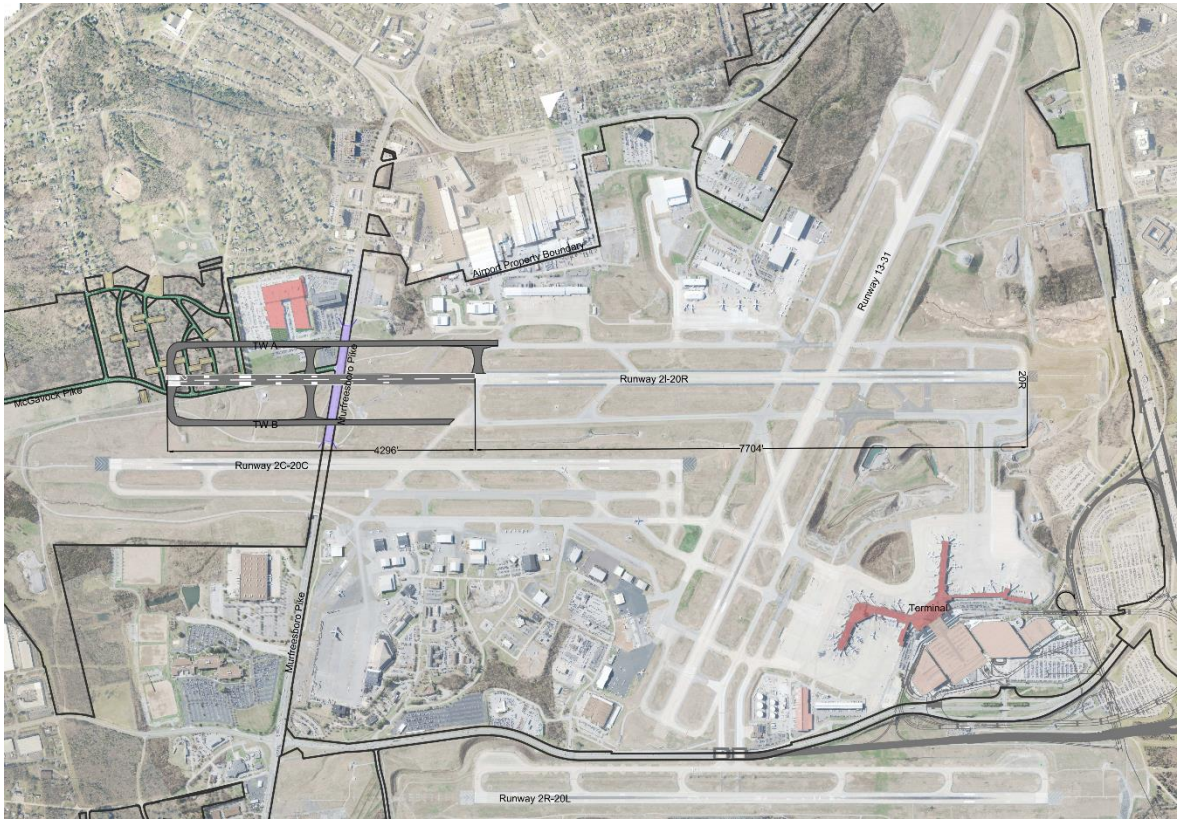
AIRFIELD DEVELOPMENT

Runway 2L Extension



- New Pavement
- Building Demolition / Road Closure
- Roadway Tunnel
- Property Acquisition
- Buildings

Runway 2L Extension Facts	
Extension Length	4,296 Ft
Total Runway Length after Extension	12,000 Ft
Property Acquisition	Residential Land: 14.4 Acres / 20 Homes

