Solid Waste Management in NC
North Carolina SWANA

April 16, 2008

Paul Crissman, Chief
Solid Waste Section
Division of Waste Management
Department of Environment and Natural Resources

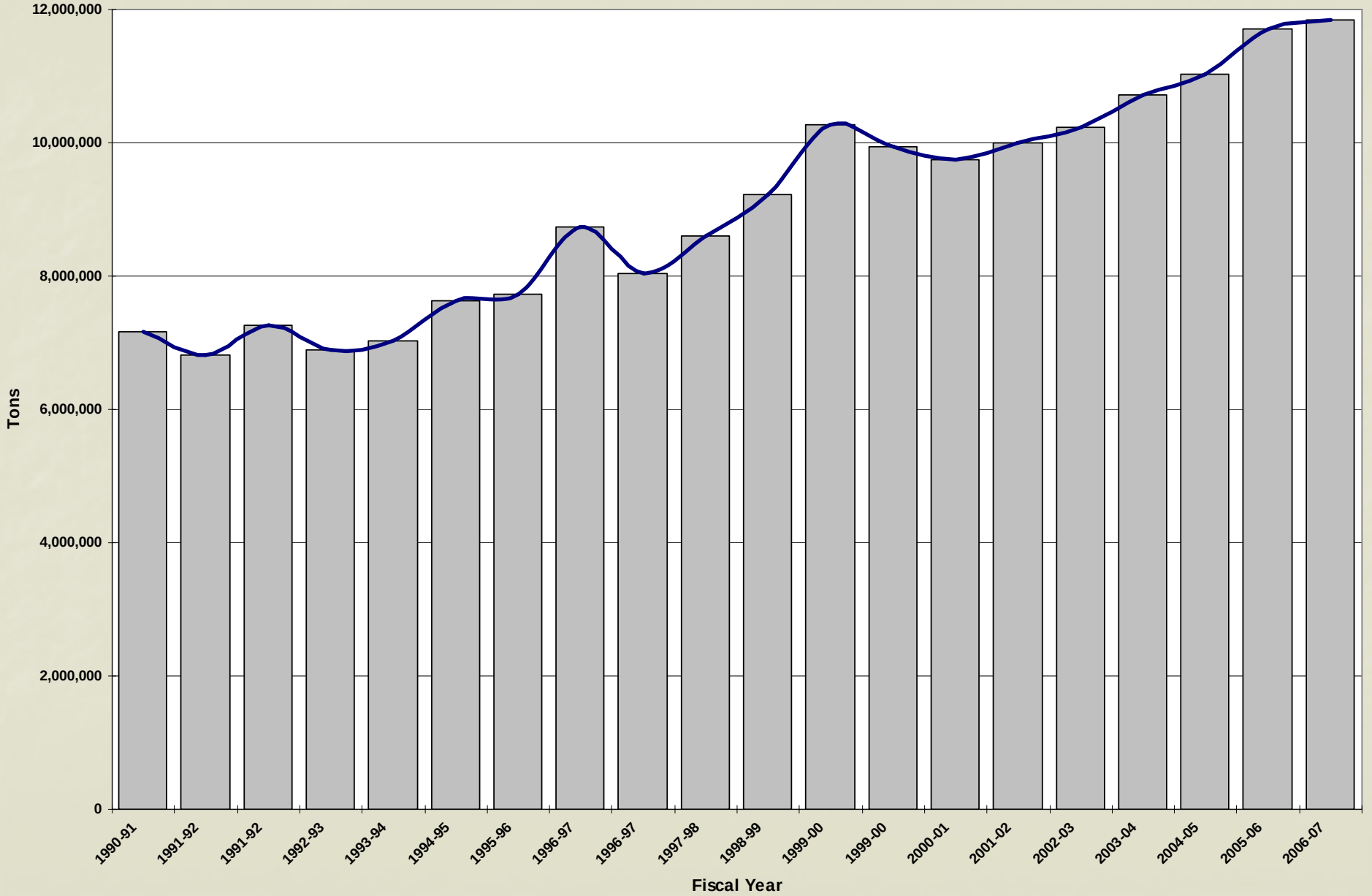
Solid Waste in North Carolina
The Future:

