



Cottonwood Municipal Airport
MASTER PLAN UPDATE

Master Plan Advisory Committee
Meeting #2

AGENDA

- Team Reintroductions
- State of the Airport
- Airport Master Planning Process
- Forecasts of Aviation Demand
- Facility Requirements
- Runway Development Alternatives
- Next Steps

AGENDA

- Team Reintroductions
- State of the Airport
- Airport Master Planning Process
- Forecasts of Aviation Demand
- Facility Requirements
- Runway Development Alternatives
- Next Steps

TEAM REINTRODUCTIONS

Consultant

Kimley»Horn

Colin Wheeler – Project Manager

John Coliton – Deputy Project Manager

Airport / City of Cottonwood



Mark Williams – Airport Manager

Ron Corbin – Cottonwood City Manager

Rudy Rodriguez – Cottonwood Deputy City Manager

Lorenda Yoke – Airport Coordinator

Master Planning Advisory Committee

- Tina Andres - Experimental Aircraft Association, Verde Valley Chapter
- Brenda Clouston - Owner, Colt Grill
- Scott Ellis - Community Development Director, City of Cottonwood
- Tosca Henry - Council Member, City of Cottonwood
- Tracie Hlavinka - Town Manager, Town of Clarkdale
- Tricia Lewis - Tourism & Economic Development Director, City of Cottonwood
- Jim Millis - President, Cottonwood Ranch HOA
- Jim Moeny - Chair, Cottonwood Airport Commission
- Christian Oliva del Rio - President/CEO, Cottonwood Chamber of Commerce
- Vernon Reed - Experimental Aircraft Association, Verde Valley Chapter
- Orville Wiseman - FBO Owner/Operator, Wiseman Aviation

RECAP: ADVISORY COMMITTEE ROLE & OBJECTIVES

- Provide local and technical expertise
- Facilitate a variety of viewpoints
- Provide individual perspectives on issues
- Review and provide comment on project deliverables



Source: Cottonwood Municipal Airport, 2020.

AGENDA

- Team Reintroductions
- State of the Airport
- Airport Master Planning Process
- Forecasts of Aviation Demand
- Facility Requirements
- Runway Development Alternatives
- Next Steps

STATE OF THE AIRPORT

Mark Williams – Airport Manager

- Operational Monitoring System
- Fixed Base Operator
- Fuel Sales Increase
- Courtesy Cars
- Broadband Wi-Fi
- Terminal Renovation
- Airport Weather Station
- Security Camera System
- 2020 ADOT State Economic Impact
 - Direct Impacts (jobs, spending, improvements)
 - 2012: \$873K
 - 2020: \$10.6M
 - Total Economic Impact
 - 2012: \$1.3M
 - 2020: \$19.1M



Source: Google Earth, 2018.

VISION STATEMENT

The Vision of the Cottonwood Municipal Airport is to leverage strong City leadership and community involvement in order to maximize growth and development opportunities, promote a safe environment for aviation activity and business to flourish, and capitalize on the Airport's location as a local and regional economic driver.

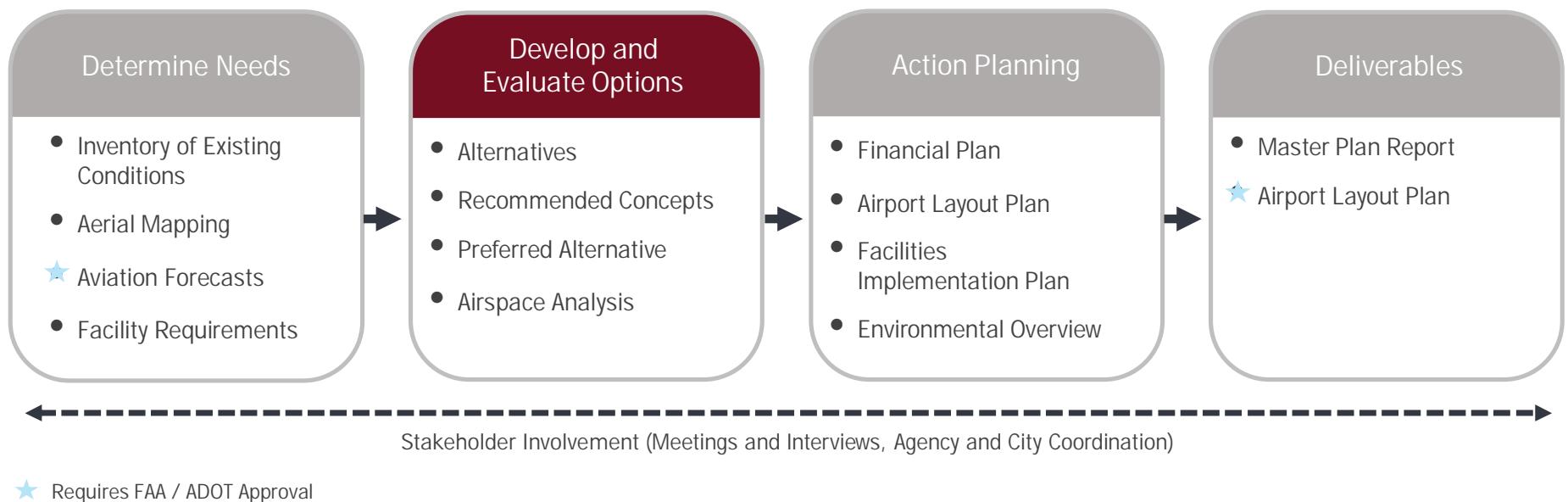


Source: Cottonwood Municipal Airport, 2020.

AGENDA

- Team Reintroductions
- State of the Airport
- **Airport Master Planning Process**
- Forecasts of Aviation Demand
- Facility Requirements
- Runway Development Alternatives
- Next Steps

AIRPORT MASTER PLANNING PROCESS



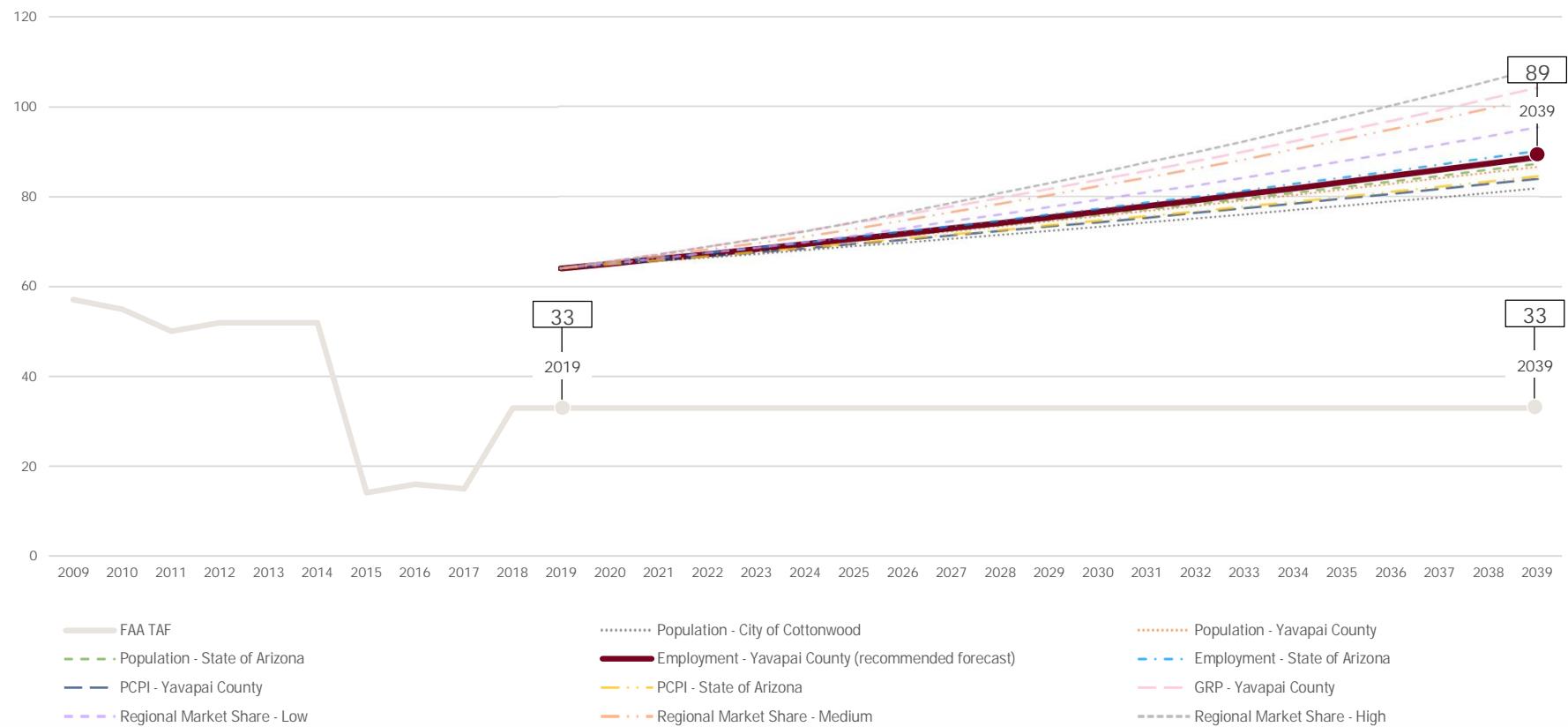
AGENDA

- Team Reintroductions
- State of the Airport
- Airport Master Planning Process
- **Forecasts of Aviation Demand**
- Facility Requirements
- Runway Development Alternatives
- Next Steps