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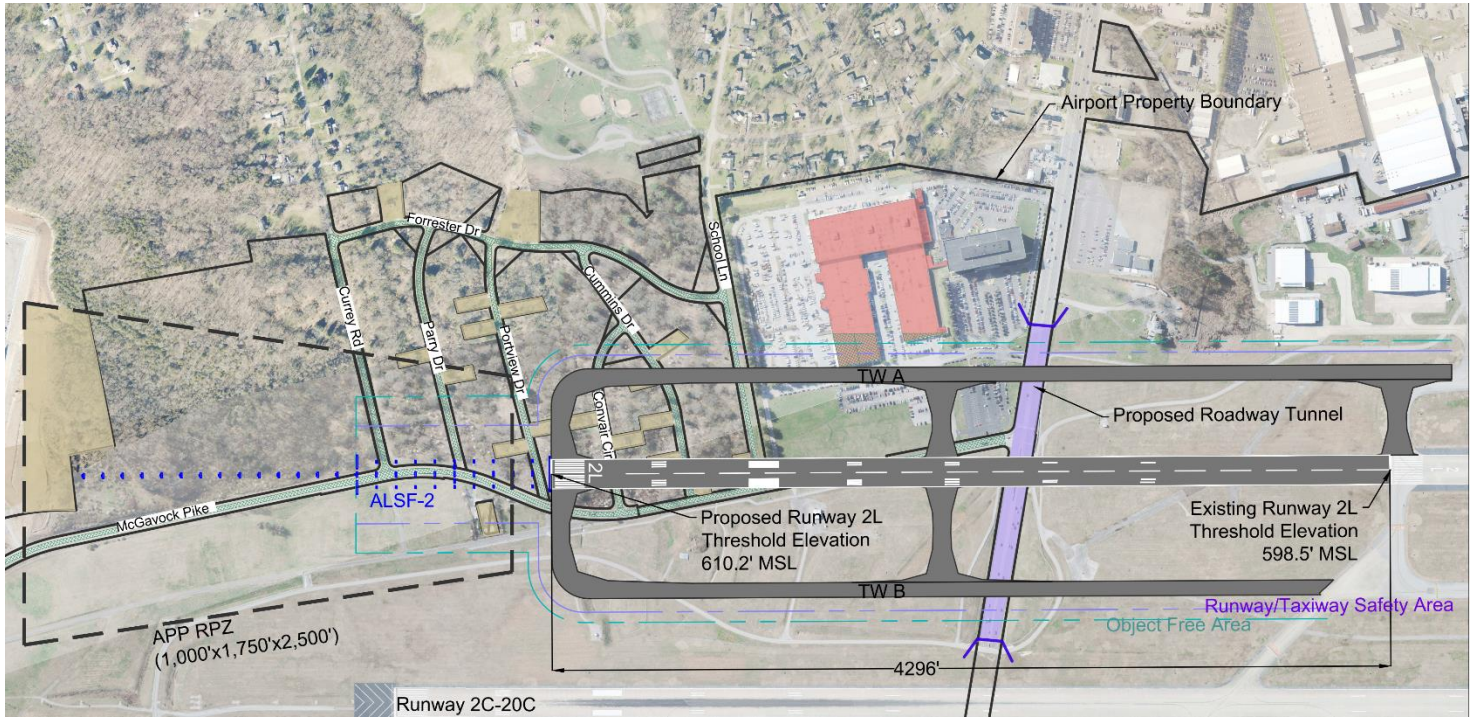
Runway 2L Extension



New Pavement
Building Demolition / Road Closure
Roadway Tunnel
Property Acquisition
Buildings

Runway 2L Extension Facts	
Extension Length	4,296 Ft
Total Runway Length after Extension	12,000 Ft
Property Acquisition	Residential Land: 14.4 Acres / 20 Homes

