

# APPENDIX K

## Noise Analysis Technical Data



**DELTA AIRPORT  
CONSULTANTS, INC.**

1805 Sardis Road North, Suite 101 ♦ Charlotte, North Carolina 28270  
Phone: (704) 521-9101 ♦ Fax: (704) 521-9109 ♦ [www.deltaairport.com](http://www.deltaairport.com)

## Land Use Compatibility

Land use	DNL expressed in dB(A)					
	Below 65	65-70	70-75	75-80	80-85	Over 85
<b>Residential</b>						
Residential, other than mobile homes and transient lodgings	Y	N(1)	N(1)	N	N	N
Mobile home parks	Y	N	N	N	N	N
Transient lodgings	Y	N(1)	N(1)	N(1)	N	N
<b>Public Use</b>						
Schools	Y	N(1)	N(1)	N	N	N
Hospitals and nursing homes	Y	25	30	N	N	N
Churches, auditoriums, and concert halls	Y	25	30	N	N	N
Governmental services	Y	Y	25	30	N	N
Transportation	Y	Y	Y(2)	Y(3)	Y(4)	Y(4)
Parking	Y	Y	Y(2)	Y(3)	Y(4)	N
<b>Commercial Use</b>						
Offices, business and professional	Y	Y	25	30	N	N
Wholesale and retail—building materials, hardware and farm equipment	Y	Y	Y(2)	Y(3)	Y(4)	N
Retail trade—general	Y	Y	25	30	N	N
Utilities	Y	Y	Y(2)	Y(3)	Y(4)	N
Communication	Y	Y	25	30	N	N
<b>Manufacturing and Production</b>						
Manufacturing, general	Y	Y	Y(2)	Y(3)	Y(4)	N
Photographic and optical	Y	Y	25	30	N	N
Agriculture (except livestock) and forestry	Y	Y(6)	Y(7)	Y(8)	Y(8)	Y(8)
Livestock farming and breeding	Y	Y(6)	Y(7)	N	N	N
Mining and fishing, resource production and extraction	Y	Y	Y	Y	Y	Y
<b>Recreational</b>						
Outdoor sports arenas and spectator sports	Y	Y(5)	Y(5)	N	N	N
Outdoor music shells, amphitheaters	Y	N	N	N	N	N
Nature exhibits and zoos	Y	Y	N	N	N	N
Amusements, parks, resorts and camps	Y	Y	Y	N	N	N
Golf courses, riding stables and water recreation	Y	Y	25	30	N	N

SLUCM=Standard Land Use Coding Manual. Y (Yes) = Land Use and related structures compatible without restrictions. N (No) = Land Use and related structures are not compatible and should be prohibited. NLR = Noise Level Reduction (outdoor to indoor) to be achieved through incorporation of noise attenuation into the design and construction of the structure.

25, 30, or 35=Land use and related structures generally compatible; measures to achieve NLR of 25, 30, or 35 dB must be incorporated into design and construction of structure.

(1) Where the community determines that residential or school uses must be allowed, measures to achieve outdoor to indoor Noise Level Reduction (NLR) of at least 25 dB and 30 dB should be incorporated into building codes and be considered in individual approvals. Normal residential construction can be expected to provide a NLR of 20 dB, thus, the reduction requirements are often stated as 5, 10 or 15 dB over standard construction and normally assume mechanical ventilation and closed windows year round. However, the use of NLR criteria will not eliminate outdoor noise problems.

(2) Measures to achieve NLR 25 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.

(3) Measures to achieve NLR of 30 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.

(4) Measures to achieve NLR 35 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal level is low.

(5) Land use compatible provided special sound reinforcement systems are installed.

(6) Residential buildings require an NLR of 25.

(7) Residential buildings require an NLR of 30.

(8) Residential buildings not permitted.

