

Report Card for North Carolina's Infrastructure – 2009 Update  
**AIRPORTS**

**Overview**

Despite large construction efforts at the three largest Air Carrier airports in the state, little has been done to address the condition of pavements at the majority of the airports in North Carolina. Overall, the plan to upgrade inadequate pavements is in place, but funding has not been provided to implement that plan. **As a result, the state's airports infrastructure grade remains a D+.**

**Recommendations and Progress**

- Overall, North Carolina's airports have had a good safety record. Passenger and employee safety should remain a top priority.
- Adequate funding to improve deteriorating pavement has not been provided.
- Institute a dedicated source of funding to meet maintenance requirements, especially for the General Aviation airports (aviation fuel tax, user fees at GA airports, etc.).
- Use state funding to augment FAA Airport Improvement funds for Air Carrier airports to meet the growing demand.
- Consider opportunities to earmark aircraft property taxes for airport improvements.
- Explore innovative delivery methods such as Design Build to save time and/or cost on new construction and maintenance projects.
- Encourage a shift from prescriptive specifications to performance-based specifications.

**Grade Breakdown**

<b>Pavement Condition</b> (Less than 50% of pavement areas are rated Excellent or Good)	D	(30%)
<b>Funding</b> (Funding has not been provided to the extent needed to maintain facilities)	F	(30%)
<b>Safety</b> (Good overall record, but not perfect)	B	(20%)
<b>Passenger Cost / Satisfaction</b> (Near-average rankings in all categories surveyed)	C	(20%)
<b>Overall:</b>	<b>D+</b>	

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**BRIDGES**

**Overview**

Thirty-one percent of North Carolina's 18,182 highway bridges are considered structurally deficient or functionally obsolete, a one percent improvement since 2006. The cost to replace these deficient structures is estimated to be approximately \$8 billion. **As a result, the state's bridge infrastructure grade remains a C-.**

**Recommendations and Progress**

- Ensure that fewer than ten percent of the state's bridges are classified as structurally deficient or functionally obsolete by 2020.
- Use of funds from the Highway Trust Fund for non-transportation related projects must cease.
- Funding for bridge replacement projects should be increased.

Bridge sufficiency ratings range from zero to 100. A lower rating indicates a more deficient structure. Sufficiency ratings from the 2006 and 2008 Deficient Bridge List, compiled by the North Carolina Department of Transportation - Bridge Management Unit, are as follows:

<i>Sufficiency Rating</i>	<i>Number of Bridges 2006</i>	<i>Number of Bridges 2008</i>
Less than 10	130	181
10-20	250	313
20-30	490	528
30-40	620	598
40-50	1,160	1,126

A total of 2,650 bridges had a sufficiency rating of less than 50 in 2006, while 2,746 bridges had a sufficiency rating of less than 50 in 2008, a four percent increase.

**Grade Breakdown**

<b>Funding</b> - expected 75 years to replace all the substandard bridges	D	(33%)
<b>Inspections</b> - exclusion of most pedestrian bridges	B	(33%)
<b>Condition</b> – 31 percent of the state's bridges are substandard	D+	(33%)

**Overall:** **C-**

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**DAMS**

**Overview**

Twenty-three percent of North Carolina's 5,397 dams are classified as high hazard, an increase of one percent since 2006. The estimated cost to rehabilitate the most critically deficient structures is approximately \$400 million. **As a result, the state's dam infrastructure grade remains a D.**

**Recommendations and Progress**

- Increase staff and budget levels for the Dam Safety Office to accommodate for current and future inspection needs and permitting reviews.
- Develop a comprehensive information resource system to support the maintenance and improvement of dam safety.
- Develop emergency action plans for all high hazard dams in the state by 2010.