We have a lot of Waste to Manage

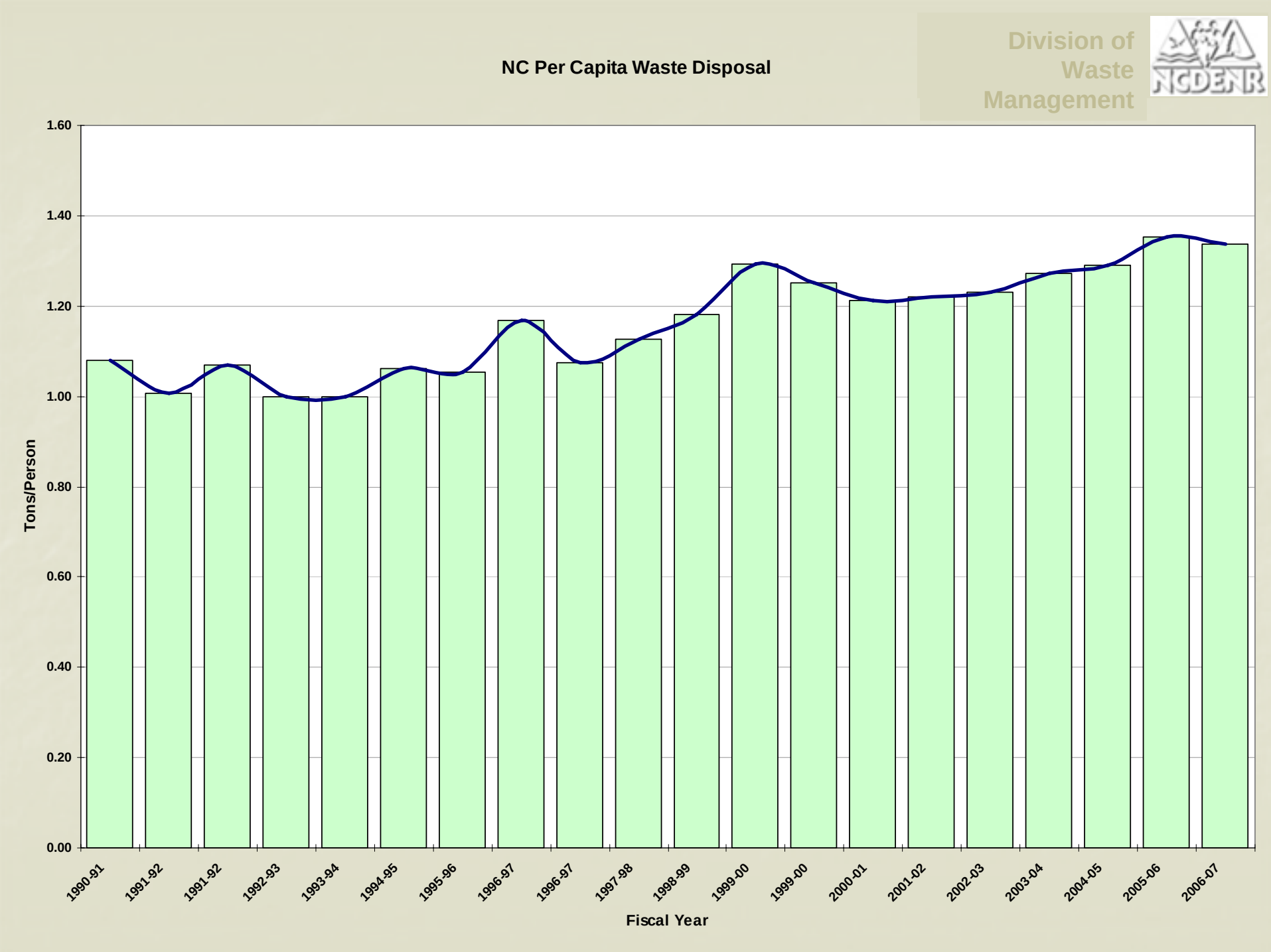
Division of Waste Management

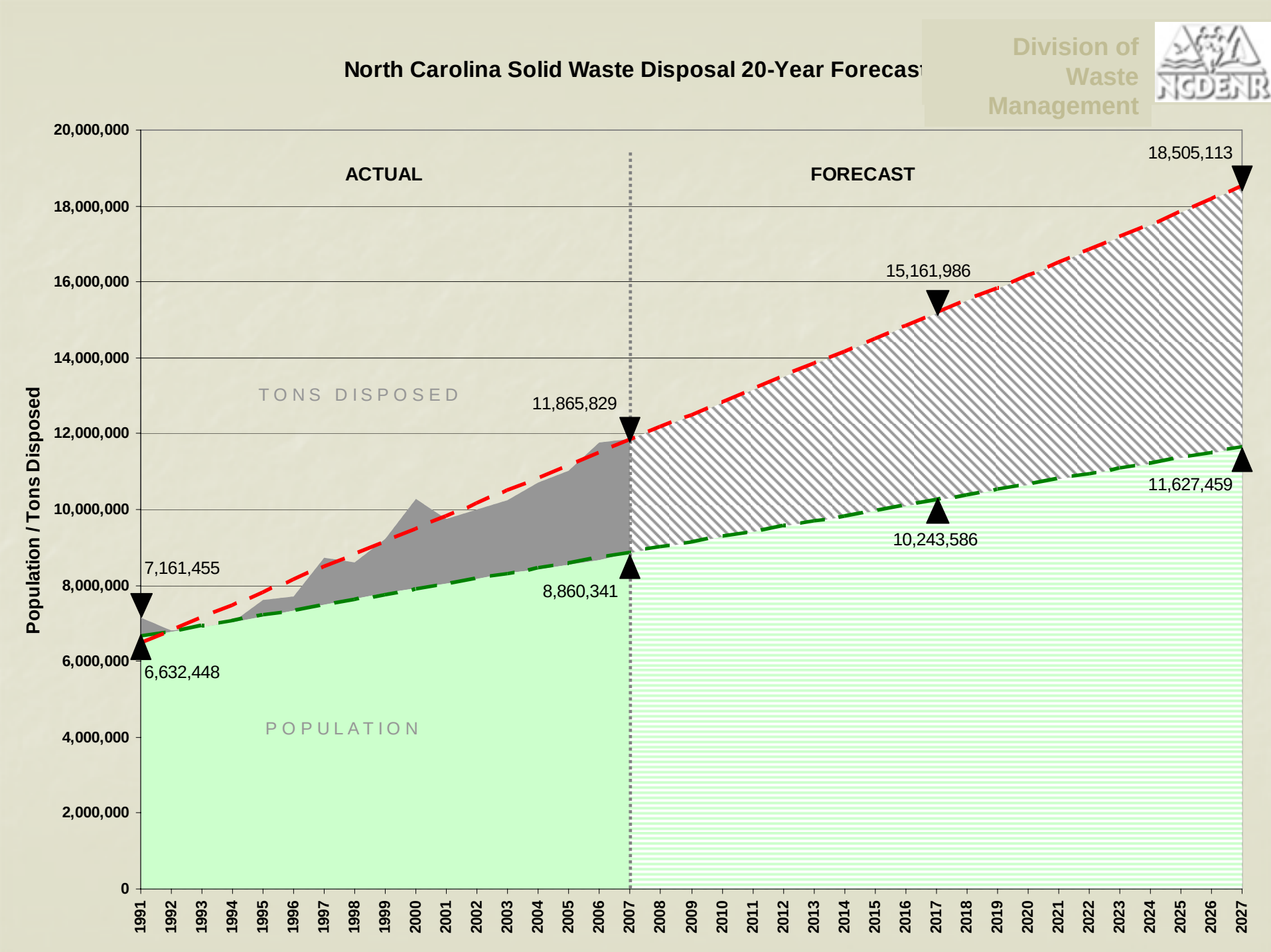
NCDENR

Tons of Solid Waste Disposed of by North Carolina



Division of Waste Management




North Carolina Solid Waste Disposal 20-Year Forecast
Division of Waste Management
NCDENR
ACTUAL
FORECAST
TONS DISPOSED
POPULATION
Population / Tons Disposed
20,000,000
18,000,000
16,000,000
14,000,000
12,000,000
10,000,000
8,000,000
6,000,000
4,000,000
2,000,000
0
7,161,455
6,632,448
11,865,829
8,860,341
15,161,986
10,243,586
18,505,113
11,627,459
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
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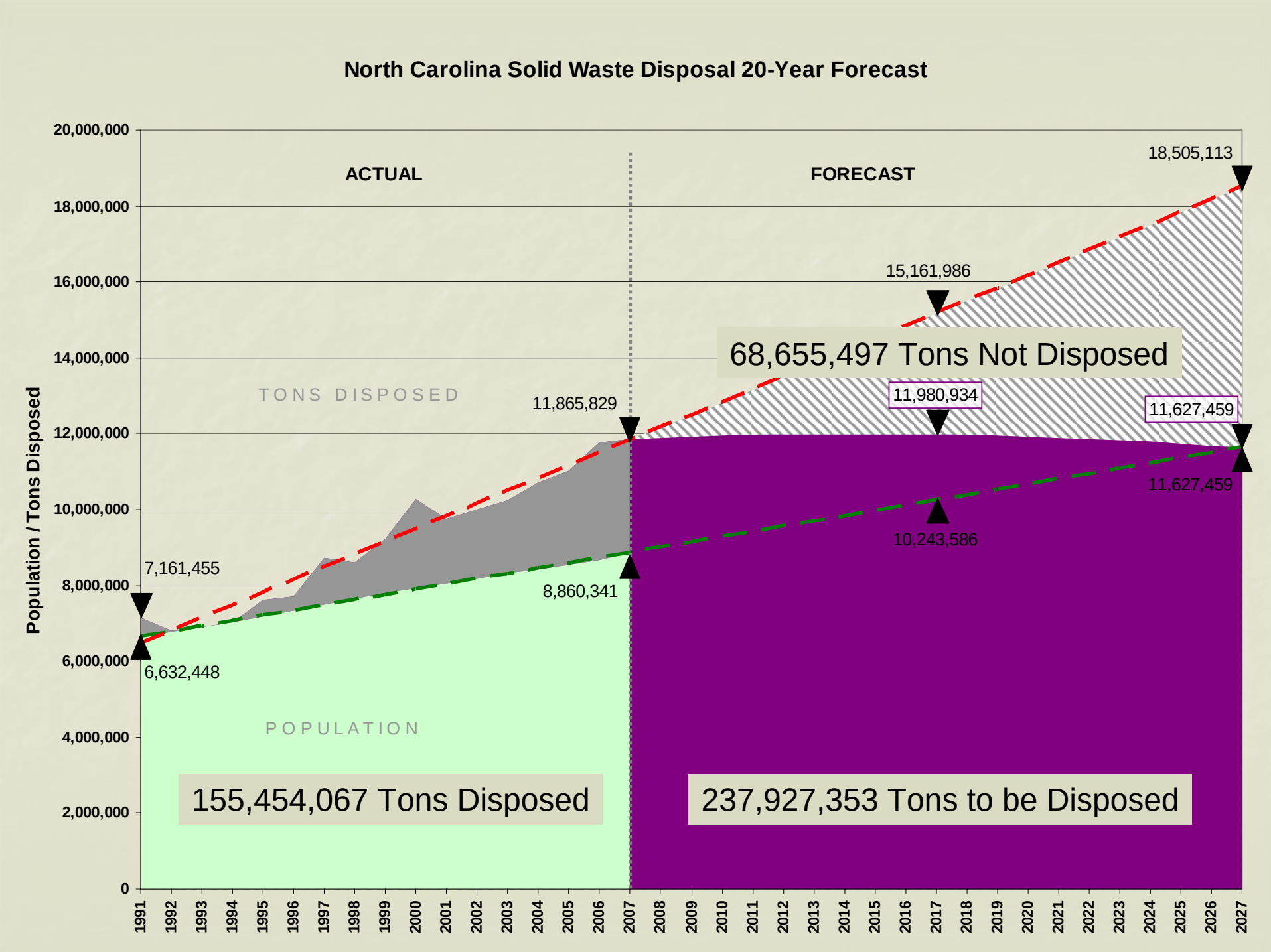
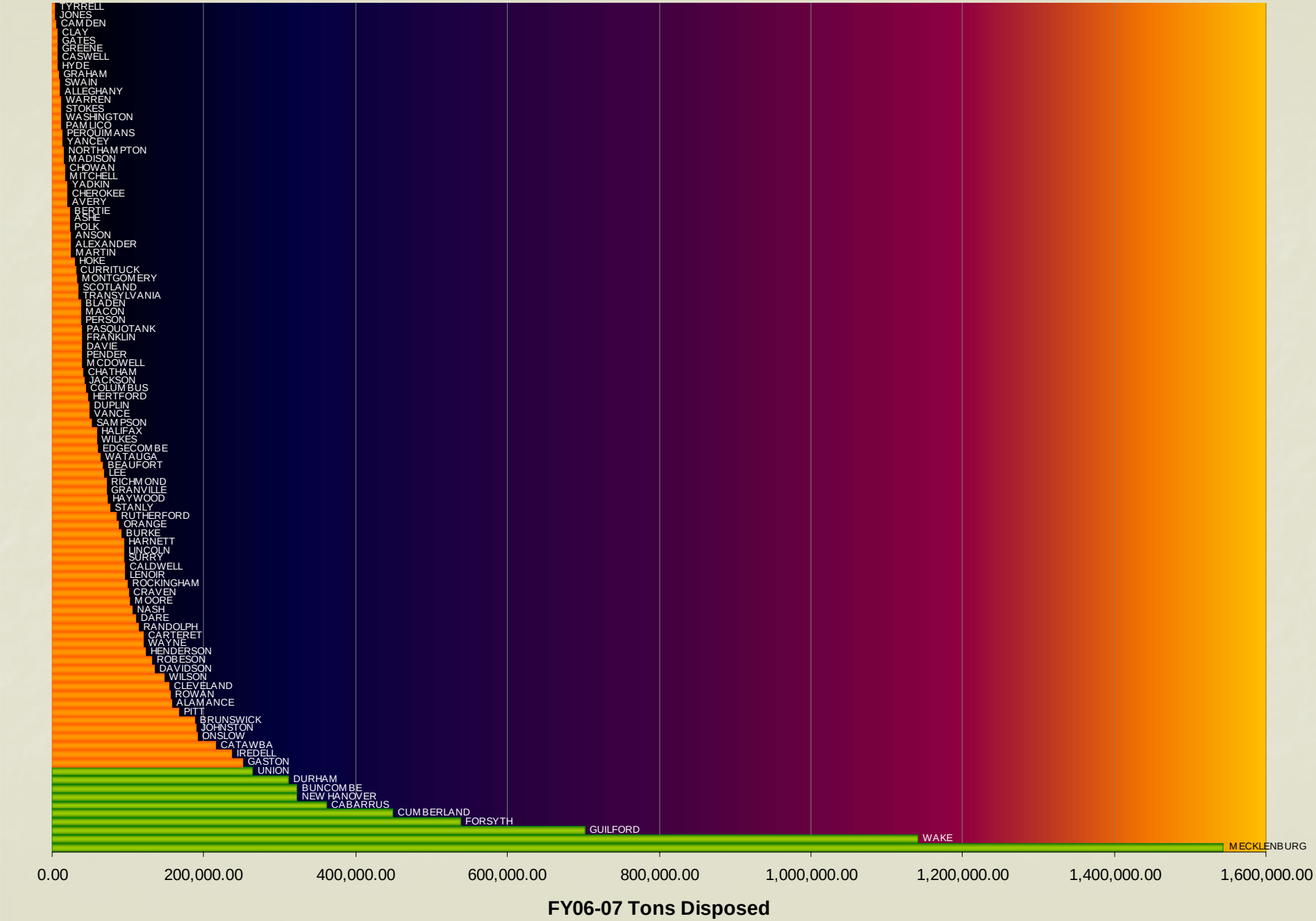
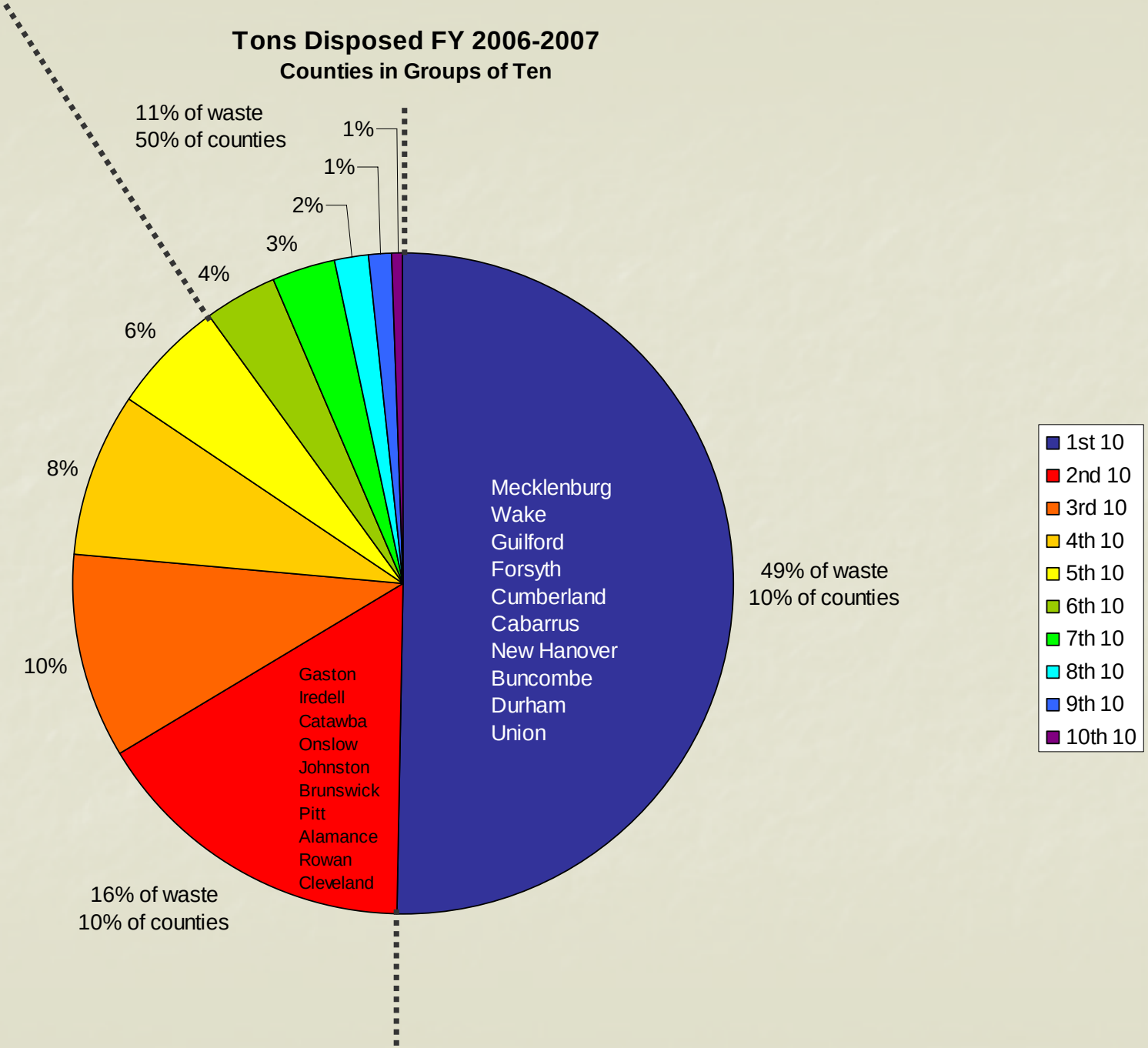
2026
2027


North Carolina Solid Waste Disposal 20-Year Forecast
ACTUAL
FORECAST
TONS DISPOSED
POPULATION
Population / Tons Disposed
20,000,000
18,000,000
16,000,000
14,000,000
12,000,000
10,000,000
8,000,000
6,000,000
4,000,000
2,000,000
0
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
2026
2027
18,505,113
15,161,986
68,655,497 Tons Not Disposed
11,865,829
11,980,934
11,627,459
11,627,459
10,243,586
7,161,455
8,860,341
6,632,448
155,454,067 Tons Disposed
237,927,353 Tons to be Disposed


TYRRELL
JONES
CAMDEN
CLAY
GATES
GREENE
CASWELL
HYDE
GRAHAM
SWAIN
ALLEGHANY
WARREN
STOKES
WASHINGTON
PAMLICO
PERQUIMANS
YANCEY
NORTHAMPTON
MADISON
CHOWAN
MITCHELL
YADKIN
CHEROKEE
AVERY
BERTIE
ASHE
POLK
ANSON
ALEXANDER
MARTIN
HOKE
CURRITUCK
MONTGOMERY
SCOTLAND
TRANSYLVANIA
BLADEN
MACON
PERSON
PASQUOTANK
FRANKLIN
DAVIE
PENDER
MCDOWELL
CHATHAM
JACKSON
COLUMBUS
HERTFORD
DUPLIN
VANCE
SAMPSON
HALIFAX
WILKES
EDGECOMBE
WATAUGA
BEAUFORT
LEE
RICHMOND
GRANVILLE
HAYWOOD
STANLY
RUTHERFORD
ORANGE
BURKE
HARNETT
LINCOLN
SURRY
CALDWELL
LENOIR
ROCKINGHAM
CRAVEN
MOORE
NASH
DARE
RANDOLPH
CARTERET
WAYNE
HENDERSON
ROBESON
DAVIDSON
WILSON
CLEVELAND
ROWAN
ALAMANCE
PITT
BRUNSWICK
JOHNSTON
ONSLOW
CATAWBA
IREDELL
GASTON
UNION
DURHAM
BUNCOMBE
NEW HANOVER
CABARRUS
CUMBERLAND
FORSYTH
GUILFORD
WAKE
MECKLENBURG
0.00
200,000.00
400,000.00
600,000.00
800,000.00
1,000,000.00
1,200,000.00
1,400,000.00
1,600,000.00
FY06-07 Tons Disposed


Tons Disposed FY 2006-2007
Counties in Groups of Ten
11% of waste
50% of counties
1%
1%
2%
3%
4%
6%
8%
10%
16% of waste
10% of counties
Gaston
Iredell
Catawba
Onslow
Johnston
Brunswick
Pitt
Alamance
Rowan
Cleveland
Mecklenburg
Wake
Guilford
Forsyth
Cumberland
Cabarrus
New Hanover
Buncombe
Durham
Union
49% of waste
10% of counties
1st 10
2nd 10
3rd 10
4th 10
5th 10
6th 10
7th 10
8th 10
9th 10
10th 10

C&D landfills

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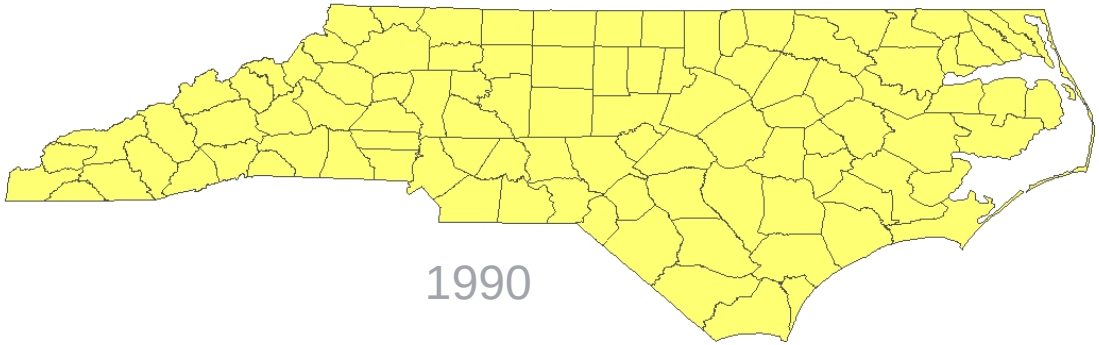
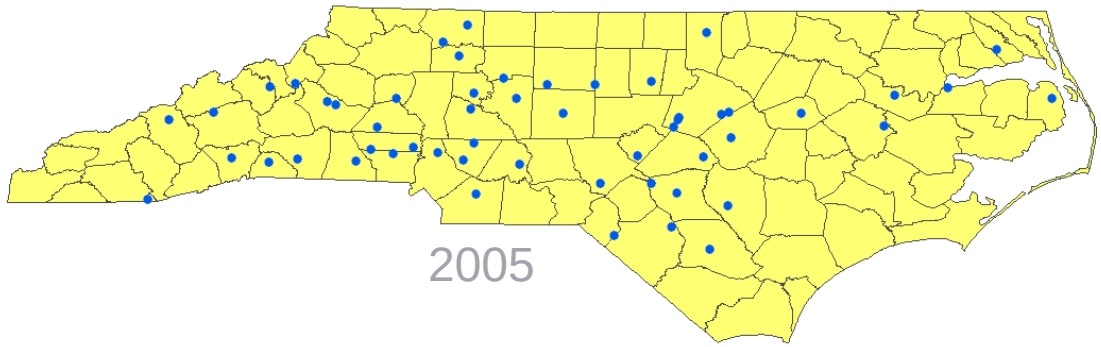
Construction & Demolition Landfills in North Carolina 1990 and 2005



1990



2005

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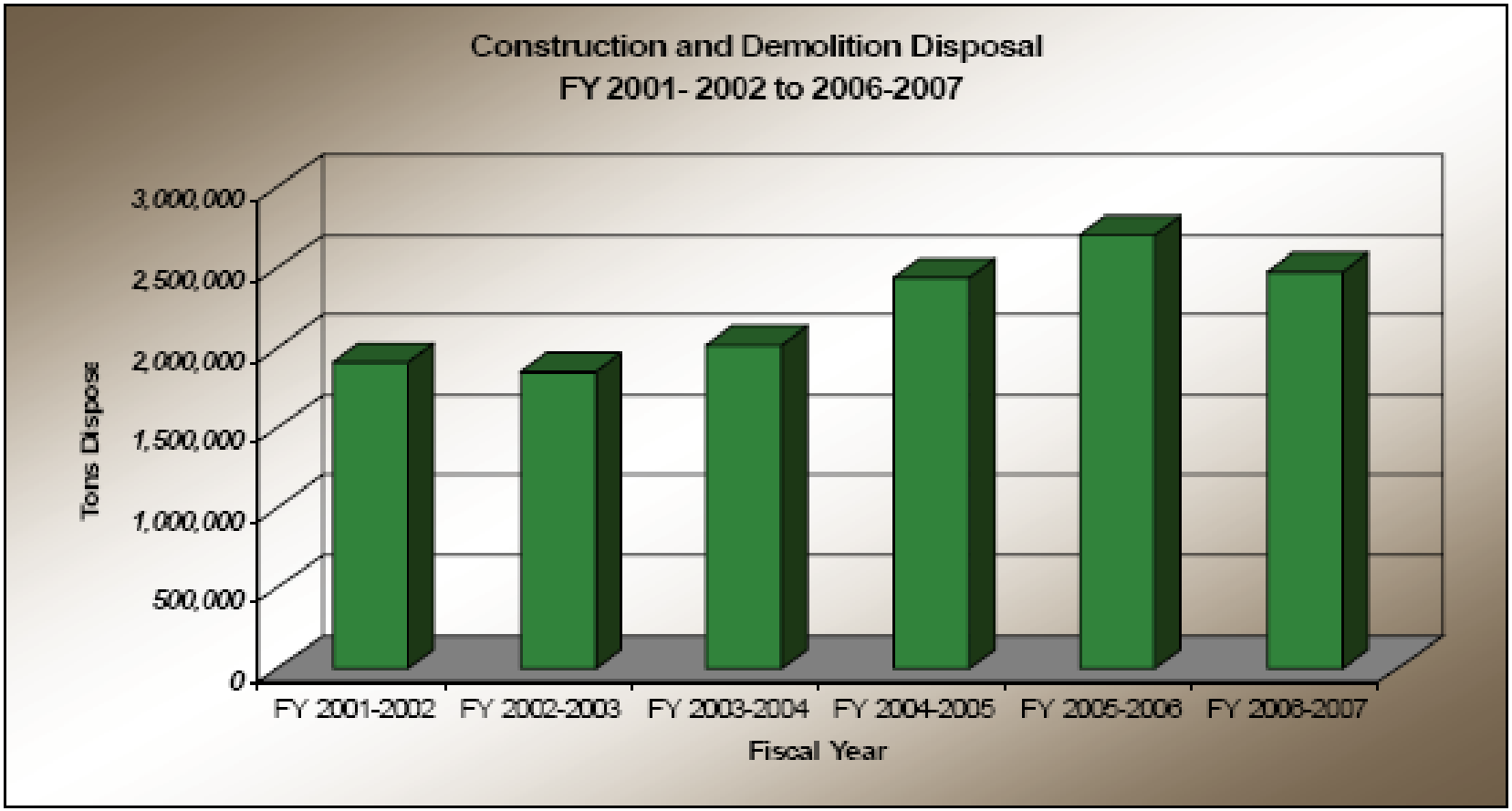