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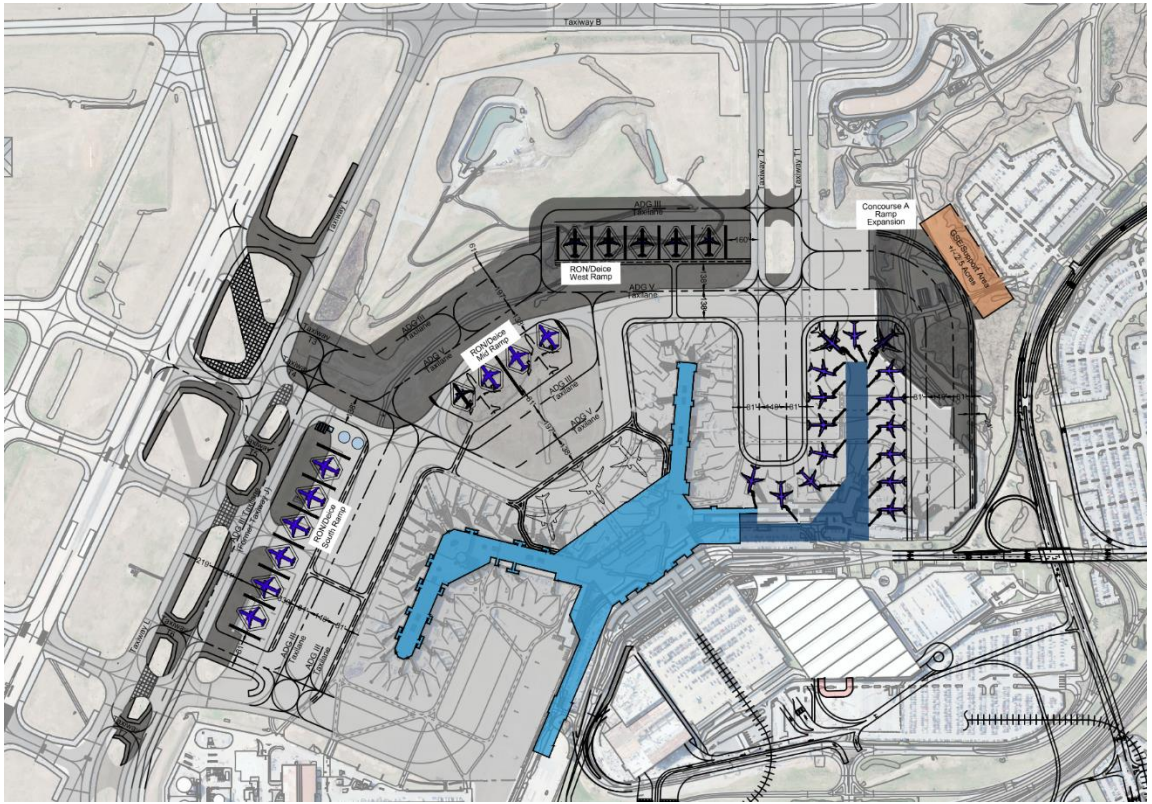
TERMINAL DEVELOPMENT