The number of dams in North Carolina, by hazard classification, is as follows:

<i>Hazard Classification</i>	<i>Number of Dams</i> 2006	<i>Number of Dams</i> 2008
High	1,148	1,218
Intermediate	764	768
Low	3,338	3,411

The annual budget for North Carolina's entire dam safety program is less than \$1.2 million. If problems are discovered during the inspection, a notice of deficiency (NOD) letter is sent to the owner. There are currently more than 224 NODs outstanding in North Carolina, a 60 percent increase since 2006.

**Grade Breakdown**

**Funding** – Due to a lack of a consistent source funding F (33%)  
**Emergency Action Plans** - Plans do not meet current federal guidelines F (33%)  
**Condition** – Only 15 percent of dams inspected received NOD letters last year B (33%)

**Overall: D**

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**DRINKING WATER**

**Overview**

North Carolina is currently growing at a rate to soon become the 8<sup>th</sup> most populous state in the Nation by 2010. North Carolina has over 530 public water systems statewide which serve approximately 67% of the state's population. The majority of these systems are owned and operated by incorporated municipalities. Based upon reports from the state's public water system managers, the actual number of people served by public water systems statewide is estimated to be over 5.5 million. The 2003 Environmental Protection Agency Drinking Water Survey documented a 20-year infrastructure need of \$10.98 billion for North Carolina. According to a study by the NC Rural Economic Development Center, Inc, the state's water systems had a documented funding need in excess of \$7 billion through year 2030. The quantity and quality of the drinking water is crucial to our continued growth, health and safety, and is the lifeblood of our state and its citizens. **As a result, the state's drinking water infrastructure is assigned a grade of B-.**

**Recommendations and Progress**

- Increased funding support has been provided through low interest loans, matching grants, special appropriations and trust funding, which has reduced the funding gap. Additional funding of this type is needed.
- Several towns and water utilities have undertaken projects to reduce the "unaccounted for water". Several of the projects that have been funded via the State Revolving Loan Fund, the Rural Center Clean Water Partners Program and the United States Agricultural Department (USDA) Economic Rural Development loan program, as well as funding from the water system rate payers, have focused on reducing unaccounted for water.
- Most, if not all, the systems statewide currently have a rate structure that penalizes wasteful users and encourages thoughtful use. Additionally, drinking water utilities are becoming more skilled at establishing self sufficiency through rate making and proper budgeting for operational costs.

**Grade Breakdown**

<b>Ability to match required improvements with available funds</b>	B-	(33%)
<b>Physical condition</b>	B	(33%)
<b>Ability to meet funding needs without state subsidy</b>	C+	(33%)

**Overall: B-**

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**RAIL**

**Overview**

Passenger and freight rail play a vital role in the economic development of the state. North Carolina has 3,250 main-line miles of track, 79 percent of which are Class I railroads, such as Norfolk Southern and CSX, and the remaining are short-line and terminal railroads. The North Carolina Statewide Transportation Plan 2006 Mid-Cycle Update identified \$799 million in freight rail needs over the next 25 years. In addition, the North Carolina Rail Plan 2000 identified \$3.5 billion in passenger rail needs.

The success of the light rail system in Charlotte and the recent higher gas prices point to the need for alternative choices in passenger transportation, including passenger rail. The need for additional freight rail capacity is becoming more critical even though recent freight volumes are down due to the recession. **As a result, the state's rail infrastructure is assigned a grade of C.**

**Recommendations and Progress**

The Class I and short-line railroads, the North Carolina Department of Transportation (NCDOT) and the North Carolina Railroad Company (NCR) have all made significant investments in rail infrastructure, including:

- Grade crossing upgrades in eastern North Carolina to improve the safety of both highway and rail traffic.
- NCR's study to evaluate the infrastructure required to operate peak-hour commuter rail services between Greensboro and Goldsboro.
- The NCDOT Rail Division is working with railroads to improve crossing safety statewide.
- Rail infrastructure improvements between Greensboro and Charlotte to provide additional capacity and increase reliability for both freight and intercity passenger operations.