Construction and Demolition Disposal
FY 2001- 2002 to 2006-2007
Tons Disposed
3,000,000
2,500,000
2,000,000
1,500,000
1,000,000
500,000
0
FY 2001-2002
FY 2002-2003
FY 2003-2004
FY 2004-2005
FY 2005-2006
FY 2006-2007
Fiscal Year

Division of Waste
Management
NCDENR

Transfer Station Growth in North Carolina from 1990-2005

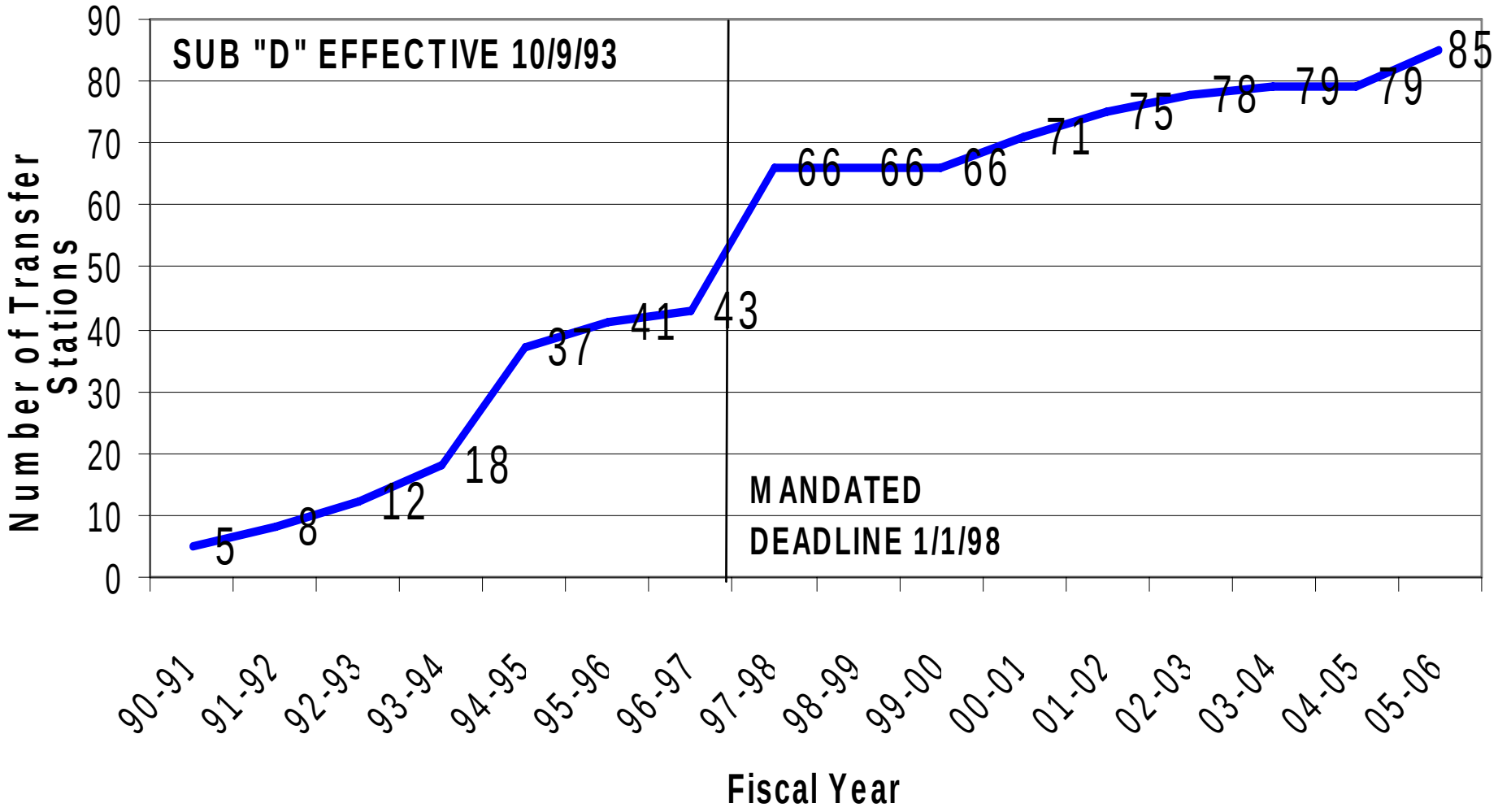
Transfer Station

Created - 1-08-07
Data - North Carolina Division of Solid Waste Database
Map by - Garrett Davis and Environmental Finance Center - UNC Chapel Hill
Funding by - NCDENR