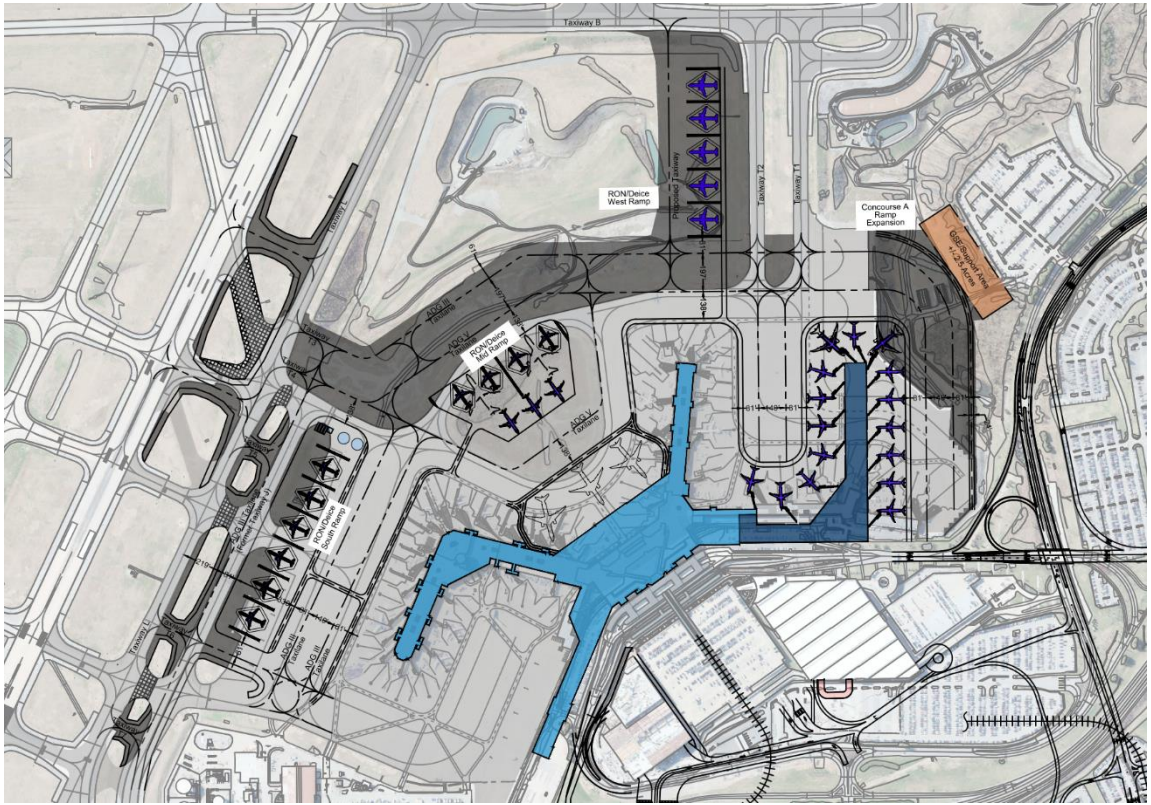
Terminal Ramp Layout – Alternative 4



CONCOURSE ALTERNATIVE 2 TERMINAL RAMP EXPANSION			
Ramp	RON Positions		New Pavement (SF)
	ADG III	ADG V	
South	6	0	+/- 448,000
Mid	4	2	+/- 625,000
West	5	0	+/- 386,000
Concourse A	N/A	N/A	+/- 411,000
Total	15	2	+/- 1,870,000

- Proposed Aircraft Positions
- BNA Vision Terminal
- New Concourse A
- New Ramp/Taxiway Pavement
- Pavement To Be Removed

Terminal Ramp Layout – Alternative 6



CONCOURSE ALTERNATIVE 2 TERMINAL RAMP EXPANSION			
Ramp	RON Positions		New Pavement (SF)
	ADG III	ADG V	
South	6	0	+/- 448,000
Mid	7	2	+/- 764,000
West	5	0	+/- 505,000
Concourse A	N/A	N/A	+/- 411,000
Total	18	2	+/- 2,128,000

- Proposed Aircraft Positions
- BNA Vision Terminal
- New Concourse A
- New Ramp/Taxiway Pavement
- Pavement To Be Removed