Recommendations include:

- Improve rail facilities and restore abandoned rail lines to allow increased access to North Carolina ports and military installations.
- Accelerate the use of rail for freight movements to reduce highway congestion, improve highway safety and permit economic expansion.
- Expand the existing intercity rail passenger services.
- Invest in the Southeast High Speed Rail Corridor.
- Continue investing in grade crossing improvements and closures to improve safety.
- Improve short-line railroad facilities to allow for the use of currently operated freight rail cars to continue serving the agricultural and industrial customers located along their lines and to promote economic development.

**Grade Breakdown**

<b>Funding</b> – The need for a consistent funding source	C- (33%)
<b>Freight Rail</b> - Needed upgrades to capacity and condition	C+ (33%)
<b>Passenger Rail</b> – Need for additional passenger service	C- (33%)
<b>Overall:</b>	<b>C</b>

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**ROADS**

**Overview**

The Report Card released in 2006 stated that funding for roads in the state would be at least \$29 billion short of needs over the next 25 years. Shortly after the release, the then North Carolina Secretary of Transportation stated that ASCE's estimate was woefully short, and the shortfall was probably closer to \$60 billion. Funding has decreased over the past few years, and congestion on urban and rural roads has increased. **As a result, the state's roads infrastructure has been given a grade of D-.**

**Progress and Recommendations**

- The previous administration set up a state-wide task force to explore solutions to the transportation problems facing North Carolina. The task force recommended several changes, including alternative funding sources not previously utilized, such as the Vehicle-Mile Traveled tax (VMT) as an alternative to the current per-gallon gas tax.
- The current administration has put a new and different emphasis on the office of the Secretary of Transportation, which may help solve some long-standing problems such as disparities of funding projects in different regions of the state.
- Eliminate the annual transfer of funds from the Highway Trust Fund to the General Fund. (It is being phased out, but should be eliminated immediately.)
- Explore nontraditional funding sources (Public-Private Partnership, for example).
- Utilize nontraditional delivery methods, such as Design Build, whereby the design and construction are awarded under one contract so construction can begin before design is complete.
- Encourage a shift from prescriptive specifications to performance-based specifications.

**Grade Breakdown**

<b>Pavement Condition</b> (Less than 70% of roads are rated Good or Very Good)	D	(30%)
<b>Funding</b> (Up to \$60 billion shortfall over the next 25 years)	F	(30%)
<b>Congestion</b> (Ranked 48 of 50 in Urban Interstate Congestion)	D-	(20%)
<b>Safety</b> (10% more fatalities per 100 Million Vehicle Miles than US average)	D	(20%)
<b>Overall:</b>	<b>D-</b>	

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**SCHOOLS**

**Overview**

The April 2006 *North Carolina Public Schools Facility Needs Survey Preliminary Report* indicated a total funding need of \$9.7 billion through 2010 in order to address needs for new construction, additions and renovations. Through a combination of local bonds and qualified zone academy bonds for schools, approximately \$3.6 billion has been obtained between 2006 and 2008, creating a current need of approximately \$6.1 billion. Allowing for an increase in construction costs between 2005 and 2008 of 3.1 percent, the total funding need through 2010 is approximately \$6.3 billion for the needs identified in the 2006 report. Facility needs identified since the 2006 report are not included. **As a result, the state's public schools infrastructure grade remains a C-.**

**Recommendations and Progress**

- An updated facility needs survey has not been completed since 2006 to evaluate progress.
- Support the increased use of school construction bonds.
- Encourage school systems to explore alternative financing to facilitate construction, including lease financing and financing/ownership/use arrangements.
- Encourage school districts to adopt and follow regular, comprehensive construction and maintenance programs.
- Ensure money earmarked for the public school system is used for its intended purpose.