Division of Waste Management

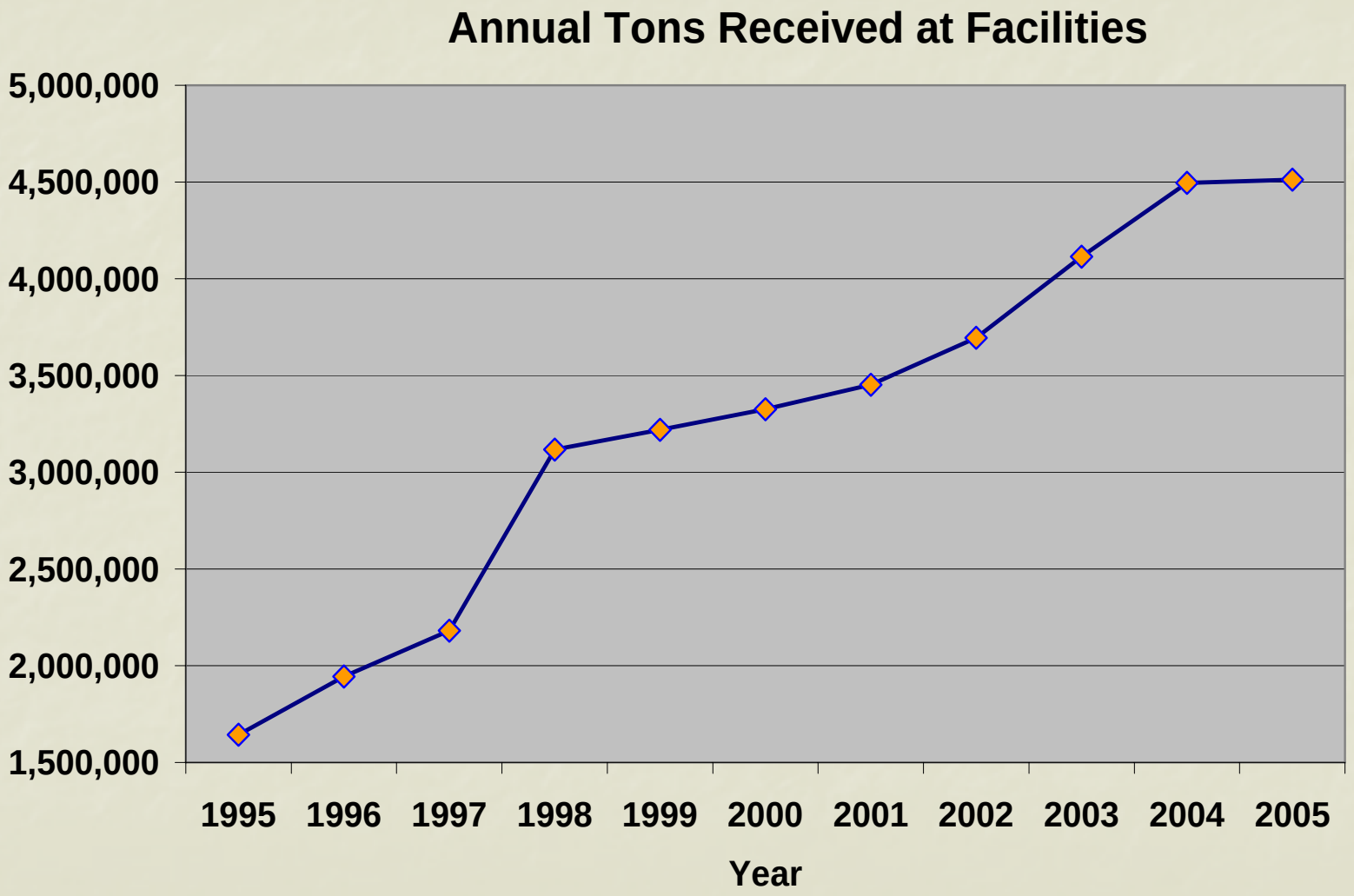
NC DENR

Active Transfer Stations

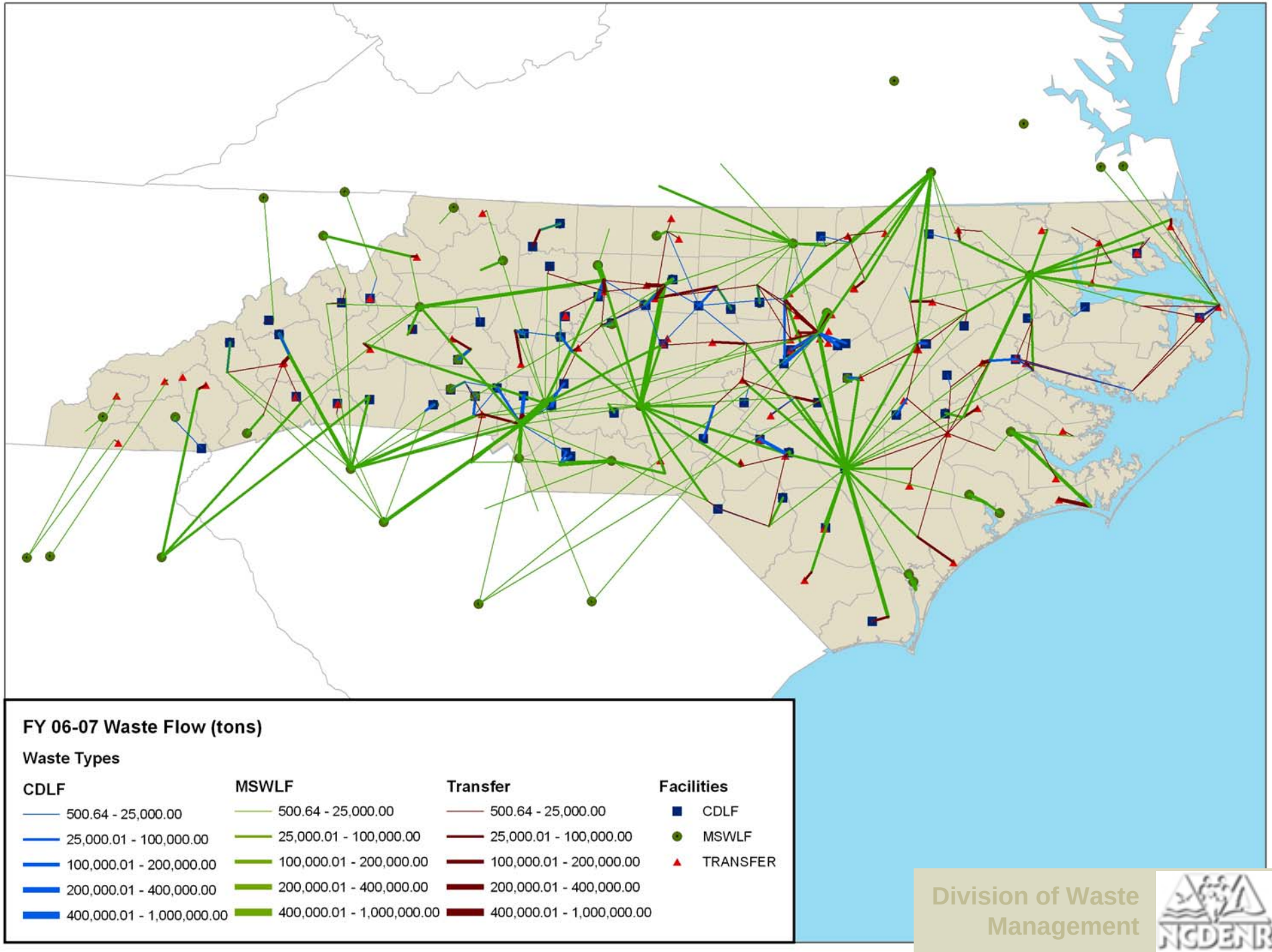


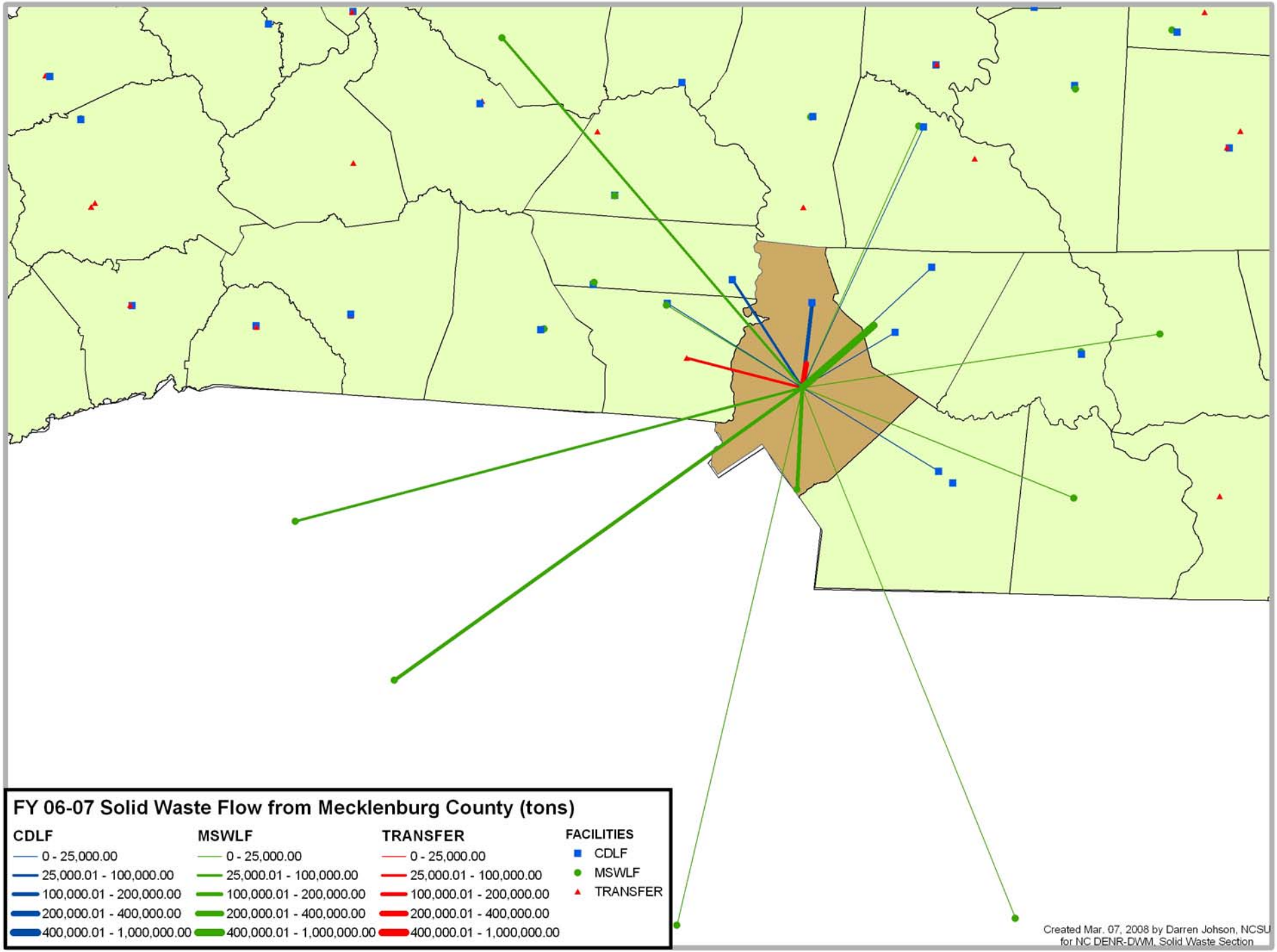
Division of Waste Management
NC DENR

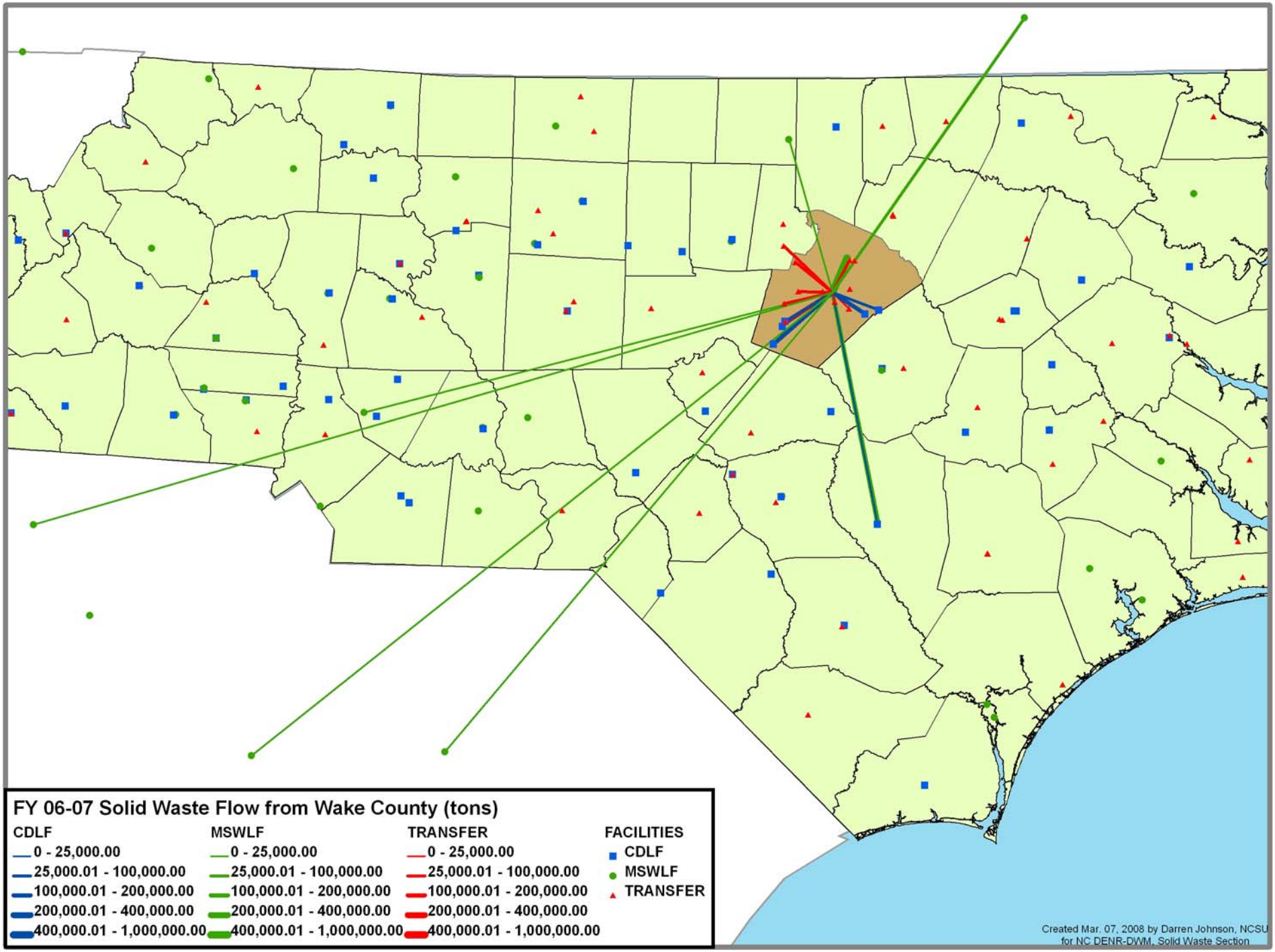
Transfer Stations



Division of Waste Management NC DENR


FY 06-07 Waste Flow (tons)
Waste Types
CDLF
500.64 - 25,000.00
25,000.01 - 100,000.00
100,000.01 - 200,000.00
200,000.01 - 400,000.00
400,000.01 - 1,000,000.00
MSWLF
500.64 - 25,000.00
25,000.01 - 100,000.00
100,000.01 - 200,000.00
200,000.01 - 400,000.00
400,000.01 - 1,000,000.00
Transfer
500.64 - 25,000.00
25,000.01 - 100,000.00
100,000.01 - 200,000.00
200,000.01 - 400,000.00
400,000.01 - 1,000,000.00
Facilities
CDLF
MSWLF
TRANSFER
Division of Waste Management
NCDENR


FY 06-07 Solid Waste Flow from Mecklenburg County (tons)
CDLF
0 - 25,000.00
25,000.01 - 100,000.00
100,000.01 - 200,000.00
200,000.01 - 400,000.00
400,000.01 - 1,000,000.00
MSWLF
0 - 25,000.00
25,000.01 - 100,000.00
100,000.01 - 200,000.00
200,000.01 - 400,000.00
400,000.01 - 1,000,000.00
TRANSFER
0 - 25,000.00
25,000.01 - 100,000.00
100,000.01 - 200,000.00
200,000.01 - 400,000.00
400,000.01 - 1,000,000.00
FACILITIES
CDLF
MSWLF
TRANSFER
Created Mar. 07, 2008 by Darren Johson, NCSU
for NC DENR-DWM, Solid Waste Section


FY 06-07 Solid Waste Flow from Wake County (tons)
CDLF
0 - 25,000.00
25,000.01 - 100,000.00
100,000.01 - 200,000.00
200,000.01 - 400,000.00
400,000.01 - 1,000,000.00
MSWLF
0 - 25,000.00
25,000.01 - 100,000.00
100,000.01 - 200,000.00
200,000.01 - 400,000.00
400,000.01 - 1,000,000.00
TRANSFER
0 - 25,000.00
25,000.01 - 100,000.00
100,000.01 - 200,000.00
200,000.01 - 400,000.00
400,000.01 - 1,000,000.00
FACILITIES
CDLF
MSWLF
TRANSFER
Created Mar. 07, 2008 by Darren Johnson, NCSU
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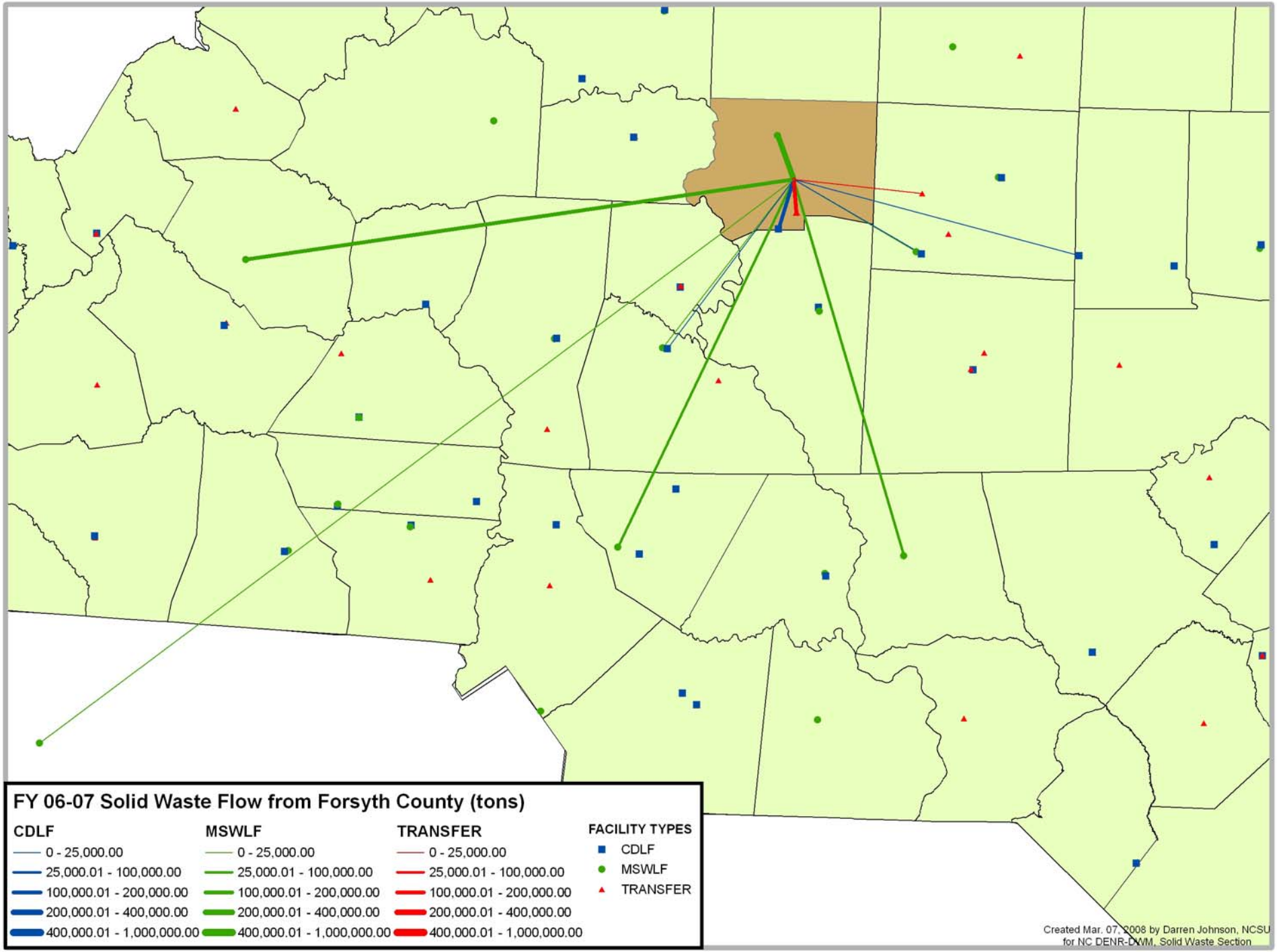
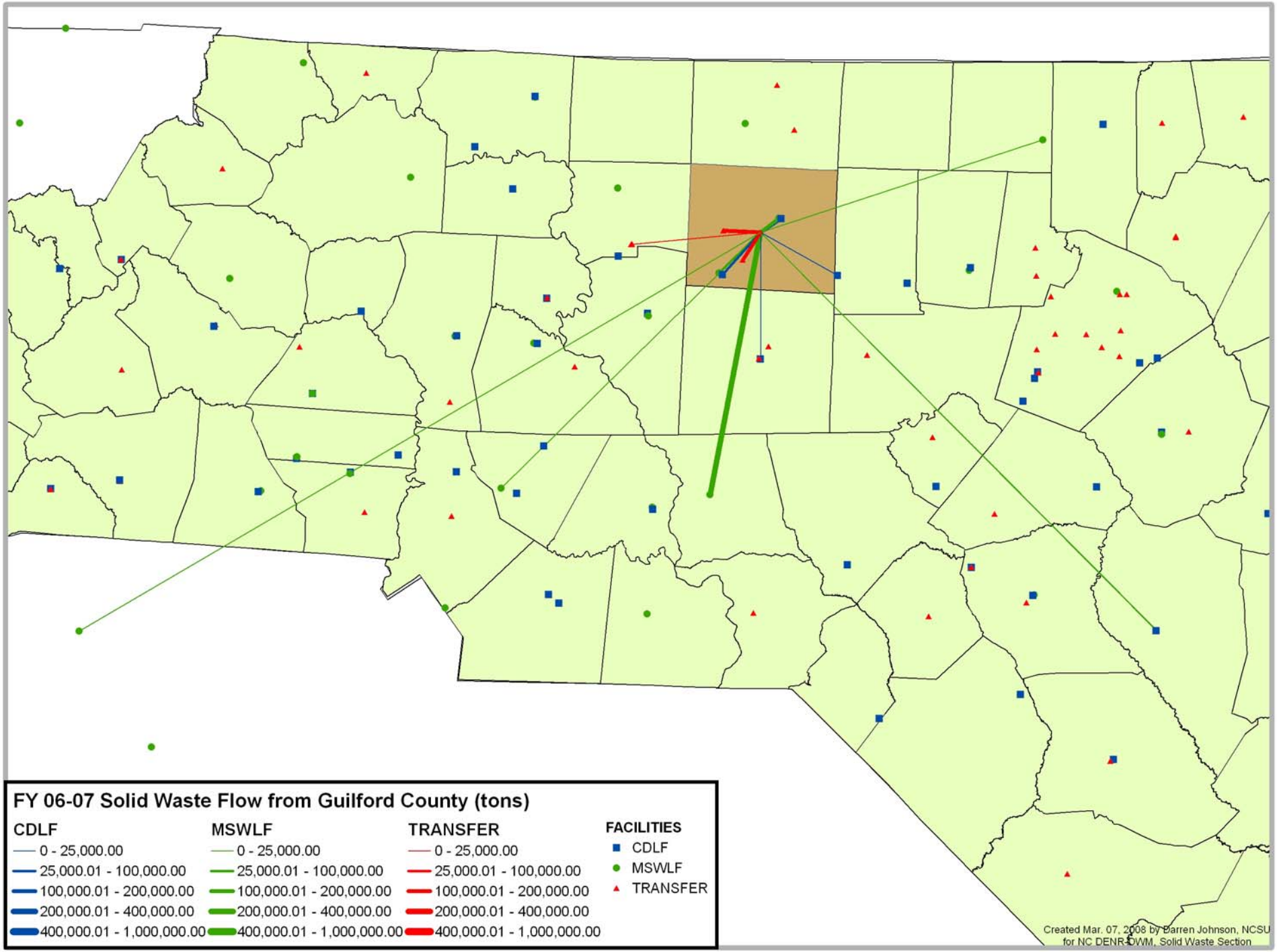
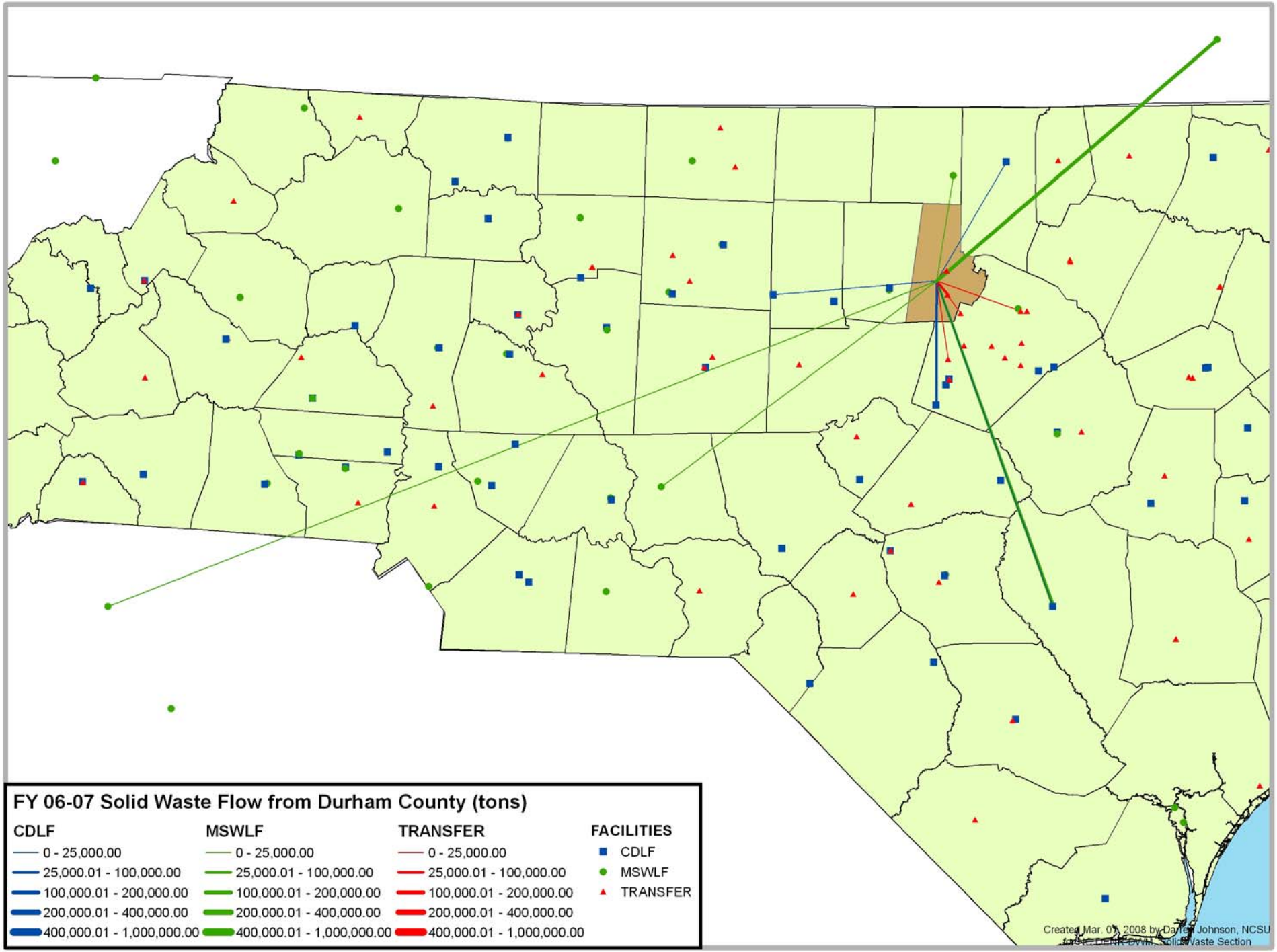
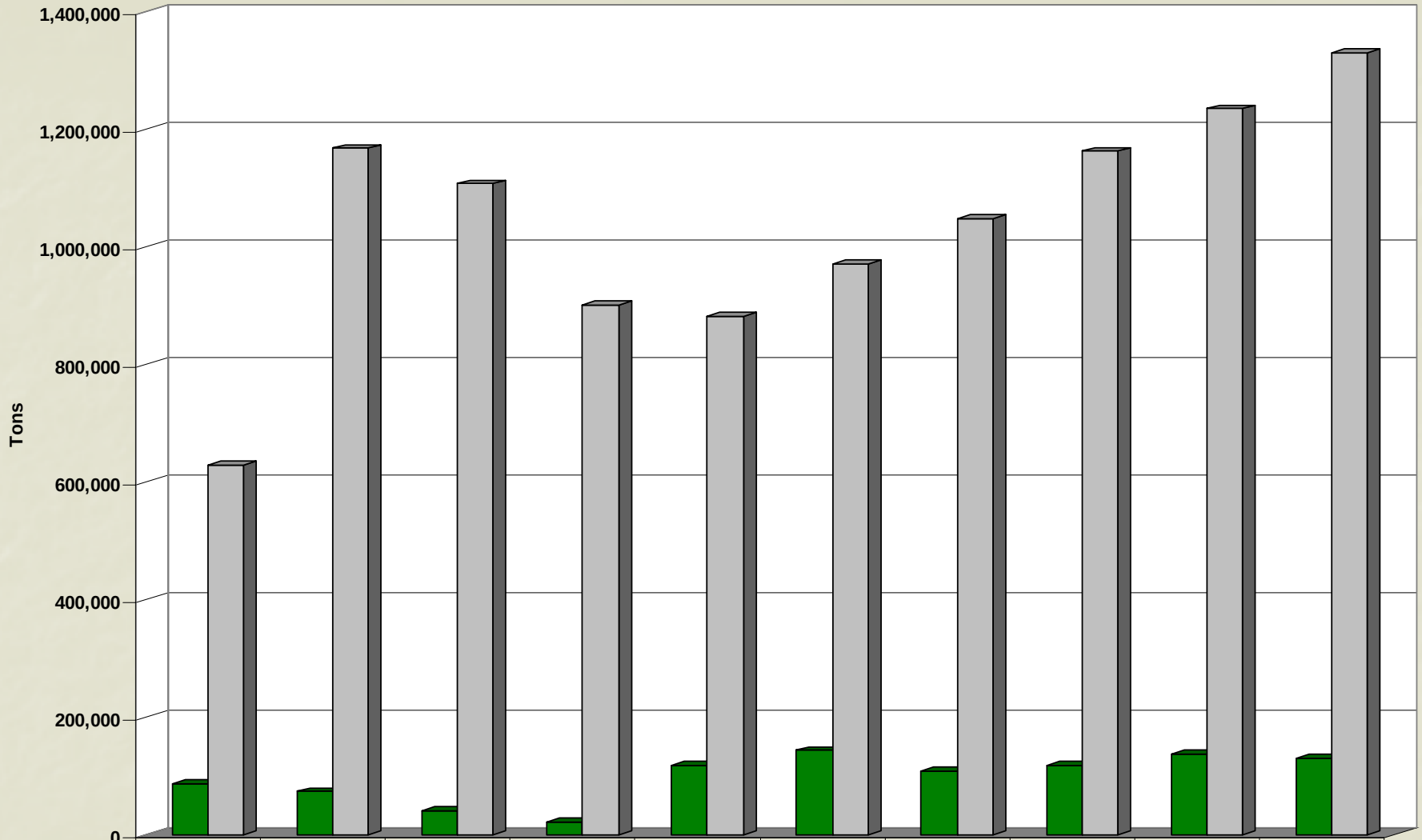