FORECASTS OF AVIATION DEMAND

- Forecasts are used to:
 - Accommodate demand over a 20-year period
 - Determine the type, size, and timing of new/expanded facilities
 - Help justify financial investments for improvements
- Forecasts in the Master Plan Update include:
 - Aircraft operations
 - Operational fleet mix
 - Based aircraft
 - Critical aircraft
- Aviation activity forecasts were submitted and approved by the FAA in December 2020

FORECASTS: BASED AIRCRAFT FORECAST SCENARIOS



FORECASTS: BASED AIRCRAFT

Year	Total	Single-Engine Piston	Multi-Engine Piston	Turboprop	Jet	Rotorcraft	Other
2019	64	44	5	2	2	11	0
2024	69	45	5	2	4	12	1
2029	75	47	6	2	5	13	2
2034	82	48	6	4	6	14	3
2039	89	53	6	5	7	15	3
AAGR 2019-2039	1.64%	0.82%	1.05%	5.99%	7.13%	1.56%	6.72%

Sources: FAA National Based Aircraft Inventory Program; Federal Aviation Administration Aerospace Forecast 2020-2040: Kimley-Horn, 2020.

Note: AAGR = Average annual growth rate



Single-Engine Piston



Multi-Engine Piston



Turboprop

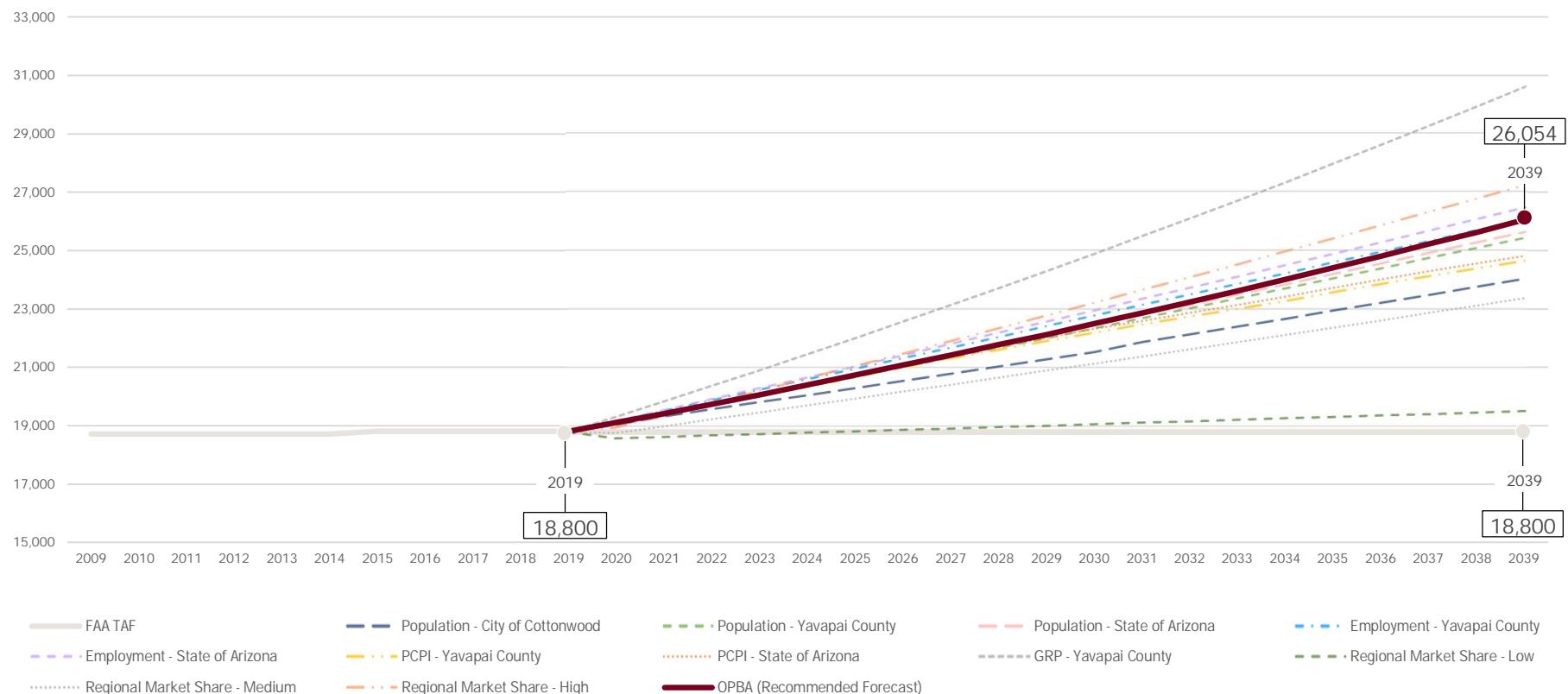


Jet



Rotorcraft

FORECASTS: GA OPERATIONS FORECAST SCENARIOS



FORECASTS: AIRCRAFT OPERATIONS

Year	Total	Single-Engine Piston	Multi-Engine Piston	Turboprop	Jet	Rotorcraft	Other
2019*	18,800	12,925	1,469	588	588	3,231	0
2024	20,398	13,303	1,478	591	1,182	3,547	296
2029	22,132	13,869	1,771	590	1,475	3,836	590
2034	24,013	14,056	1,757	1,171	1,757	4,100	879
2039	26,054	15,515	1,756	1,464	2,049	4,391	878
AAGR 2019-2039	1.64%	0.82%	1.05%	5.99%	7.13%	1.56%	6.72%

Sources: FAA National Based Aircraft Inventory Program; Federal Aviation Administration Aerospace Forecast 2020-2040; Kimley-Horn, 2020.

Note: AAGR = Average annual growth rate

*Based on new operations monitoring equipment, existing annual aircraft operations is approximately 39,900.



Single-Engine Piston



Multi-Engine Piston



Turboprop



Jet



Rotorcraft

FORECASTS: CRITICAL AIRCRAFT

Existing
ARC:
A-I Small



Future
ARC:
B-I Small



Aircraft
Character-
istics

Aircraft	Wingspan	Tail Height	Length	Approach Speed
Cessna Skyhawk 172	36.08'	8.92'	27.17'	62 kts
Piper Malibu Meridian	43.00'	11.33'	29.60'	78 kts
Cessna Citation I	47.08'	14.40'	43.60'	107 kts
Beechcraft King Air 90	45.92'	14.67'	35.50'	100 kts
Piper Cheyenne II	42.69'	12.75'	34.67'	98 kts

Source: FAA Aircraft Characteristics Database.

AGENDA

- Team Reintroductions
- State of the Airport
- Airport Master Planning Process
- Forecasts of Aviation Demand
- Facility Requirements
- Runway Development Alternatives
- Next Steps

FACILITY REQUIREMENTS

- Identify infrastructure needs based on FAA design standards and forecast demand
- Elements include:
 - Airfield capacity analysis
 - Airfield design standards assessment
 - Runway length
 - Apron and hangar space
 - Support facilities
 - Airspace and obstructions analysis



Source: Cottonwood Municipal Airport, 2020.