Source: FAR Part 150

### Annual Operations by Aircraft Category

Aircraft Category	Annual Operations			
	2007 <sup>1</sup>	2008 <sup>1</sup>	2012 <sup>2</sup>	2013 <sup>1</sup>
Single-Engine Piston	55,930	56,676	59,782	60,558
Multi-Engine Piston	7,402	7,501	7,912	8,015
Turbo-Prop	5,758	5,834	6,154	6,234
Business Jet	9,870	10,002	10,550	10,687
Rotorcraft	3,290	3,334	3,516	3,562
Military	250	250	250	250
<b>Total</b>	<b>82,500</b>	<b>83,597</b>	<b>88,164</b>	<b>89,306</b>

<sup>1</sup> Source: Chesterfield County Airport Master Plan Update, Table 3-15

<sup>2</sup> Source: Linear interpolation of Master Plan Update forecast

Note: Totals may be subject to rounding errors

### Annual Operations (Local / Itinerant)

Operation Type	Annual Operations			
	2007 <sup>1</sup>	2008 <sup>1</sup>	2012 <sup>2</sup>	2013 <sup>1</sup>
Local (Touch-and-Go)	33,000	33,439	35,265	35,722
Itinerant (Arrival/Departure)	49,500	50,158	52,899	53,584
<b>Total</b>	<b>82,500</b>	<b>83,597</b>	<b>88,164</b>	<b>89,306</b>

<sup>1</sup> Source: Chesterfield County Airport Master Plan Update, Table 3-15

<sup>2</sup> Source: Linear interpolation of Master Plan Update forecast

Note: Totals may be subject to rounding errors

### Nighttime Operations

Aircraft Category	Percentage of Nighttime Operations
Single-Engine Piston	2%
Multi-Engine Piston	2%
Turbo-Prop	2%
Business Jet	2%
Rotorcraft	0%
Military	0%

Source: Chesterfield County Airport Master Plan Update, INM Input Files

### Fleet Mix (2013)

Operation Type	Aircraft Category	Aircraft Type	INM Aircraft	Annual Operations
Itinerant	Turbo-Prop	Dash 6	DHC6	3,077
		Cessna Conquest II	CNA441	3,077
	Single-Engine Piston	Variable Pitch Propeller	GASEPV	26,285
	Multi-Engine Piston	Beechcraft Baron 58P	BEC58P	6,144
	Business Jet	Gulfstream 4	GIV	435
		Learjet 35	LEAR35	1,981
		Bombardier Challenger 600	CL600	1,981
		Cessna Citation II	CNA500	6,152
			<i>Subtotal</i>	<i>49,132</i>
	Rotorcraft	Bell 206 LongRanger	B206L	3,516
			<i>Subtotal</i>	<i>3,516</i>
	Military	Grumman C-2 Greyhound	C130HP	250
			<i>Subtotal</i>	<i>250</i>
		<i>Itinerant Total</i>	<i>52,899</i>	
Local	Single-Engine Piston	Fixed Pitch Propeller	GASEPF	26,446
		Variable Pitch Propeller	GASEPV	7,051
			<i>Subtotal</i>	<i>33,497</i>
	Multi-Engine Piston	Beechcraft Baron 58P	BEC58P	1,769
			<i>Subtotal</i>	<i>1,769</i>
		<i>Local Total</i>	<i>35,265</i>	

Source: Chesterfield County Airport Master Plan Update INM Input Files

### Fleet Mix (2020)

Operation Type	Aircraft Category	Aircraft Type	INM Aircraft	Annual Operations
Itinerant	Turbo-Prop	Dash 6	DHC6	3,415
		Cessna Conquest II	CNA441	3,415
	Single-Engine Piston	Variable Pitch Propeller	GASEPV	28,202
	Multi-Engine Piston	Beechcraft Baron 58P	BEC58P	6,818
	Business Jet	Gulfstream 4	GIV	524
		Learjet 35	LEAR35	2,382
		Bombardier Challenger 600	CL600	2,382
		Cessna Citation II	CNA500	7,395
			<i>Subtotal</i>	<i>54,531</i>
	Rotorcraft <sup>1</sup>	Bell 206 LongRanger	B206L	3,903
		Sikorsky UH-60 Black Hawk	S70	425
		Eurocopter UH-72 Lakota	B429	820
				<i>Subtotal</i>
	Military	Grumman C-2 Greyhound	C130HP	250
				<i>Subtotal</i>
		<i>Itinerant Total</i>	<i>59,928</i>	
Local	Single-Engine Piston	Fixed Pitch Propeller	GASEPF	29,338
		Variable Pitch Propeller	GASEPV	7,822
			<i>Subtotal</i>	<i>37,160</i>
	Multi-Engine Piston	Beechcraft Baron 58P	BEC58P	1,962
				<i>Subtotal</i>
		<i>Local Total</i>	<i>39,122</i>	

<sup>1</sup> Military and civilian rotorcraft operations

Source: Chesterfield County Airport Master Plan Update, INM Input Files

Note: Totals may be subject to rounding errors