FY 06-07 Solid Waste Flow from Forsyth County (tons)
CDLF
0 - 25,000.00
25,000.01 - 100,000.00
100,000.01 - 200,000.00
200,000.01 - 400,000.00
400,000.01 - 1,000,000.00
MSWLF
0 - 25,000.00
25,000.01 - 100,000.00
100,000.01 - 200,000.00
200,000.01 - 400,000.00
400,000.01 - 1,000,000.00
TRANSFER
0 - 25,000.00
25,000.01 - 100,000.00
100,000.01 - 200,000.00
200,000.01 - 400,000.00
400,000.01 - 1,000,000.00
FACILITY TYPES
CDLF
MSWLF
TRANSFER
Created Mar. 07, 2008 by Darren Johnson, NCSU
for NC DENR-DWM, Solid Waste Section


FY 06-07 Solid Waste Flow from Guilford County (tons)
CDLF
0 - 25,000.00
25,000.01 - 100,000.00
100,000.01 - 200,000.00
200,000.01 - 400,000.00
400,000.01 - 1,000,000.00
MSWLF
0 - 25,000.00
25,000.01 - 100,000.00
100,000.01 - 200,000.00
200,000.01 - 400,000.00
400,000.01 - 1,000,000.00
TRANSFER
0 - 25,000.00
25,000.01 - 100,000.00
100,000.01 - 200,000.00
200,000.01 - 400,000.00
400,000.01 - 1,000,000.00
FACILITIES
CDLF
MSWLF
TRANSFER
Created Mar. 07, 2008 by Darren Johnson, NCSU
for NC DENR-DWM, Solid Waste Section


FY 06-07 Solid Waste Flow from Durham County (tons)
CDLF
0 - 25,000.00
25,000.01 - 100,000.00
100,000.01 - 200,000.00
200,000.01 - 400,000.00
400,000.01 - 1,000,000.00
MSWLF
0 - 25,000.00
25,000.01 - 100,000.00
100,000.01 - 200,000.00
200,000.01 - 400,000.00
400,000.01 - 1,000,000.00
TRANSFER
0 - 25,000.00
25,000.01 - 100,000.00
100,000.01 - 200,000.00
200,000.01 - 400,000.00
400,000.01 - 1,000,000.00
FACILITIES
CDLF
MSWLF
TRANSFER
Created Mar. 05, 2008 by Darren Johnson, NCSU
for NC DENR-DWM, Solid Waste Section

Imports / Exports

Division of Waste Management



	FY 1997-1998	FY 1998-1999	FY 1999-2000	FY 2000-2001	FY 2001-2002	FY 2002-2003	FY 2003-2004	FY 2004-2005	FY 2005-2006	FY 2006-2007
Imports	87,393	74,185	41,840	21,614	117,981	144,116	108,803	119,202	137,307	129,906
Exports	629,415	1,166,875	1,106,897	900,743	882,247	971,286	1,048,111	1,161,926	1,234,307	1,329,202

Fiscal Year

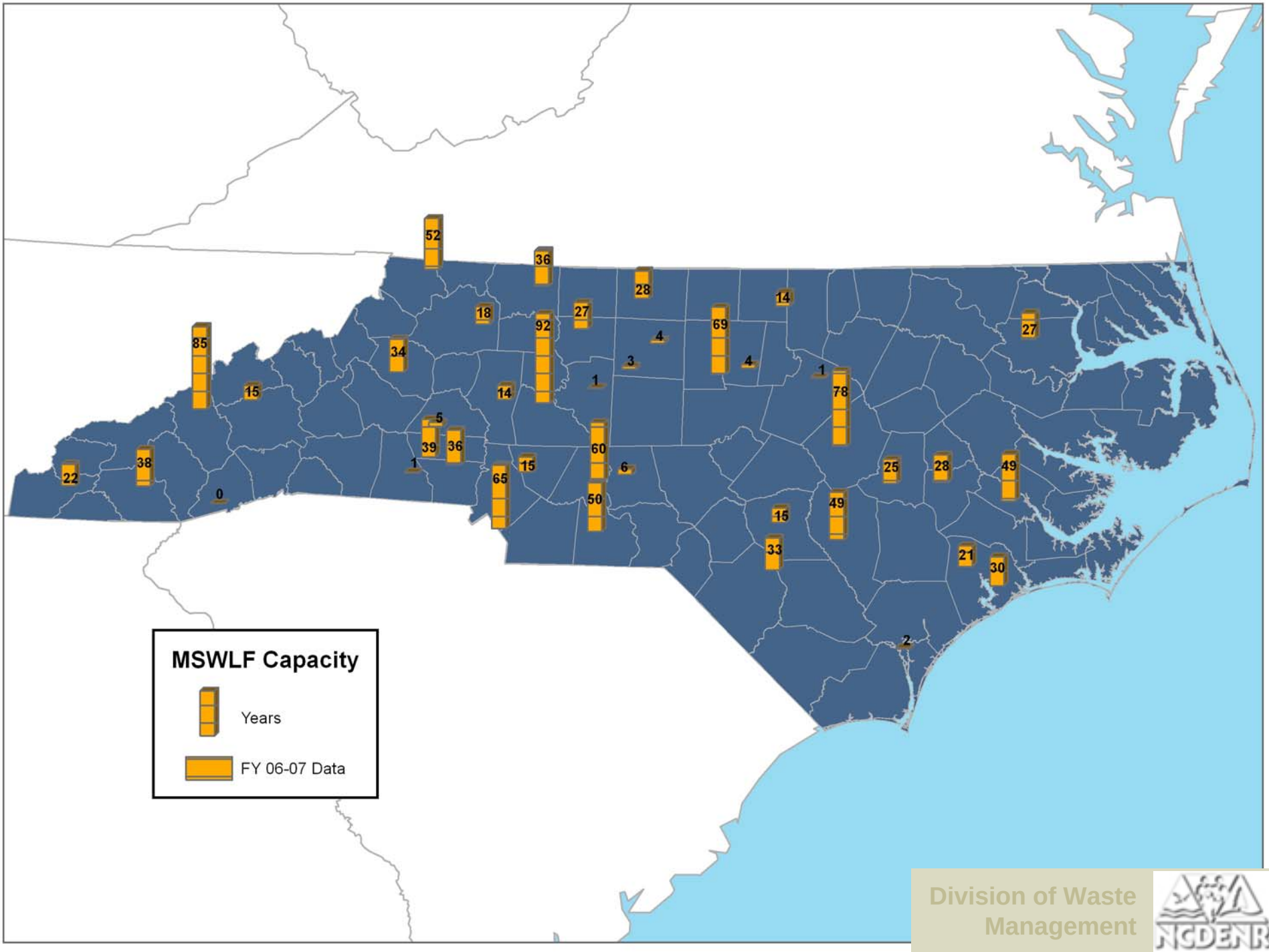
State-wide Municipal Solid Waste Landfills (MSWLF)