AIRFIELD DEMAND & CAPACITY

Metric	Description	Existing (2019)	Forecast (2039)
Annual Operations	Takeoffs and landings.	18,800	26,054
Annual Service Volume (ASV)	The maximum number of aircraft operations the airfield can accommodate in a one-year period without excessive delay.	172,151	163,779
Ratio of Operations to ASV	Annual operations ÷ ASV. When this ratio exceeds 80%, capacity enhancements should be implemented.	11%	16%

Based on new operations monitoring equipment:

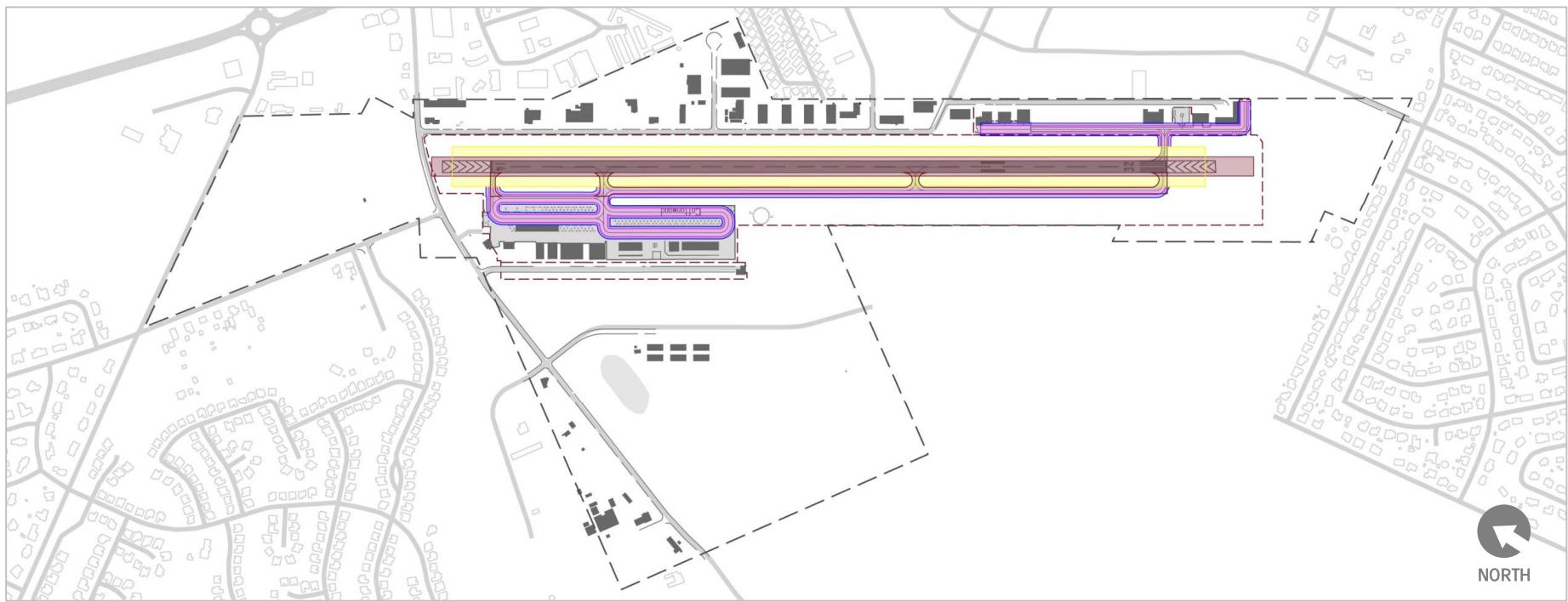
55,300 annual operations are estimated by 2039, representing a 34% ratio of operations to ASV and 221.2 hours of aircraft delay.

It is expected the Airport will not require capacity-enhancing measures through 2039.

RUNWAY / TAXIWAY SAFETY AREAS

Recommendations

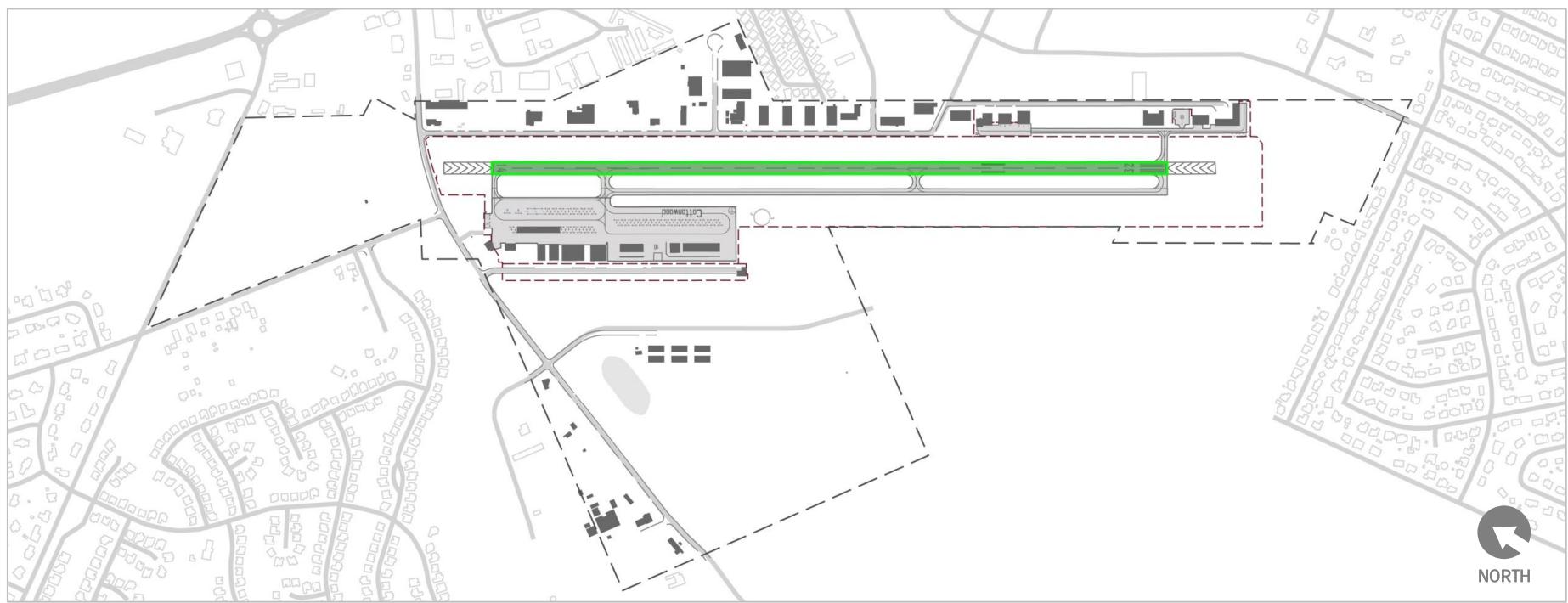
- Mitigate nonstandard runway safety area (RSA) on Runway 14 end
- Mitigate obstructions to runway and taxiway safety areas (power control units, aircraft hangars, and tie-downs)



RUNWAY LENGTH, WIDTH & STRENGTH

Recommendations

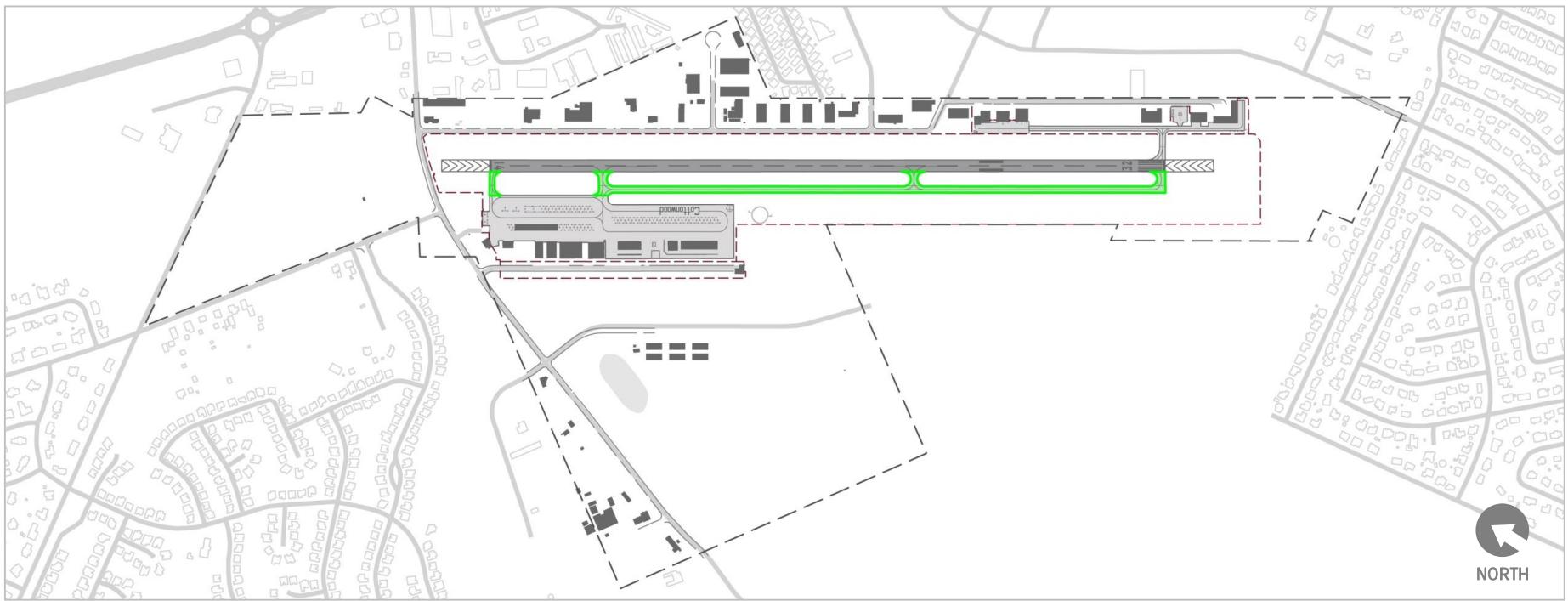
- Extend to 5,100' (currently 4,252')
- Narrow to ADG I standard of 60' wide (currently 75' wide)
- Conduct runway strength analysis to determine existing weight bearing capacity. If analysis results in less than 12,500 lbs., runway will require strengthening