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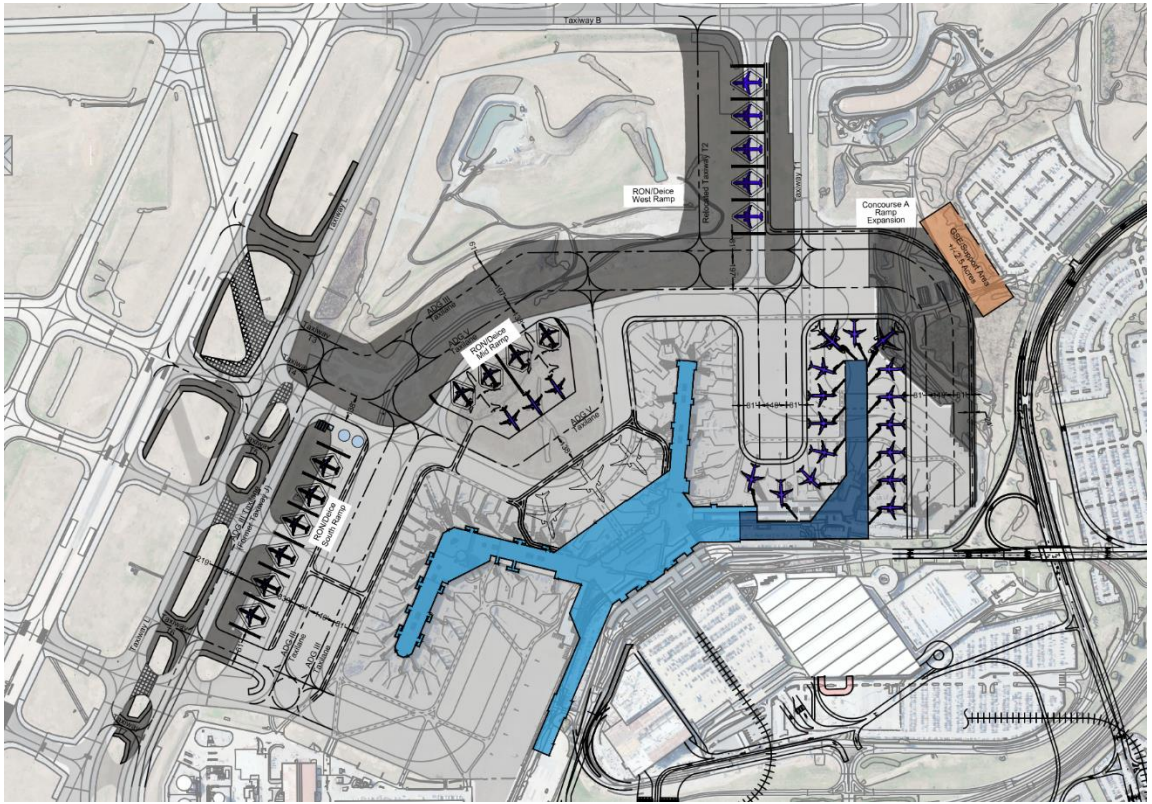
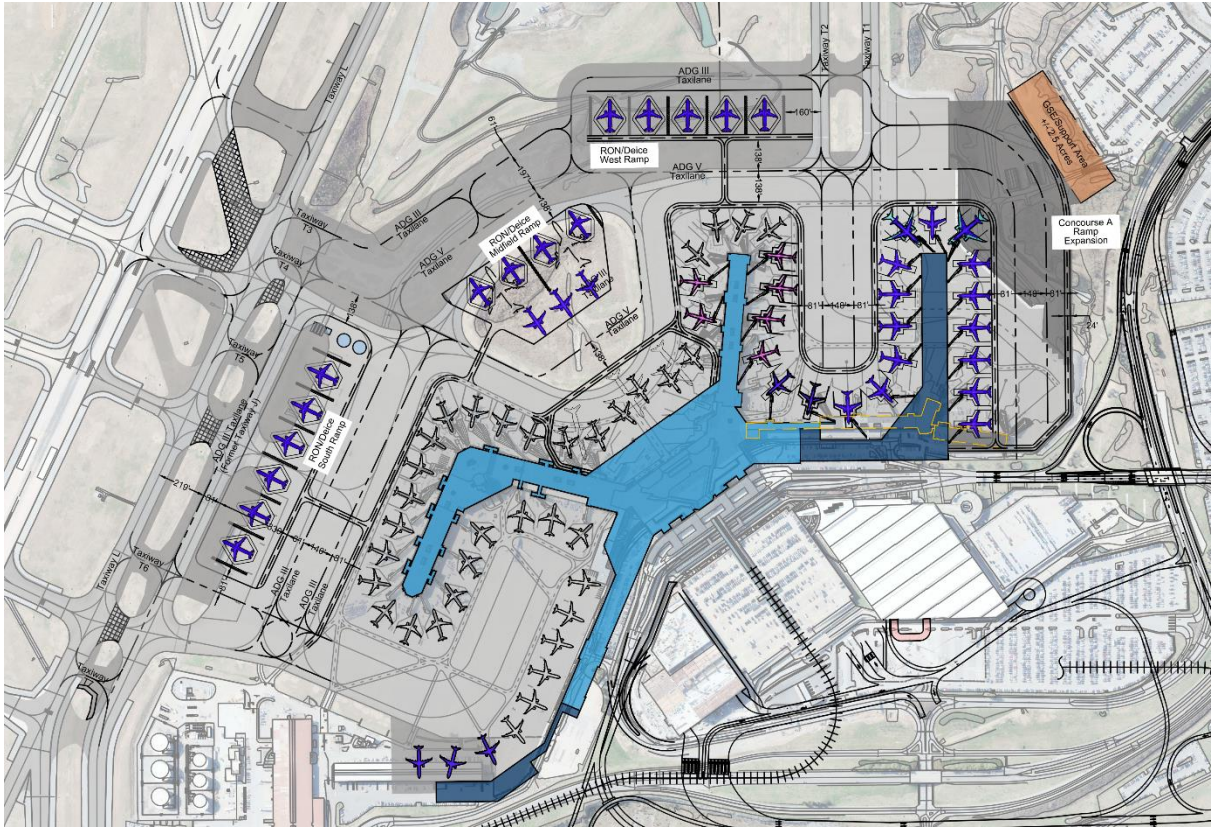
Terminal Ramp Layout – Alternative 7



CONCOURSE ALTERNATIVE 2 TERMINAL RAMP EXPANSION			
Ramp	RON Positions		New Pavement (SF)
	ADG III	ADG V	
South	6	0	+/- 448,000
Mid	7	2	+/- 764,000
West	5	0	+/- 483,000
Concourse A	N/A	N/A	+/- 411,000
Total	18	2	+/- 2,106,000

- Proposed Aircraft Positions
- BNA Vision Terminal
- New Concourse A
- New Ramp/Taxiway Pavement
- Pavement To Be Removed

Terminal Gate Development – Alternative 2



Alternative 2 – Gate Count

Concourse A	16
Concourse B	11
Concourse C	19
Concourse D	9
T-Gates	6
Total Gates	61

	Proposed ADG III Aircraft Positions
	Proposed ADG V Aircraft Positions
	Modified Aircraft Positions
	BNA Vision Terminal
	New Concourse
	New Ramp/Taxiway Pavement
	Pavement To Be Removed
	Existing Concourse A