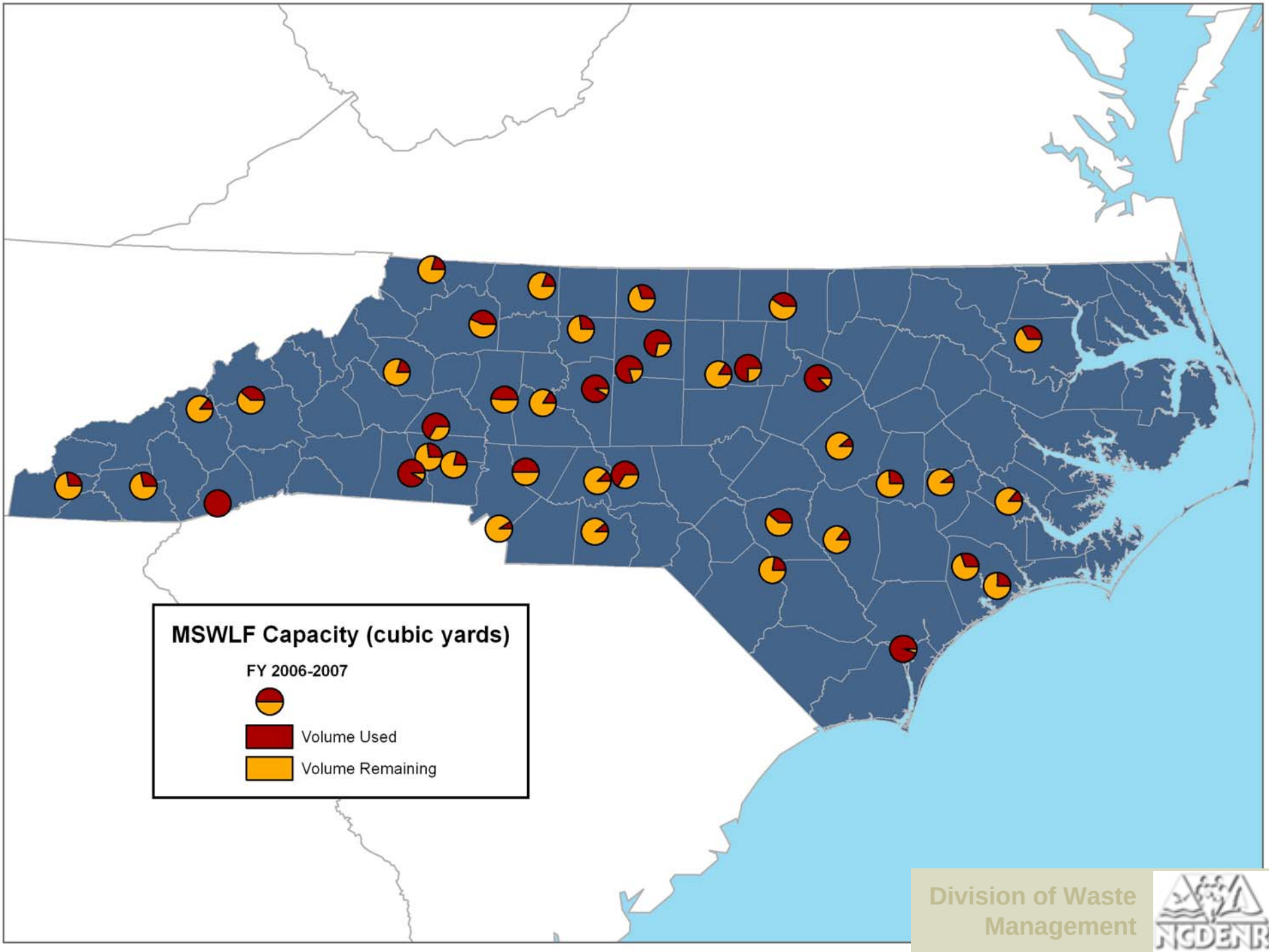
FY 2006-2007

40 MSW Landfills currently operating
Average facility size: 310.8 acres
Average waste footprint: 76.5 acres
Average compaction density: 0.60 tons/cy
Average years in operation: 11.1 years

	Average	FY2006-2007	Total
MSW Disposed (tons)	7,504,023.01	8,041,765.83	83,294,655.46

	Used	Constructed	Overall
Volume (yd^3)	120,867,902.3	149,872,127	385,942,182
Remaining Volume		29,004,224.7	265,074,279.7
Remaining Capacity			
Tons of Waste		17,279,574.66	157,920,815.11
Years (average)		2.30	21.04
Years (FY06-07)		2.15	19.64


MSWLF Capacity
Years
FY 06-07 Data
52
36
28
14
18
27
92
4
69
27
85
34
3
4
1
15
14
1
78
5
39
36
60
22
38
1
15
6
25
28
49
65
0
50
15
49
33
21
30
2
Division of Waste Management
NCDENR


MSWLF Capacity (cubic yards)
FY 2006-2007
Volume Used
Volume Remaining
Division of Waste Management
NCDENR

Projected Capacity Assumptions

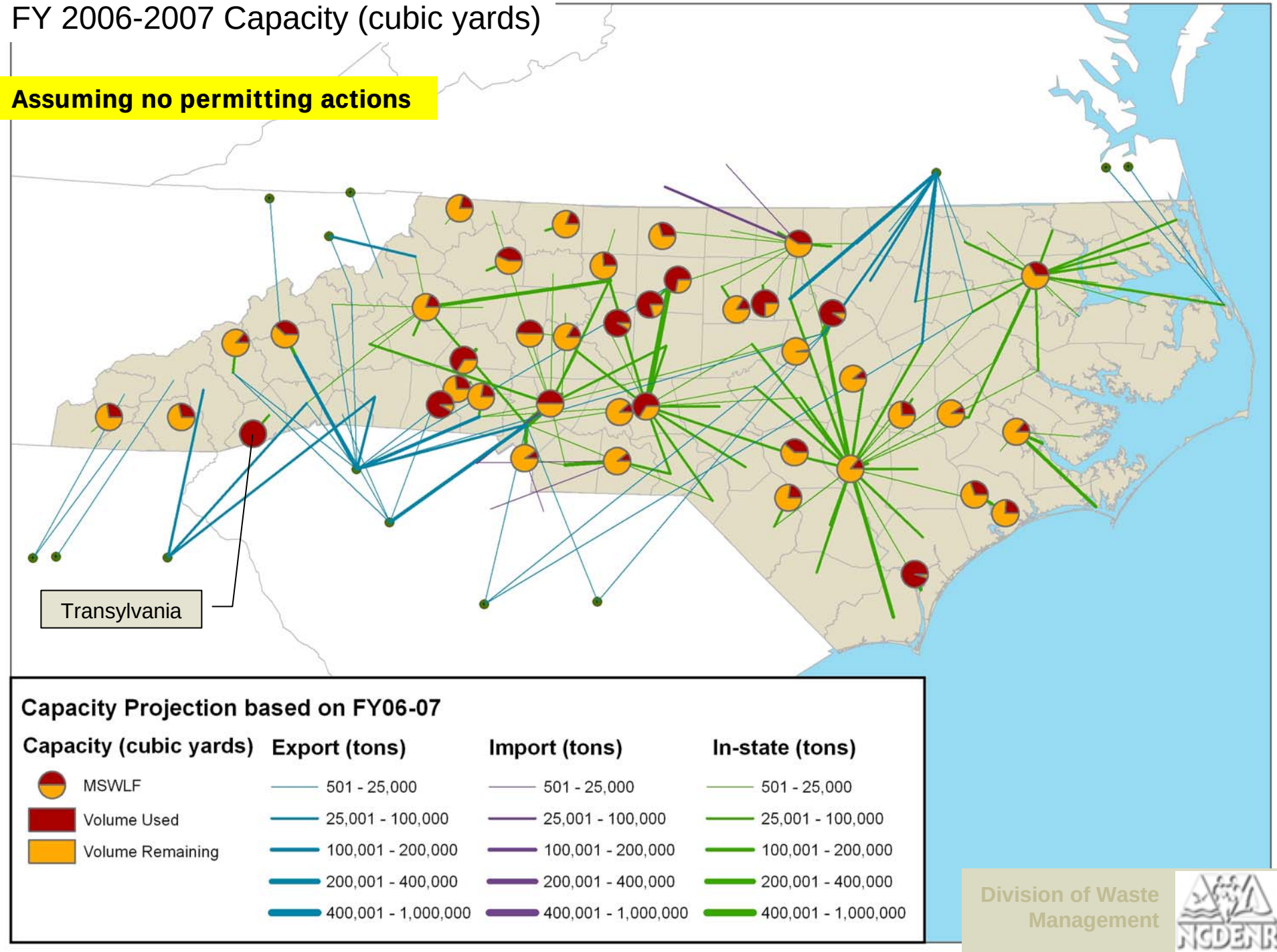
- FY06-07 Tons disposed will be yearly tonnage in future
- FY06-07 Compaction Density will remain the same
- Does not account for waste disposal growth or population growth

All data taken from FY06-07 Facility Annual Reports, except for Wake-South. For Wake-South, used data from Wake-North.

Projections given only FY06-07 Data

FY 2006-2007 Capacity (cubic yards)

Assuming no permitting actions



Division of Waste Management

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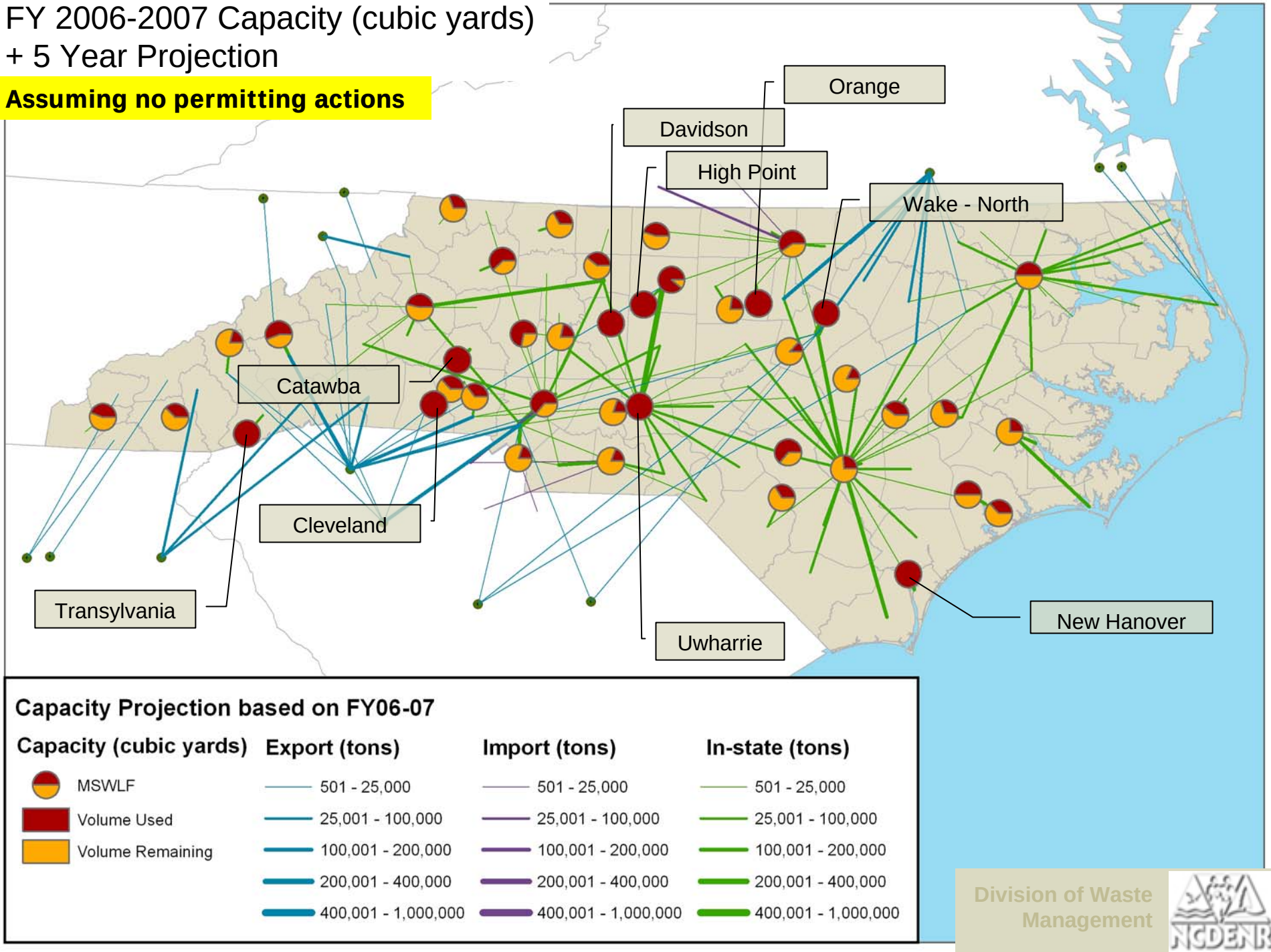
FY 2006-2007 Capacity (cubic yards) + 5 Year Projection