TAXIWAY SYSTEM

Recommendations

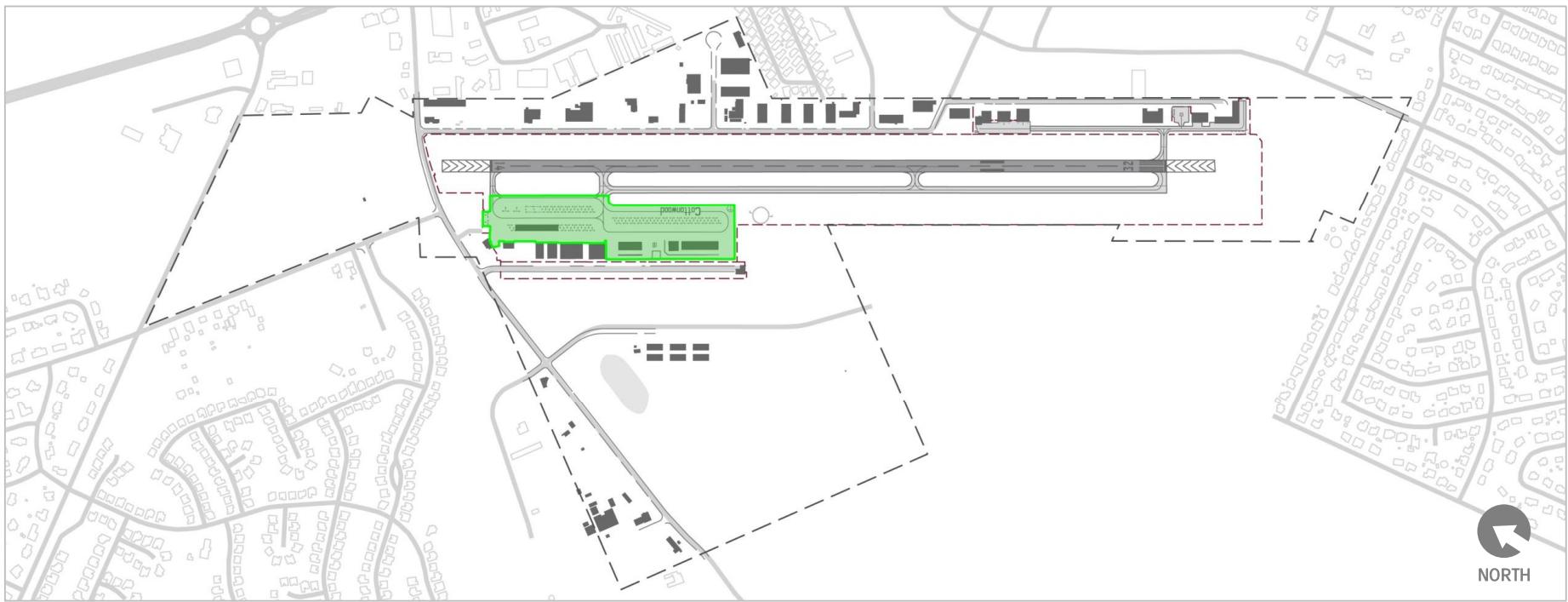
- Provide a full-length parallel taxiway (Taxiway A)
- Mitigate nonstandard taxiway geometry (taxiway width and fillets)



AIRCRAFT PARKING APRON & HELICOPTER OPERATING AREA

Recommendations

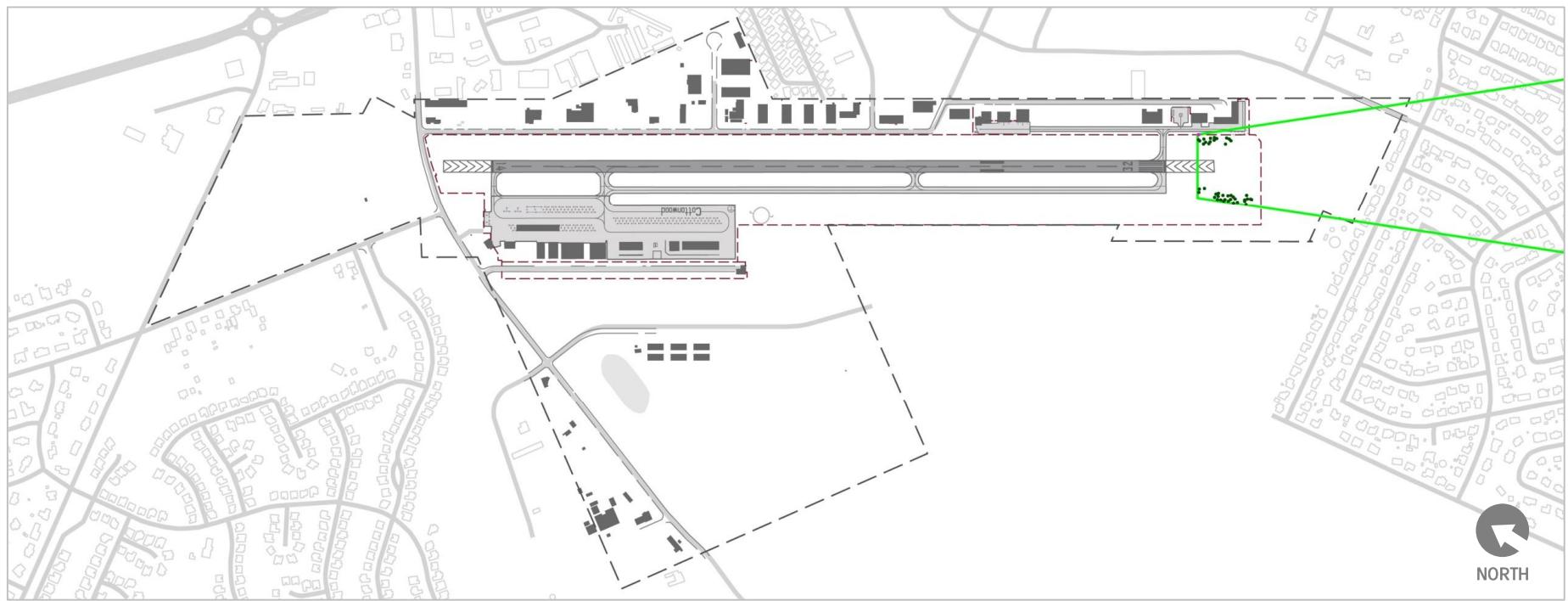
- Reconfigure aircraft parking apron to accommodate TDG II standards
- Mitigate nonstandard helicopter operating area
- Provide additional aircraft storage space (30,900 SF of conventional hangar space; 4,800 SF of T-hangar space)