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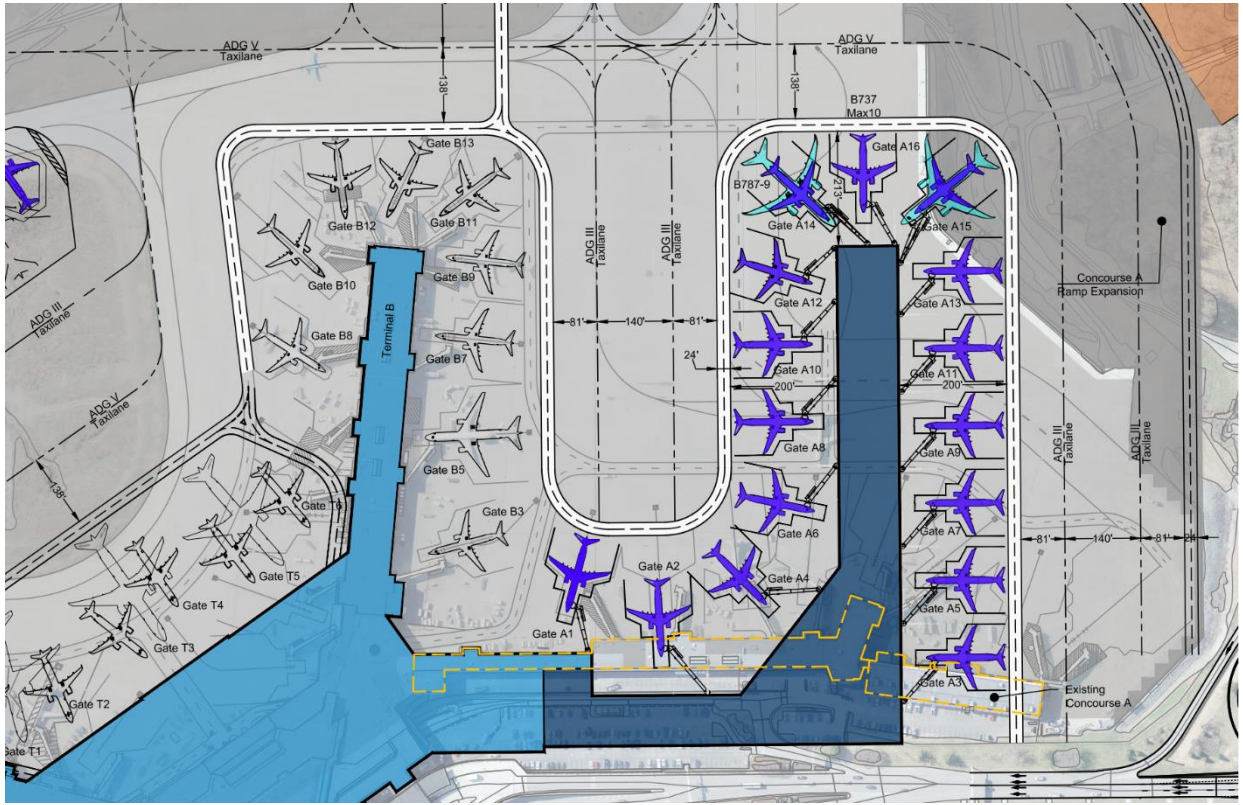
New Concourse A



NEW CONCOURSE A FACTS	
Required Ramp Expansion	411,000 SF
Existing Concourse A Demolished	67,080 SF
New Concourse A	360,000 SF
Proposed ADG III Positions	14
Proposed ADG V Positions	2

	Proposed ADG III Aircraft Positions
	Proposed ADG V Aircraft Positions
	BNA Vision Terminal
	New Concourse A
	New Ramp/Taxiway Pavement
	Pavement To Be Removed
	Existing Concourse A