Assuming no permitting actions

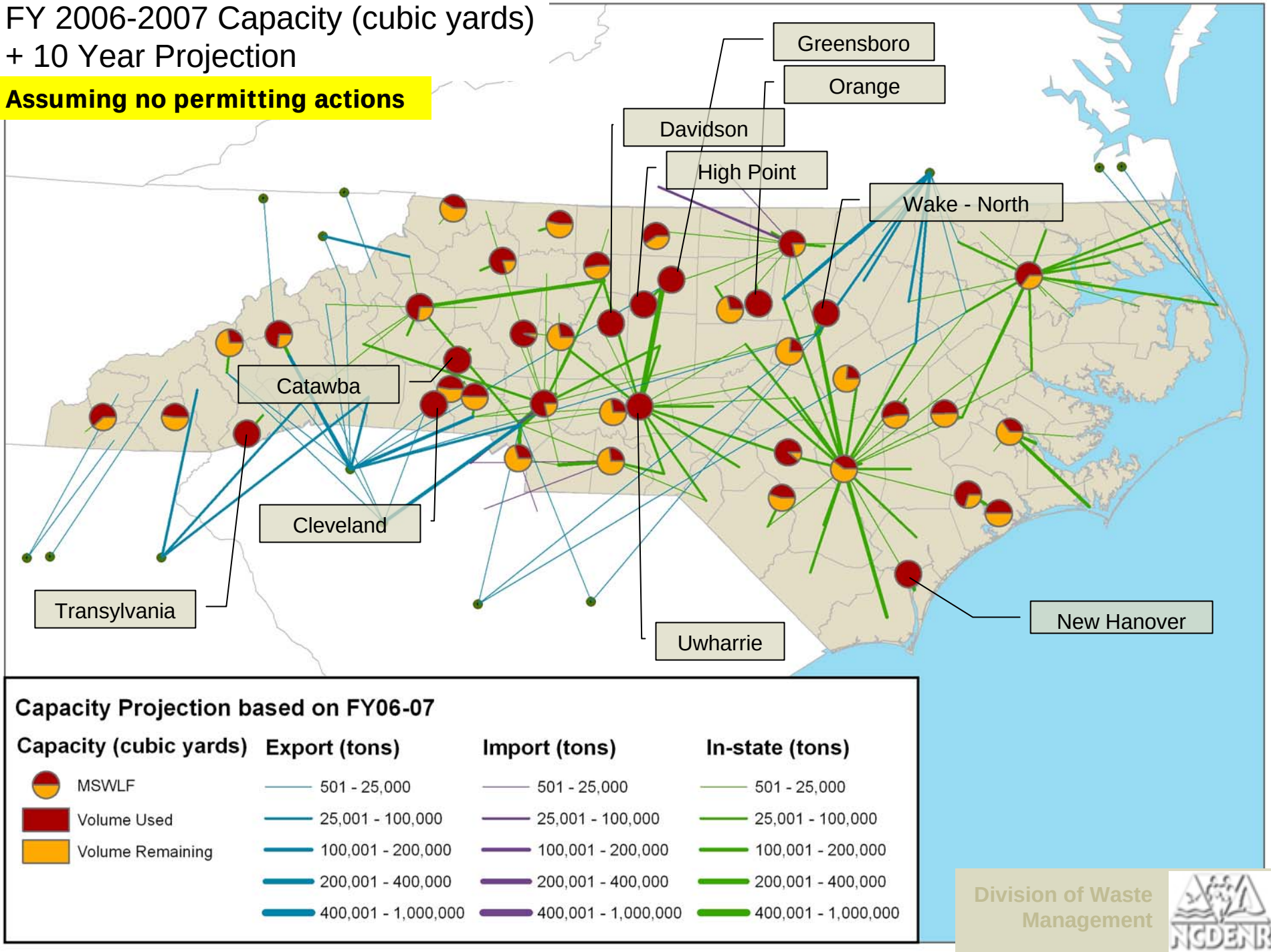


Division of Waste Management

NCDENR

FY 2006-2007 Capacity (cubic yards) + 10 Year Projection

Assuming no permitting actions

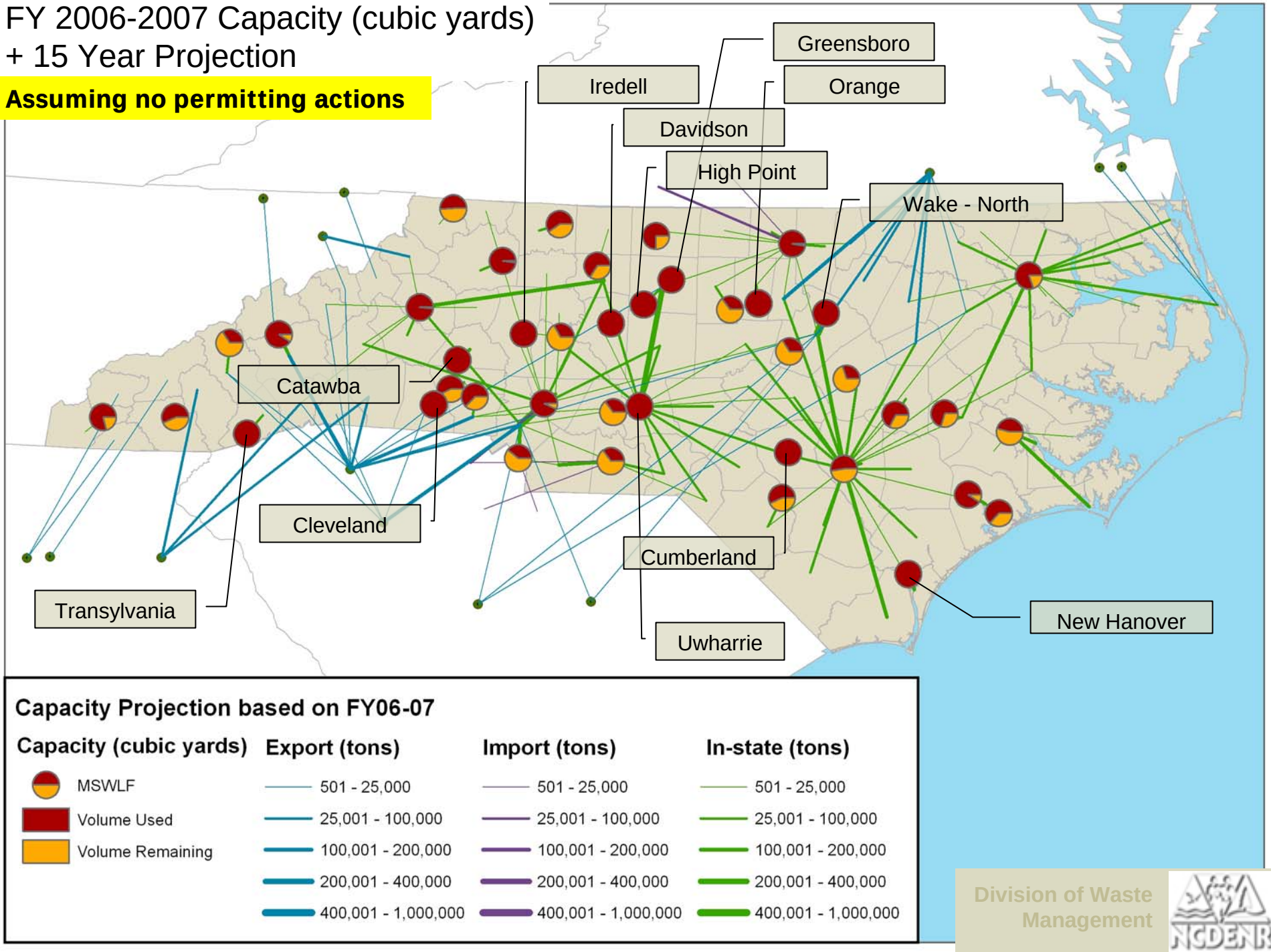


Division of Waste Management

NCDENR

FY 2006-2007 Capacity (cubic yards) + 15 Year Projection

Assuming no permitting actions

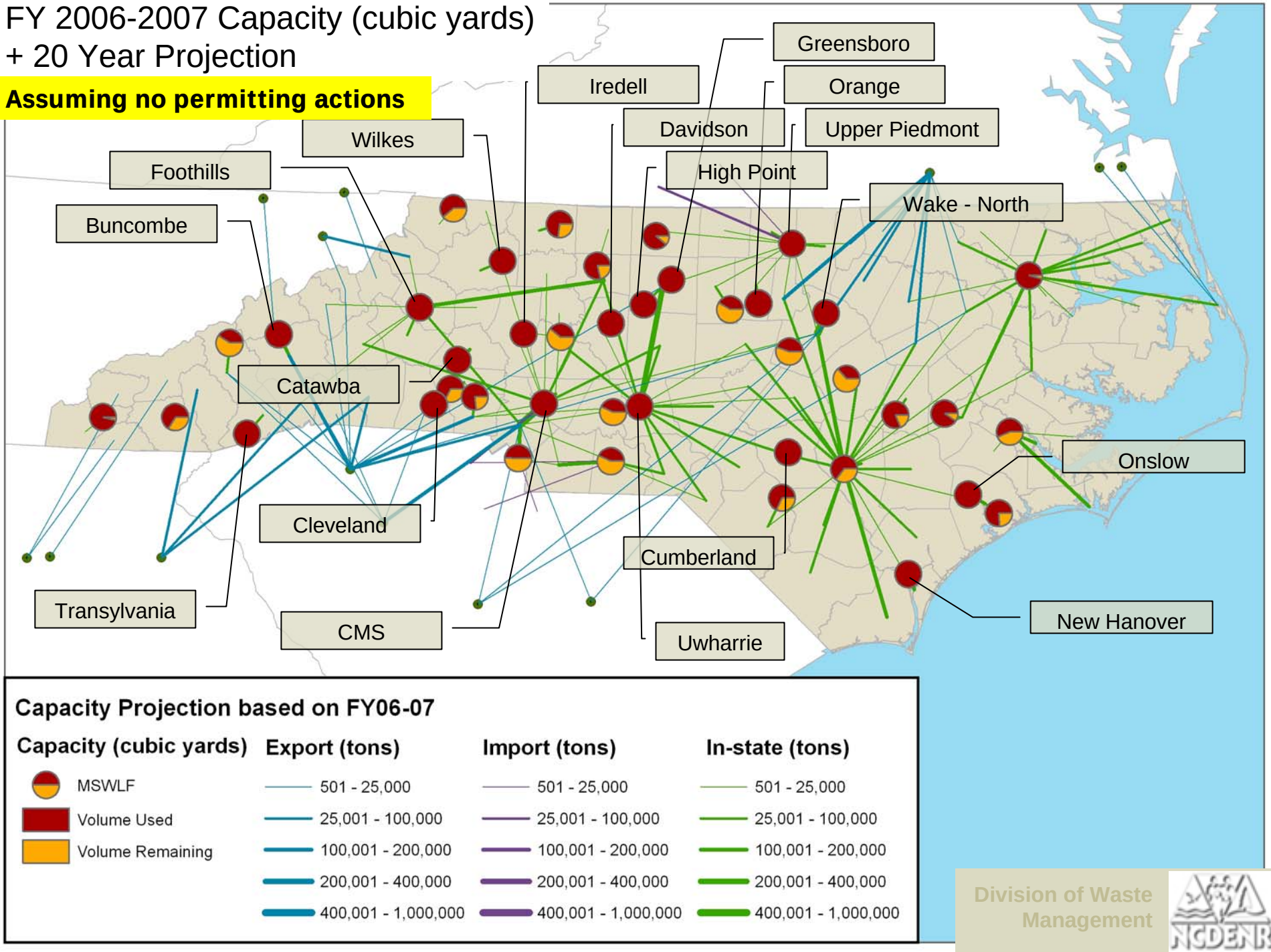


Division of Waste Management

NCDENR

FY 2006-2007 Capacity (cubic yards) + 20 Year Projection

Assuming no permitting actions



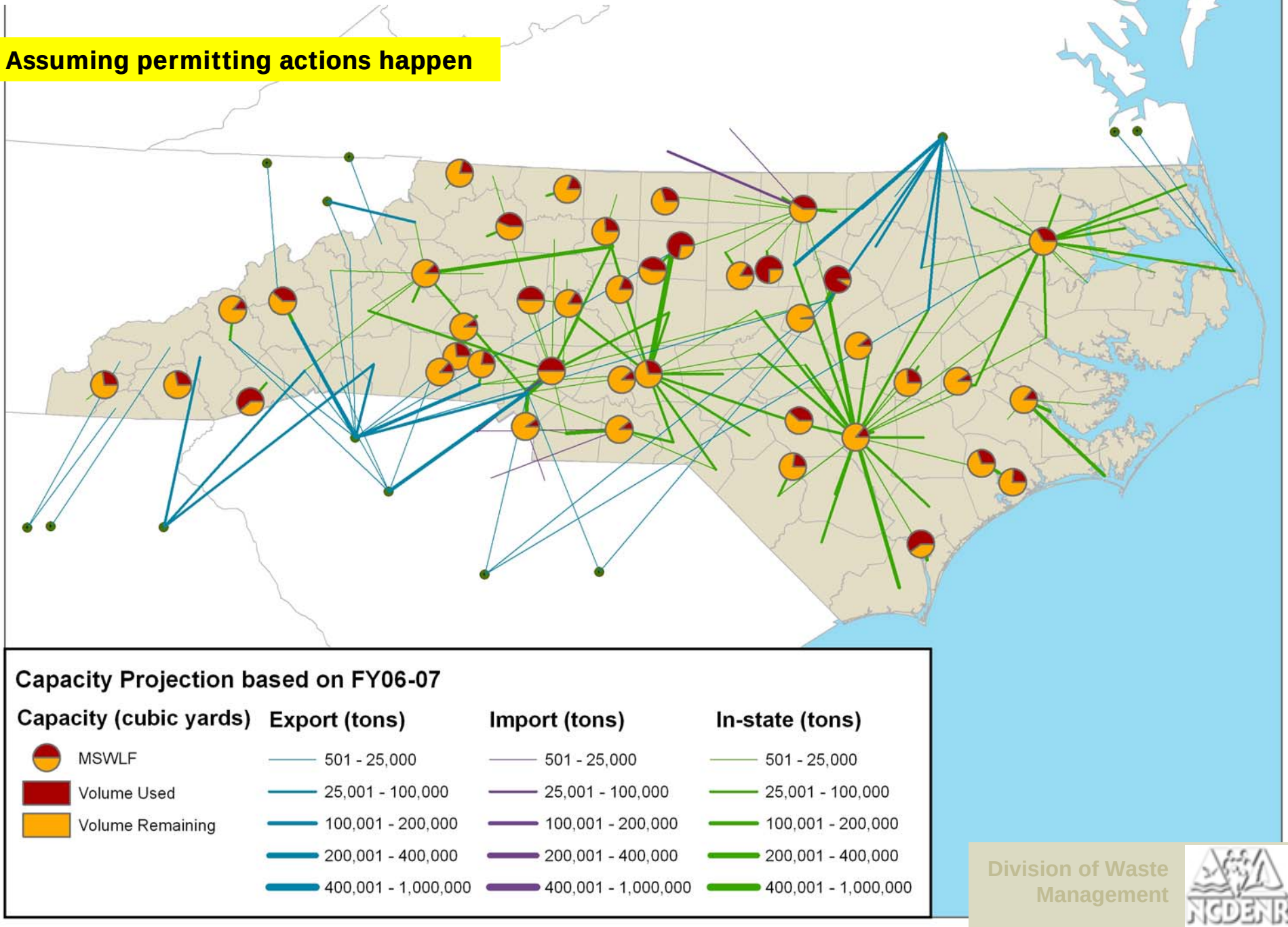
Division of Waste Management

NCDENR

Projections based on known upcoming permitting actions

FY 2006-2007 Capacity (cubic yards) - proposed

Assuming permitting actions happen

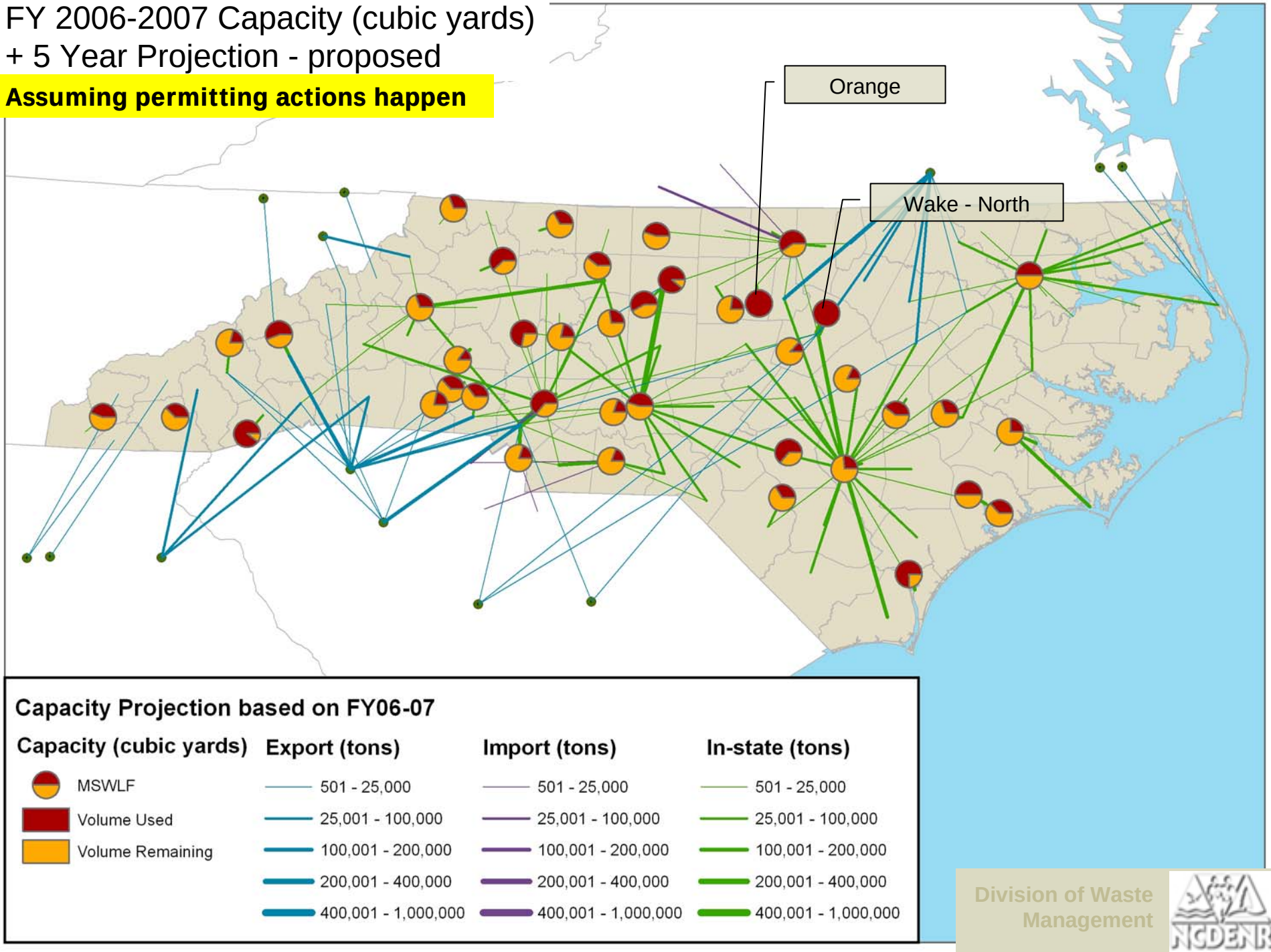


Division of Waste Management

NCDENR