AIRSPACE OBSTACLES

Recommendation

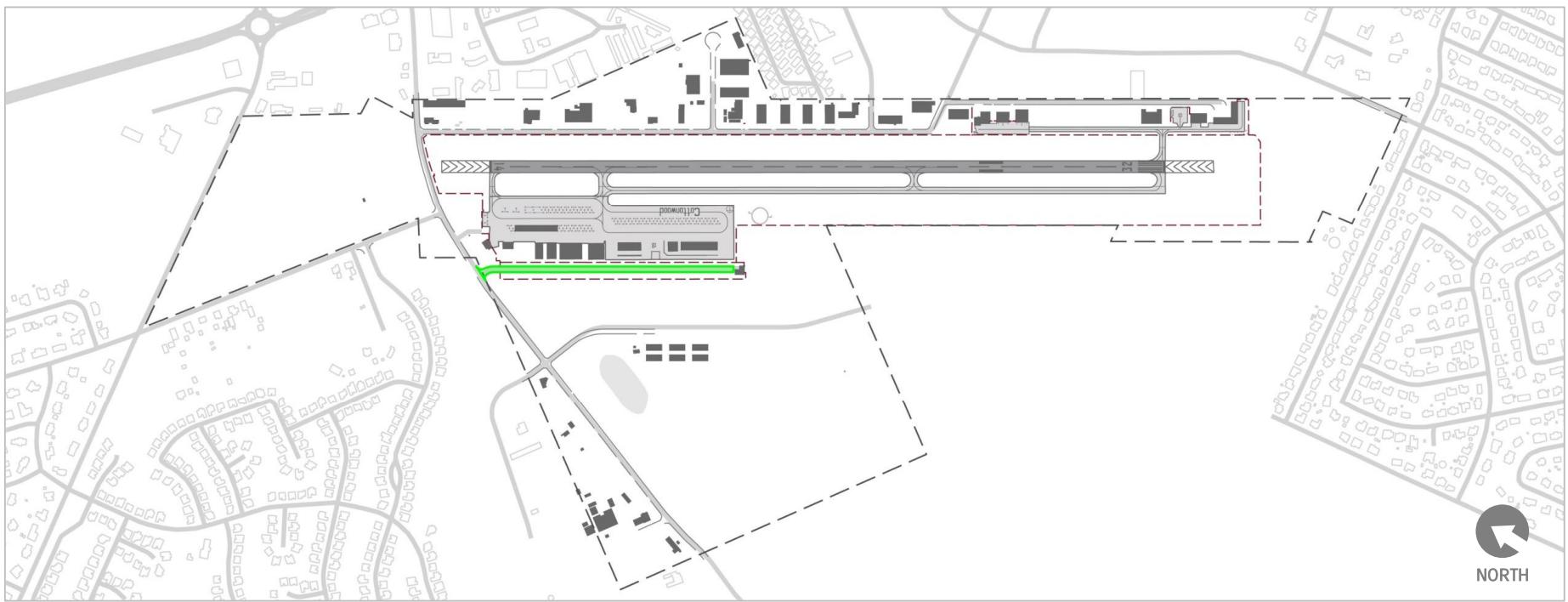
- Mitigate airspace obstructions to Runway 32 approach surface



AIRPORT ACCESS

Recommendation

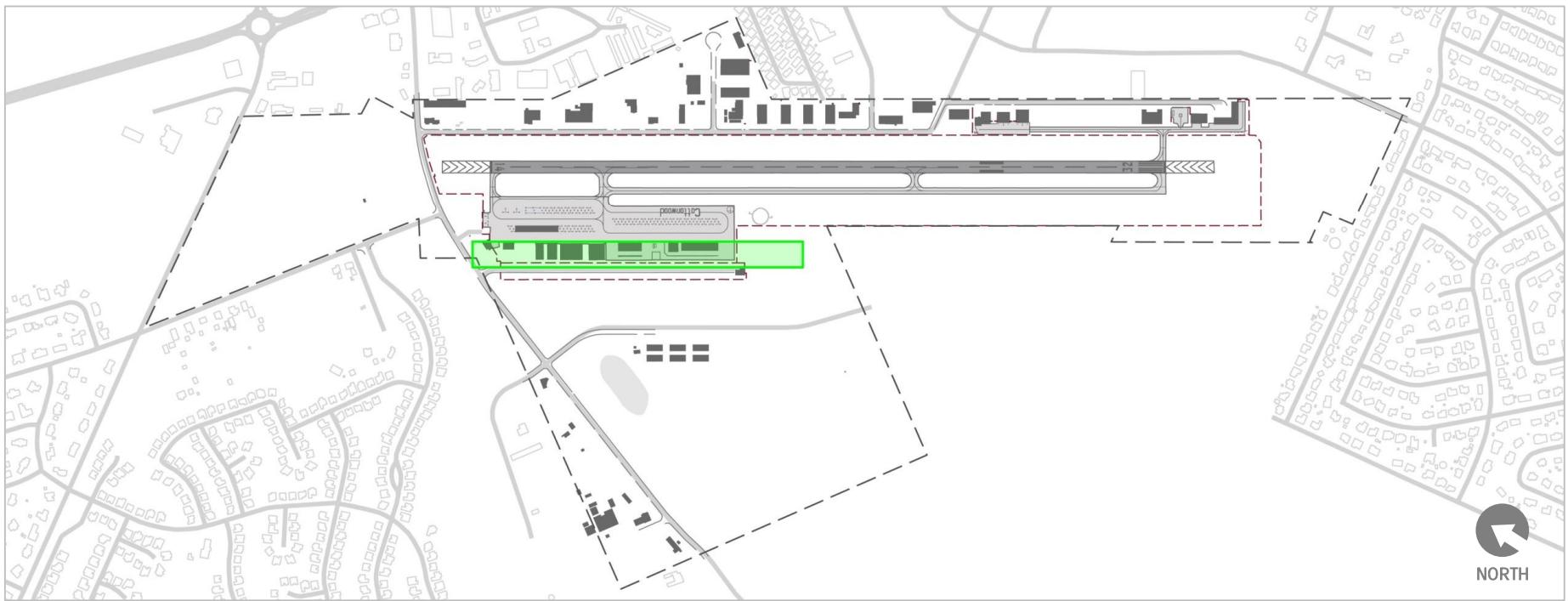
- Extend airport service road to provide access to new airport development



VEHICLE PARKING

Recommendation

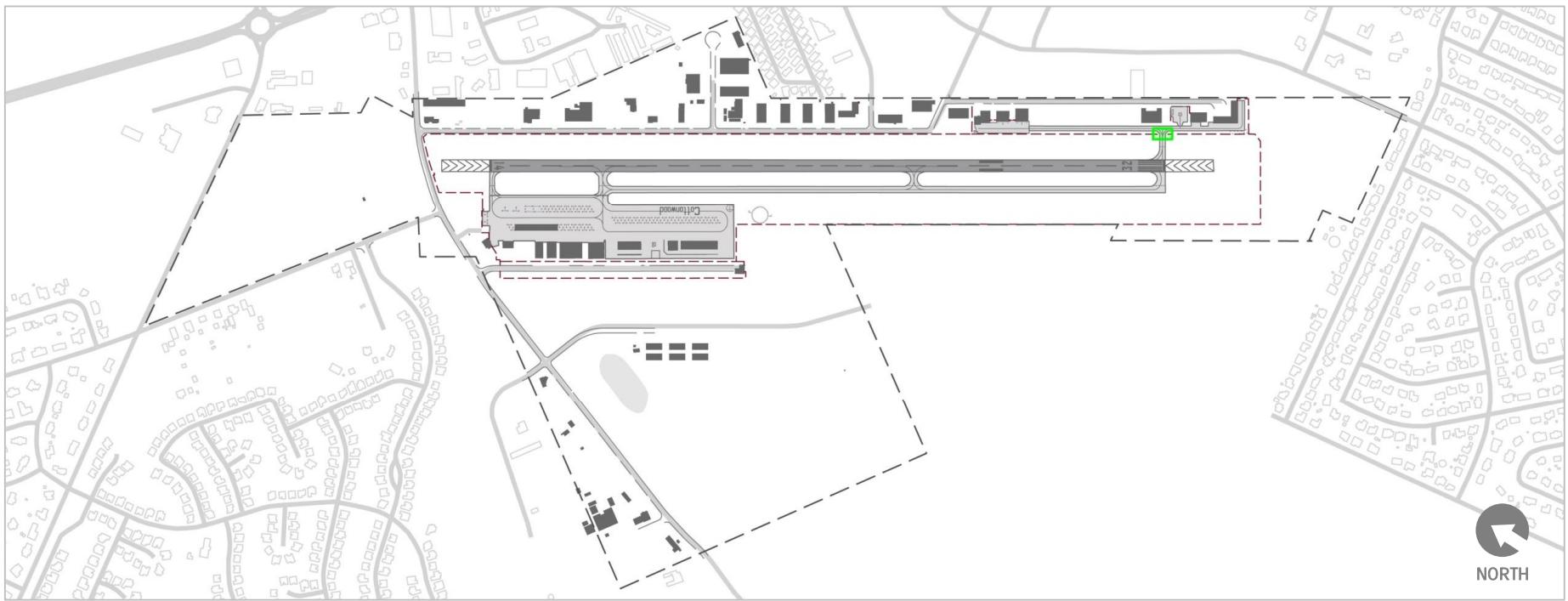
- Add 45 vehicle parking spaces (8,100 SF) adjacent to new aircraft hangars



EAST AIRFIELD GATE ACCESS

Recommendation

- Remove airfield access gate (restricts access to a public taxilane)



AGENDA

- Team Reintroductions
- State of the Airport
- Airport Master Planning Process
- Forecasts of Aviation Demand
- Facility Requirements
- Runway Development Alternatives
- Next Steps

RUNWAY DEVELOPMENT ALTERNATIVES

- Alternatives address forecast demand, facility requirements, and FAA standards.
- Feedback from the Master Plan Advisory Committee, Airport Management, the FAA, and the public were incorporated into the development of alternatives.