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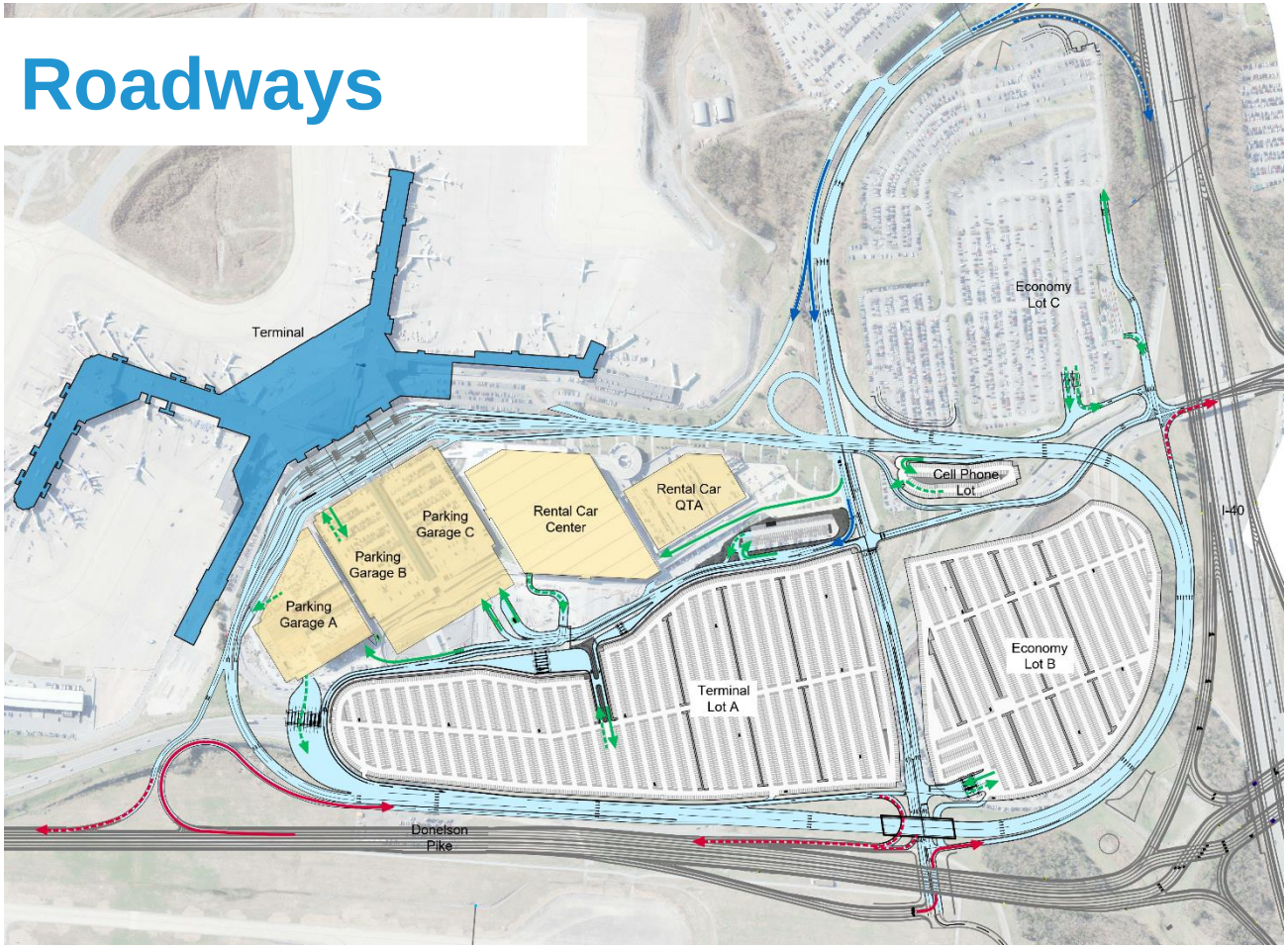
LANDSIDE DEVELOPMENT

Roadways

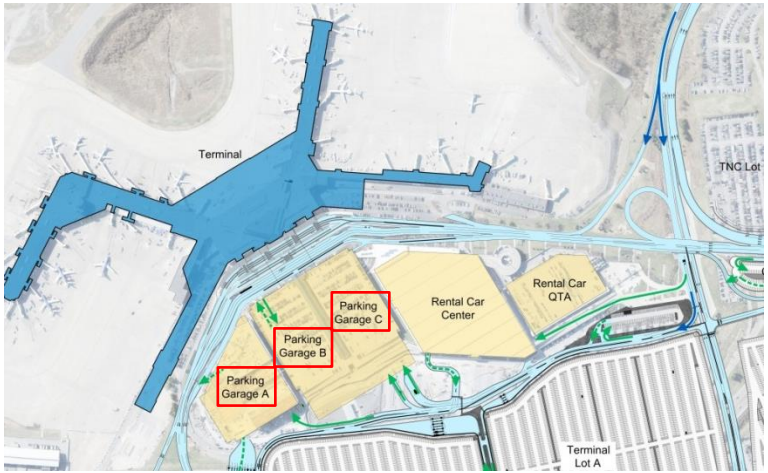


- Master Plan concurs with Terminal Access Roadway Improvement (TARI) Program
- I-40 Access will require upgrade
- Terminal approach and curb front lanes needed