FY 2006-2007 Capacity (cubic yards) + 5 Year Projection - proposed

Assuming permitting actions happen

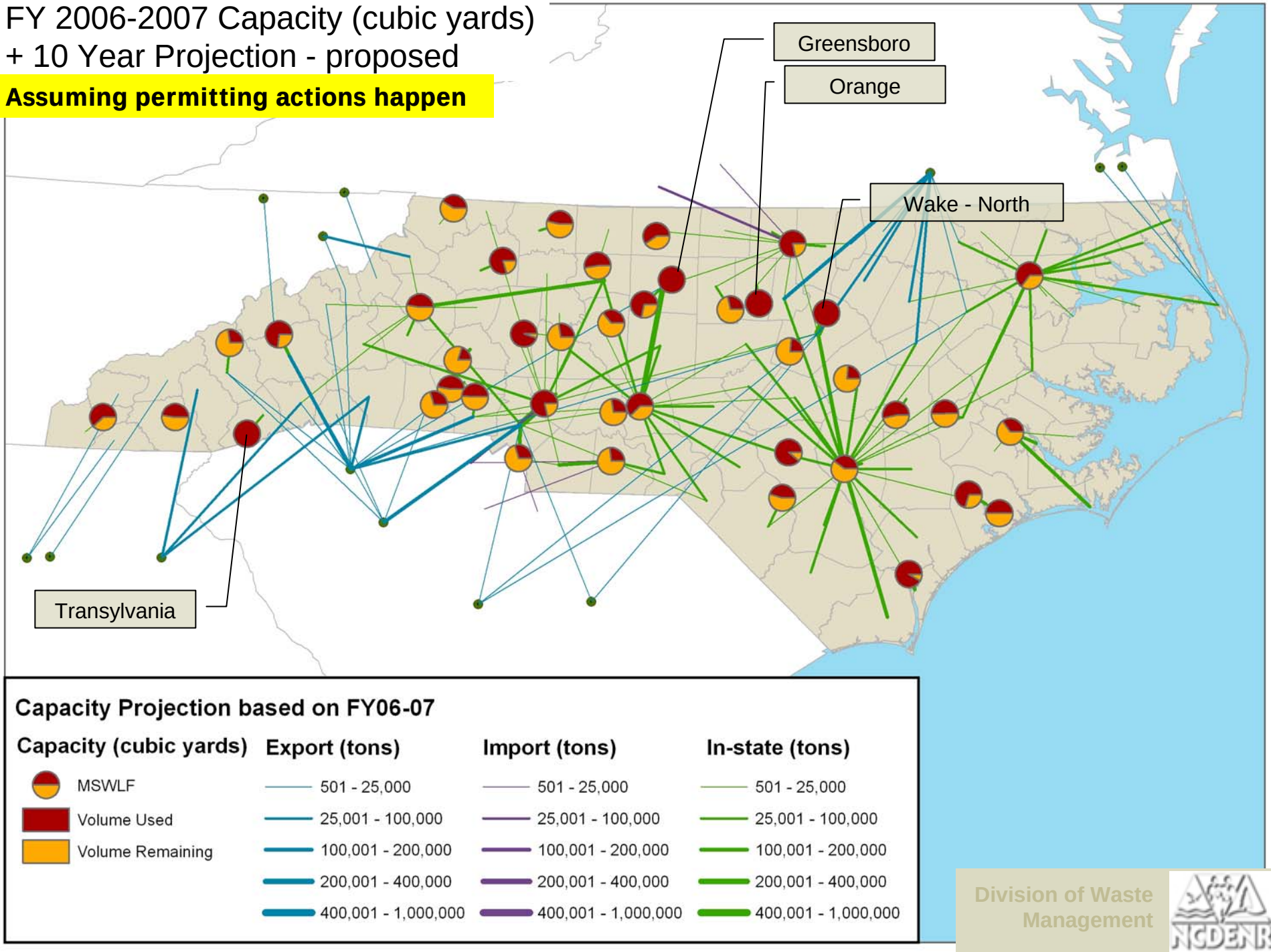


Division of Waste Management

NCDENR

FY 2006-2007 Capacity (cubic yards) + 10 Year Projection - proposed

Assuming permitting actions happen

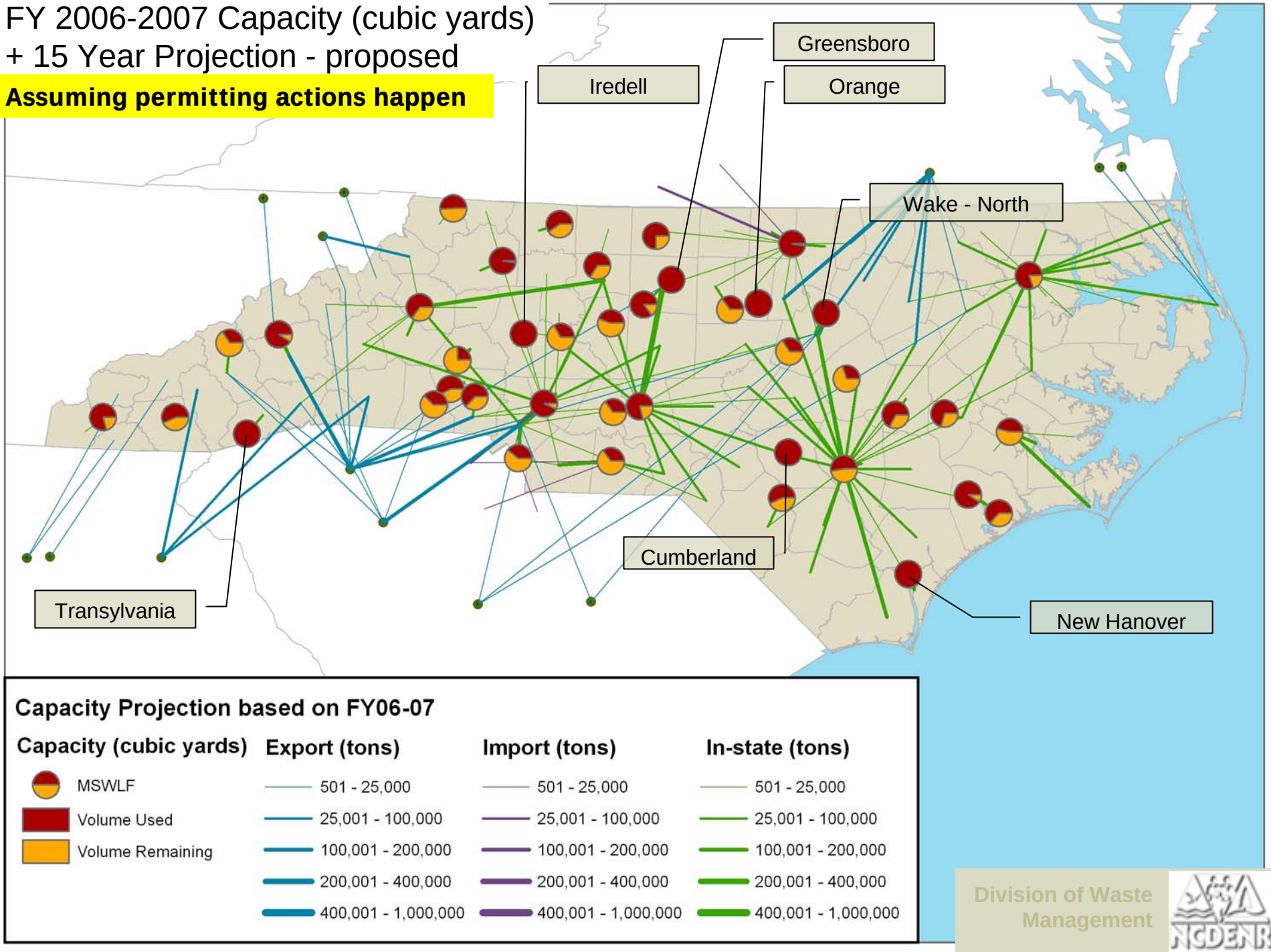


Division of Waste Management

NCDENR

FY 2006-2007 Capacity (cubic yards) + 15 Year Projection - proposed

Assuming permitting actions happen

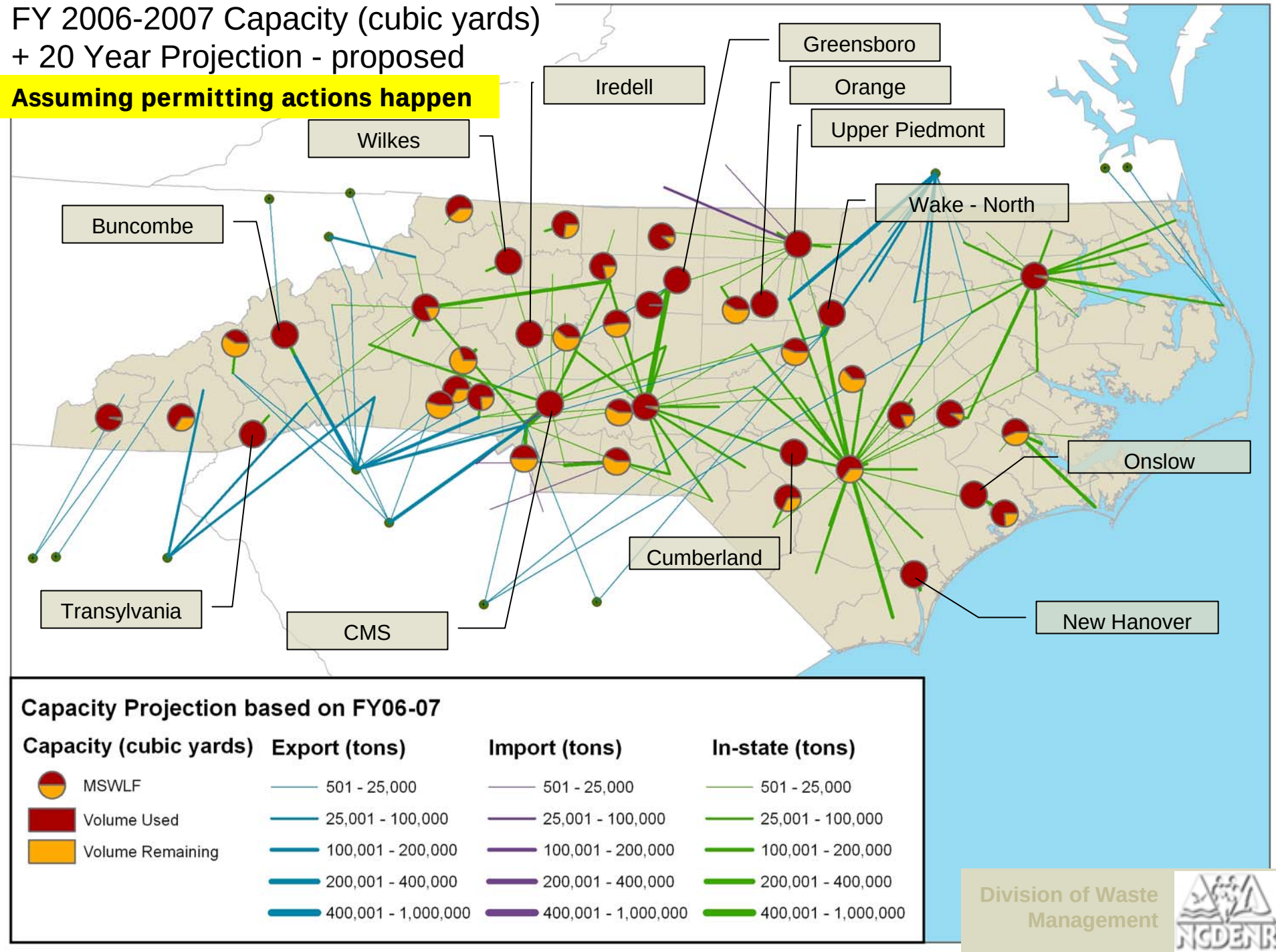


Division of Waste Management

NCDENR

FY 2006-2007 Capacity (cubic yards) + 20 Year Projection - proposed

Assuming permitting actions happen



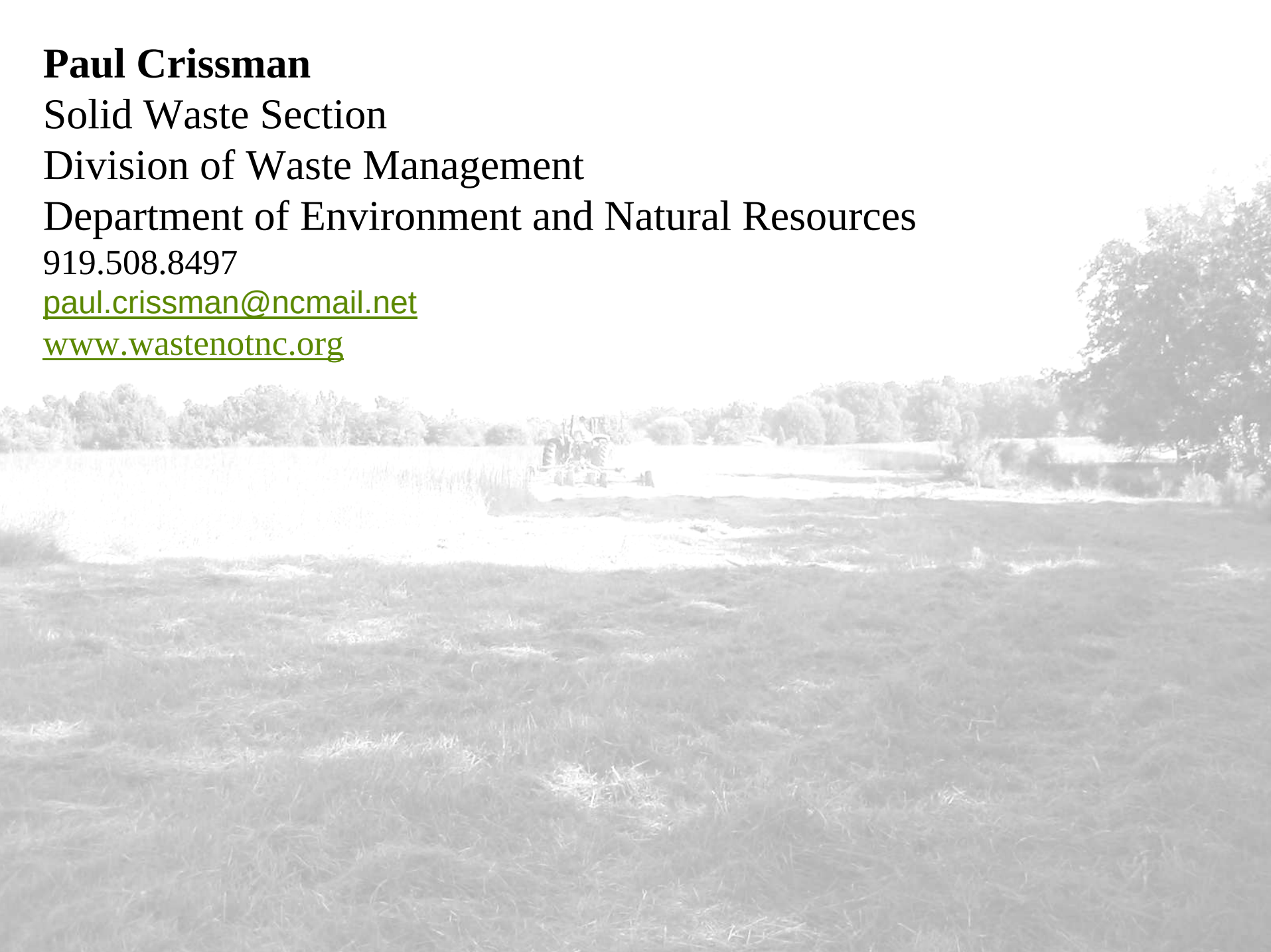
Division of Waste Management

NCDENR

Solid Waste in North Carolina
The Future:

We have a lot of Waste to Manage

Division of Waste Management

NCDENR

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