Source: Cottonwood Municipal Airport, 2020.

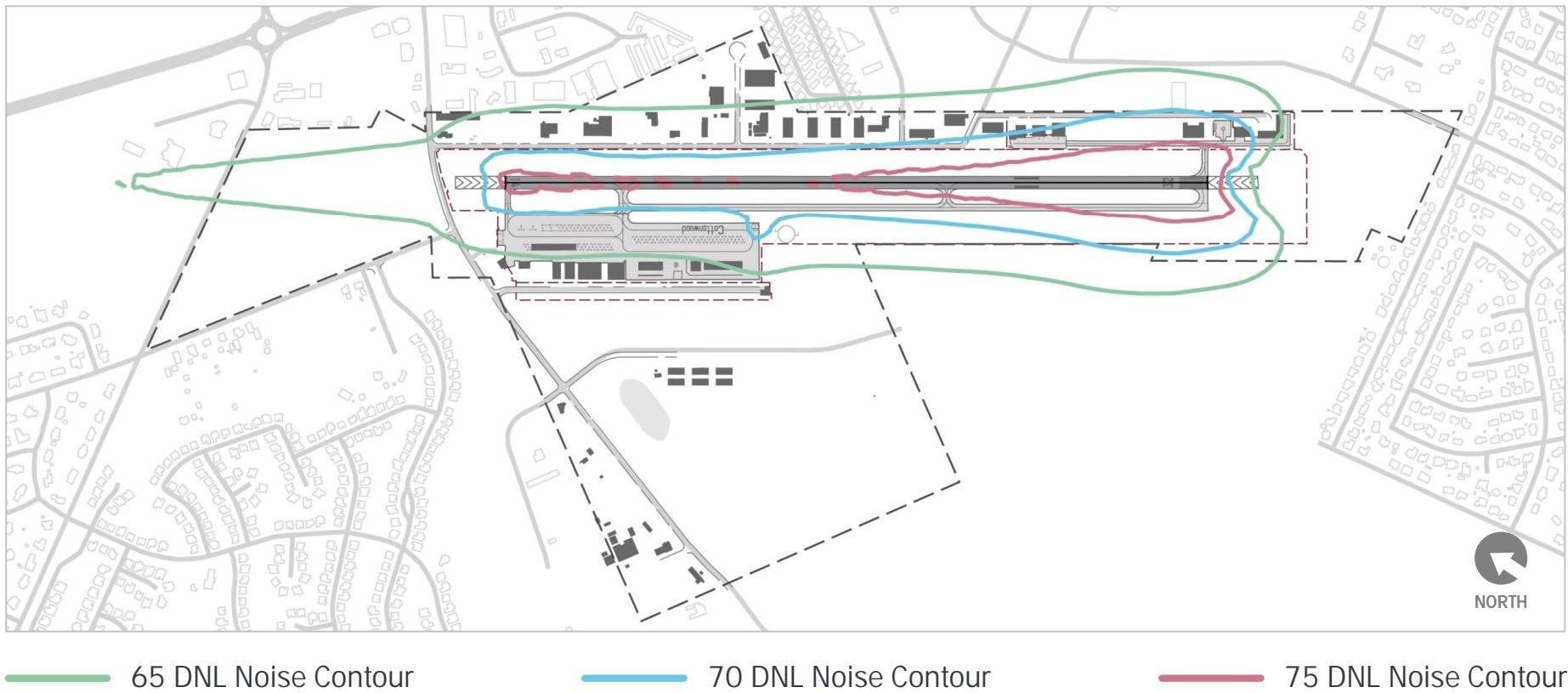
EVALUATION CRITERIA

- Satisfy forecast demand
- Facilitate safety
- Maximize development potential
- Allow for flexible implementation
- Minimize on- and off-Airport impacts (environmental, existing Airport facilities, off-Airport land uses)
- Others?



Source: Kimley-Horn, 2020.

AIRPORT NOISE CONTOURS (EXISTING)

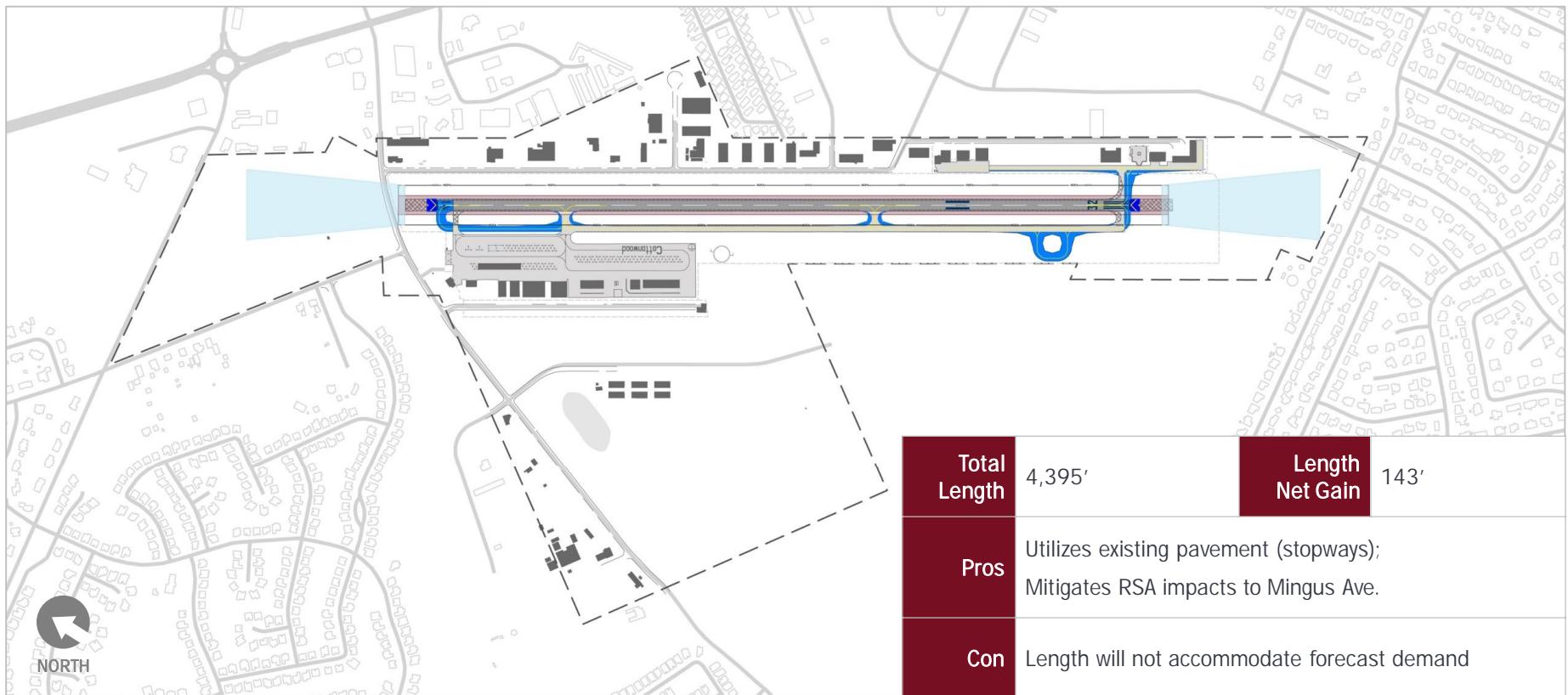


RUNWAY ALTERNATIVES

- **Runway length analysis**
recommendation: 5,100 feet
- **Runway width:** 60 feet
- **Recommended alternative will influence:**
 - Taxiway geometry
 - Aircraft parking aprons and hangars
 - Support facilities
- **Considerations:**
 - Airport property boundary
 - FAA safety standards
 - Compatible land uses:
 - Mingus Ave. north of Runway 14 end
 - Wash south of Runway 32 end
 - Residential land uses south of Airport