LEGEND	
←	Entrance From I-40
← - -	Exit To I-40
←	From Donelson Pike
← - -	To Donelson Pike
← - -	From Parking/ Rental Car/GTC
←	To Parking/ Rental Car/GTC

Parking

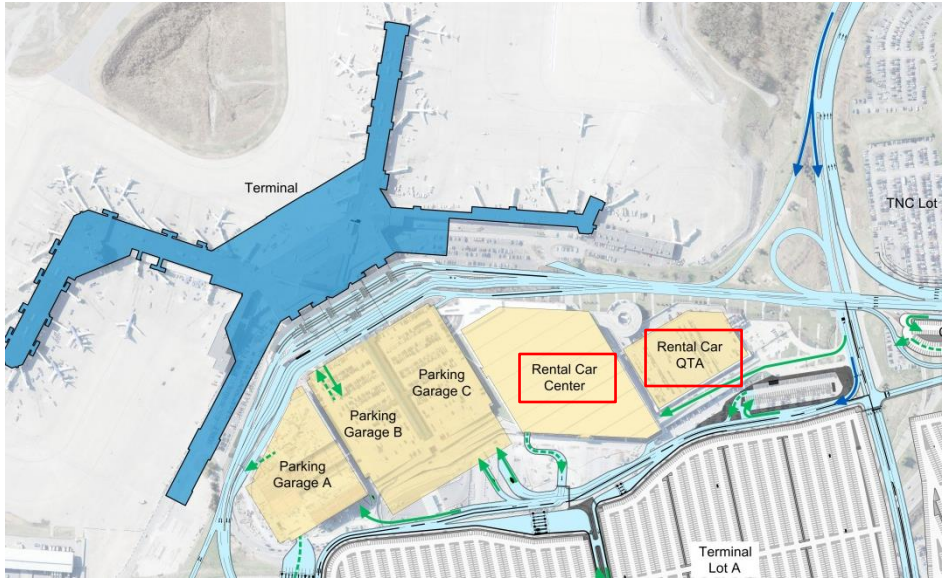
- Long-range public and employee parking needs will be met through:
  - New Parking Garages
  - Terminal Access Roadway Improvement (TARI) Program
  - Employee Parking Lot Expansion





Rental Car Facilities

- Given the passenger growth, rental car demand has increased despite losing market share to TNC's
- Rental car facility needs are expected to increase through the planning period



– **Ready/Return spaces**

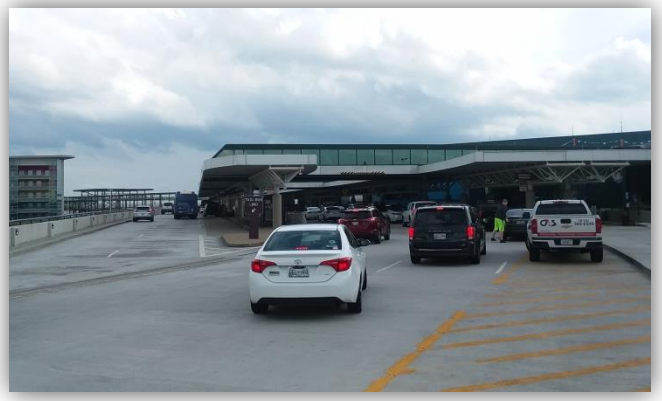
- 4 acres will be needed to accommodate an estimated 22% increase in spaces required

– **Quick Turn-around facilities**

- 10 acres will be needed to accommodate an estimated 200% increase in area required

Curbside Facilities

- **Departures Curb**
  - Gradually redistribute demand across curb fronts
  - Evaluate potential to add curb lanes



- **Arrivals Curb and GTC**
  - Continue to shift some traffic from middle curb to outer curb
  - Widen outer curb by up to two lanes
  - Widen and reconfigure approach road



- **GTC**
  - Adjust area assigned to each mode

Thank You for Your Participation!

Next TAC meeting: October 3, 2019

Follow the Master Plan Update on
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Comments or Questions
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