**Grade Breakdown**

<b>Renovations</b> - weighted more heavily due to the need to maintain facilities	D	(50%)
<b>Schools considered to be obsolete by 2010</b> - over 190 schools in 2006 report	B	(25%)
<b>Capacity</b> - thirteen percent of students in mobile units statewide in 2006 report	C	(25%)

**Overall:** C-

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**STORM WATER**

**Overview**

All too often, local cities and counties pay little attention to storm water infrastructure. Only when major flooding occurs in an area with inadequate drainage systems do storm water issues become newsworthy. In response to federally mandated regulations that have been passed down to the state for implementation, communities are now being required to address storm water management and the water quality of their streams, as well as take steps to reduce polluted storm water runoff. However, dedicated funding for storm water infrastructure is not typically available, nor have communities consistently budgeted to clean their drainage systems. **As a result, the state's storm water infrastructure grade remains a C-.**

**Recommendations and Progress**

- Develop permanent funding source for storm water improvements. In 2007, efforts were made to establish a statewide water infrastructure bond, but the legislation did not pass.
- Develop an infrastructure inventory database. As part of the Water 2030 Plan, the North Carolina Rural Economic Development Center began developing a statewide database which includes storm water infrastructure. Progress on the database has not been reported.
- Continue National Pollutant Discharge and Elimination System (NPDES) Phase II implementation of current and future communities targeted to protect receiving streams – 135 communities participated in the initial five-year permit cycle. Approximately 20 new communities will be added in the near future. Additional requirements for compliance are being considered by the North Carolina Department of Environment and Natural Resources (NCDENR).
- Develop standards for inspection and maintenance of best management practices (BMPs). NCDENR updated the state's BMP Manual, which includes guidelines for pollutant removal devices.

**Grade Breakdown**

<b>Floodplain development regulations</b> - 60 percent have regulations	C-	(25%)
<b>System Inventory Mapping</b> – 40 percent maintain a storm water map	D+	(25%)
<b>NPDES Phase II Communities</b> – 135 and growing	B	(25%)
<b>Communities with dedicated funding</b> - Less than 40 percent	D-	(25%)

**Overall:** C-



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**WASTEWATER**

**Overview**

North Carolina has documented a need of over \$4 billion of additional wastewater infrastructure investment needs through year 2030. These funds are needed to replace aging facilities, comply with mandated Clean Water Act (CWA) regulations and provide as well as keep pace with economic development. Additionally, specific water quality degradation within certain river basins has warranted promulgation of specific regulations aimed at further reduction of nutrients being discharged into receiving waters. These specific basin rules are a direct result of fish kills and algae blooms that brought national attention and unfavorable press to North Carolina. Although the documented wastewater related fish kills and algae blooms are decreasing, the tightened discharge limits and on-going population growth, coupled with aging infrastructure, is stressing public utilities' ability to remain compliant. If continued funding needs are not met, the state risks reversing the improved public health and economic gains that have been realized over the past 30 years. **As a result, the state's wastewater infrastructure is assigned a grade of C+.**

**Recommendations and Progress**

- The state's general assembly and public supported funding of several wastewater infrastructure projects through the Clean Water Management Trust Fund, the Rural Center Clean Water Partners Program and the State Revolving Loan Fund low interest loan program.
- Several municipalities and utilities have improved their wastewater collection system through the reduction of inflow and infiltration (I&I). Examples of progress include:
  - Onslow Water and Sewer Authority (\$2,802,910 committed to I/I reduction).
  - Town of Ahoskie (\$1,989,988 committed to I/I reduction).
  - Town of Beaufort (\$7,414,000 committed to I/I reduction).
  - City of Clinton (\$4,000,000 committed to I/I reduction).Each utility should provide increased funding for wastewater collection system improvements.
- Engage the state's utilities' managers to develop sound and equitable utility rates that encourage water efficiency.

**Grade Breakdown**

<b>Ability to match required improvements with available funds</b>	C	(33%)
<b>Physical Condition</b>	C+	(33%)
<b>Ability to meet funding needs without state subsidy</b>	C+	(33%)
<b>Overall:</b>	<b>C+</b>	