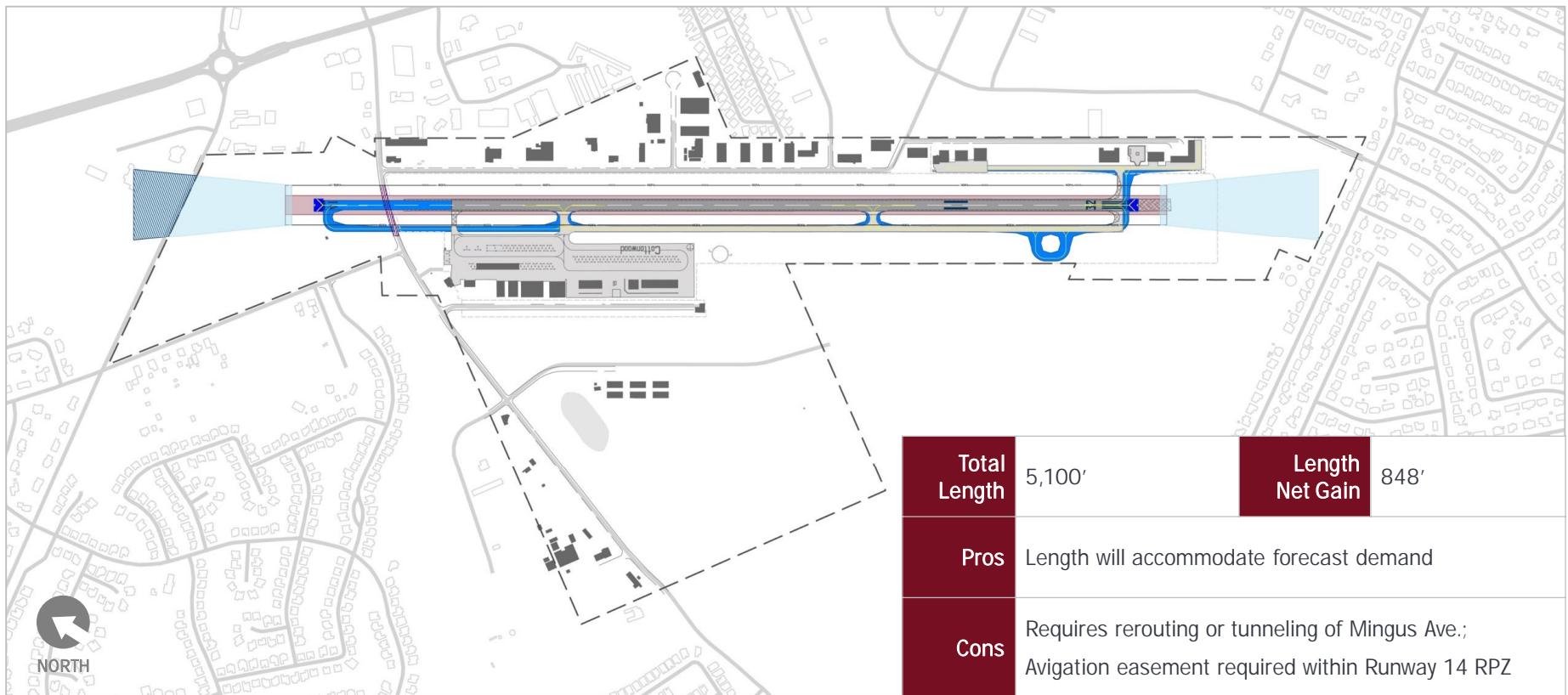
RUNWAY ALTERNATIVE 1

No-Action Alternative



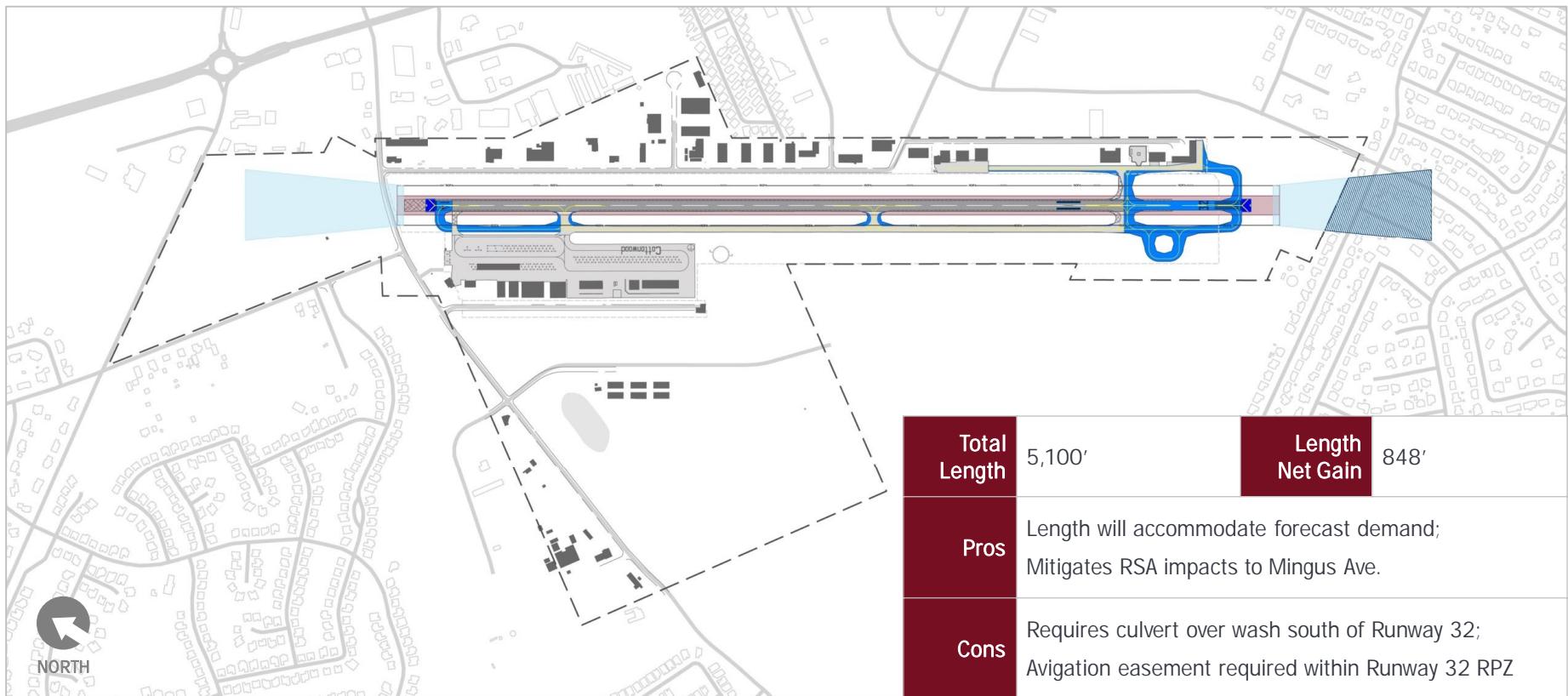
RUNWAY ALTERNATIVE 2

Northern Extension



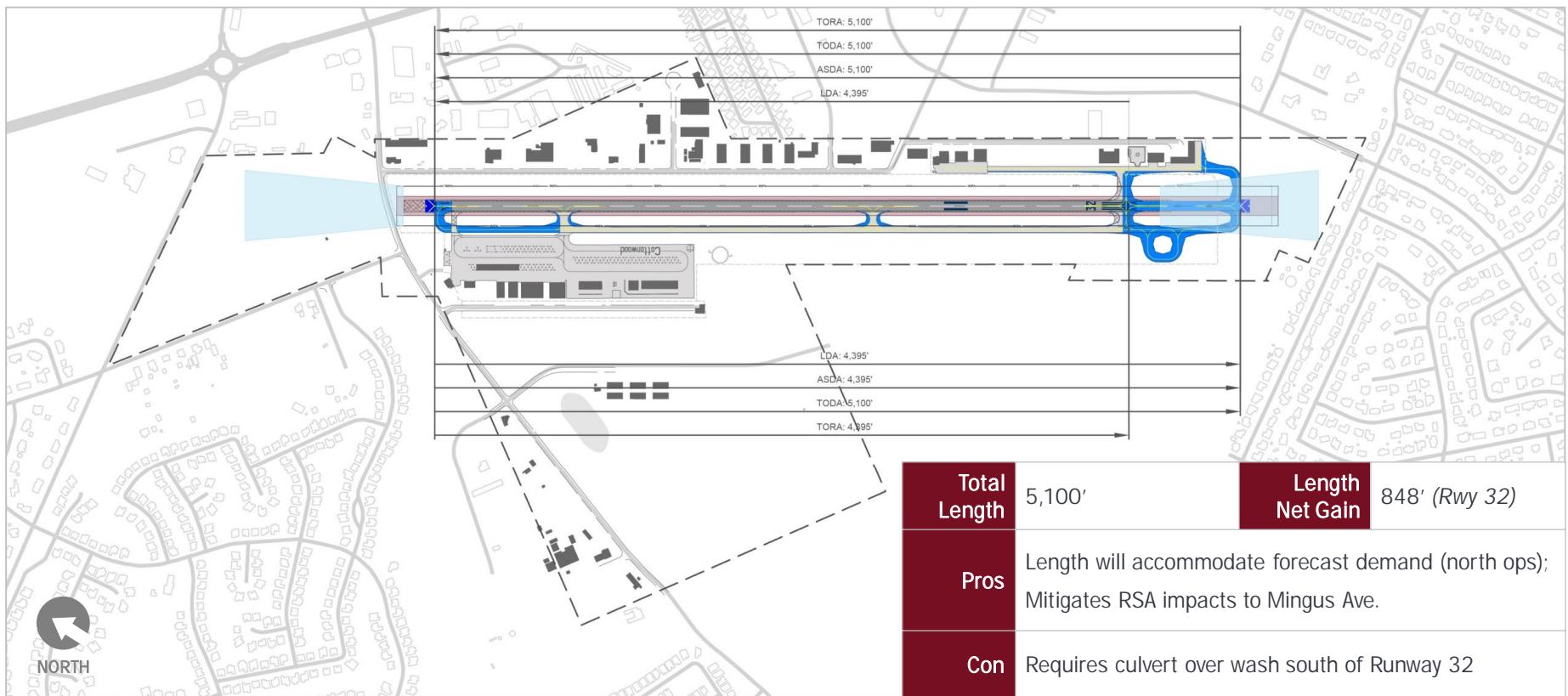
RUNWAY ALTERNATIVE 3

Southern Extension



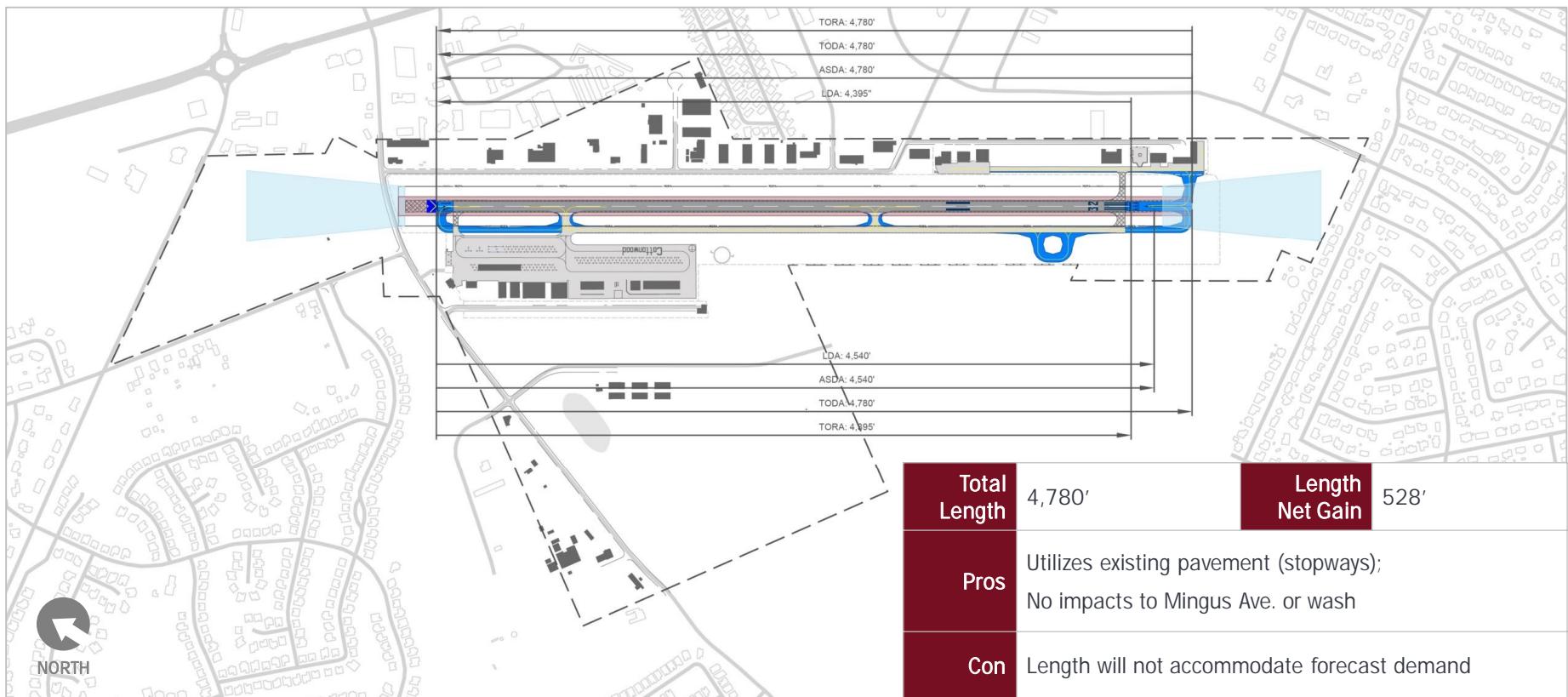
RUNWAY ALTERNATIVE 4

Southern Extension with Declared Distances



RUNWAY ALTERNATIVE 5

Maximum Build-Out with No Impacts to Mingus Ave. or Wash



SUMMARY OF RUNWAY ALTERNATIVES

Runway Alt.	Total Length	Length Net Gain	Declared Distances	Considerations	Overall Impact
1	4,395'	143'	No	<ul style="list-style-type: none"> ◦ Runway length will not accommodate forecast demand ◦ Utilizes existing pavement (stopways) ◦ Mitigates RSA impacts to Mingus Ave. 	Low
2	5,100'	848'	No	<ul style="list-style-type: none"> ◦ Runway length will accommodate forecast demand ◦ Requires rerouting or tunneling of Mingus Ave. ◦ Aviation easement required within Runway 14 RPZ 	High
3	5,100'	848'	No	<ul style="list-style-type: none"> ◦ Runway length will accommodate forecast demand ◦ Mitigates RSA impacts to Mingus Ave. ◦ Requires culvert over wash south of Runway 32 ◦ Aviation easement required within Runway 32 RPZ (impact to residential properties south of Airport) 	High
4	5,100'	848' (Rwy 32)	Yes	<ul style="list-style-type: none"> ◦ Runway length will accommodate forecast demand ◦ Mitigates RSA impacts to Mingus Ave. ◦ Requires culvert over wash south of Runway 32 end ◦ Full-length takeoffs only permitted from Runway 32 (4,395' available for Runway 14) 	Medium / High
5	4,780'	528'	Yes	<ul style="list-style-type: none"> ◦ Runway length will not accommodate forecast demand ◦ Utilizes existing pavement (stopways) ◦ Mitigates RSA impacts to Mingus Ave. ◦ Does not require culvert over wash south of Runway 32 end 	Low / Medium

CJ10 Recommend showing this slide while scrolling through each runway alt (maybe a print-out or pulled up on another independent screen?)

Coliton, John, 5/11/2021

LANDSIDE AND SUPPORT FACILITIES ALTERNATIVES

- Influenced by recommended runway alternative
- Will include alternatives for:
 - Aircraft parking apron and hangar space
 - Vehicle parking space
 - Airfield access
- Potential impacts:
 - Existing taxiway, aircraft parking, and NAVAID facilities
 - Existing AOA fence and access points



Source: Google Earth, 2018.

AGENDA

- Team Reintroductions
- State of the Airport
- Airport Master Planning Process
- Forecasts of Aviation Demand
- Facility Requirements
- Runway Development Alternatives
- Next Steps

NEXT STEPS

- Integrate input/feedback into development alternatives
- Draft Alternatives working paper
- Meet with FAA to discuss Recommended Development Plan (RDP)
- Draft Implementation and Financial Analysis working paper
- Draft Airport Layout Plan (ALP)
- Ongoing Stakeholder Involvement - **PAC Meeting and Public Information Meeting: July / August 2021**

QUESTIONS / COMMENTS

Please send additional questions and comments to:

colin.wheeler@kimley-horn.com

john.coliton@kimley-horn.com



THANK YOU!

Kimley»Horn

