



U.S. Department  
of Transportation  
**Federal Railroad  
Administration**

# North Carolina DOT Traffic Separation Studies Volume II - Findings by Community

Office of Research  
and Development  
Washington, DC 20590



## Next Generation High-Speed Rail Program

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# REPORT DOCUMENTATION PAGE

Form Approved  
OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.

1. AGENCY USE ONLY (Leave blank)		2. REPORT DATE September 2004	3. REPORT TYPE AND DATES COVERED Final Report October 2001 - November 2002	
4. TITLE AND SUBTITLE North Carolina DOT Traffic Separation Studies Volume II – Findings by Community			5. FUNDING NUMBERS  R2050/RR228	
6. AUTHOR(S) Jane Saks* and Anya Carroll				
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) U.S. Department of Transportation Research and Special Programs Administration Volpe National Transportation Systems Center Cambridge, MA 02142-1093			8. PERFORMING ORGANIZATION REPORT NUMBER  DOT-VNTSC-FRA-04-09	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) U.S. Department of Transportation Federal Railroad Administration Office of Research and Development 1120 Vermont Avenue, NW: Mail Stop 20 Washington, DC 20590			10. SPONSORING/MONITORING AGENCY REPORT NUMBER  DOT/FRA/ORD-04/15.II	
11. SUPPLEMENTARY NOTES  *EG&G Technical Services, Inc.  Next Generation High-Speed Rail Program				
12a. DISTRIBUTION/AVAILABILITY STATEMENT This document is available to the public through the National Technical Information Service, Springfield, Virginia 22161. This document is also available on the FRA web site at <a href="http://www.fra.dot.gov">www.fra.dot.gov</a> .			12b. DISTRIBUTION CODE	
13. ABSTRACT (Maximum 200 words)  The Federal Railroad Administration requested the U.S. Department of Transportation's (DOT's) Volpe National Transportation Systems Center (Volpe Center) to assess the Traffic Separation Study (TSS) process developed by the North Carolina Department of Transportation's (NCDOT's) Rail Division, to determine the effectiveness of the program and its applicability to other states. Stakeholders from 10 communities were interviewed to determine if the TSS process was effective, and if so, what best practices made the process successful. The TSS is a collaborative partnership among NCDOT Rail Division; railroad engineers; engineering consulting firms; mayors and other municipal officials; police, fire, and other emergency services staff; and community residents, including abutters to the site, land developers and motorists. It includes a comprehensive evaluation of traffic patterns at grade crossings to assess existing safety conditions and determine the need for improvements and/or elimination of crossings based on specific criteria that, in effect, serve as state guidelines. The ten sites reviewed in Volume II are: Salisbury, Benson, Stanley, South End, China Grove, Concord, Landis, Kannapolis, Harrisburg, Charlotte, and Wake Forest. This volume provides detailed information by community and highlights "lessons learned."				
14. SUBJECT TERMS  crossing elimination, grade crossings, traffic separation study			15. NUMBER OF PAGES 44	
			16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT Unclassified	18. SECURITY CLASSIFICATION OF THIS PAGE Unclassified	19. SECURITY CLASSIFICATION OF ABSTRACT Unclassified	20. LIMITATION OF ABSTRACT Unlimited	



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## 1. INTRODUCTION

### 1.1 Overview

This volume provides detailed information by community and highlights “lessons learned.” Each of the ten communities is reviewed in each of the following areas, when applicable.

- Background
- Traffic Separation Study (TSS) Process
- Critical Success Factors for Project
- Assessment of the Process
- North Carolina Department of Transportation (NCDOT) Rail Division Performance
- Financial Incentive to Town to Close the Crossing
- Stakeholder Interviews
- Other Lessons Learned

Between six and 12 key stakeholders from each community were interviewed, including:

- **North Carolina Department of Transportation;**
- District engineers and **technical staff** from larger cities;
- **Town officials:** mayor, town clerk, and other municipal administration officials;
- **Emergency responders:** police, fire department and drivers of other emergency vehicles; and
- **Community residents,** including adjacent property owners, land developers and motorists.

## 2. SALISBURY FINDINGS

The city of Salisbury, North Carolina was the first TSS community assessed and therefore is described in detail as a model. The remaining communities are noted as they differed from the Salisbury model. Communities appear in chronological order at the start of the TSS process. To preserve anonymity specific speakers are not directly identified.

### 2.1 Background

The city of Salisbury, North Carolina was assessed in the early stages of the Department of Transportation (DOT) crossing closure program, before the TSS process was established. Therefore, there was no example to use as a model: the progress and what was learned at Salisbury were instrumental in contributing to the TSS process. According to a town official, “It was a demo project for other communities. From a state perspective, Salisbury was one of the first successes. It created a ripple effect throughout the state.”

The federal government designated money for a high-speed rail corridor and Salisbury was along that corridor. The city thought that if it jumped into the process early it could benefit by making improvements to traffic and safety. The emphasis was not on passenger rail, but in the freight service where the town thought it could gain six to ten times the benefit.

This was the first time NCDOT Rail Division worked in true partnership with a municipality and the railroad. This became their model for future working relationships.

### 2.2 Traffic Separation Study Process

Initially, one or two years before the study, the town, knowing that it had many unsafe grade crossings, held a public meeting that was contentious. The town had no statistics on safety and no long-range plan.

In the first step in the Study Phase NCDOT Rail Division gave notice to proceed to the engineering consultant. The neighborhood said it would be inconvenient for residents and industry to close crossings. NCDOT Rail Division asked engineering consultants to update the study, which was still completed in a very basic manner at this time. The city was responsible for the study; the city engineer helped to scope the work.

The next step was for the engineering consultants to begin collecting crossing evaluation and traffic data. In 1994 (at about the same time crossing inventories were being updated), the NCDOT Rail Division worked with the mayor and the city of Salisbury to identify redundant and unsafe crossings that could be closed to protect both motorists and rail passengers/crews from possible crashes. City engineers, the mayor, the NCDOT Rail Division engineer, and NCDOT Rail Division staff met to identify crossings that could be closed and to plan how to improve safety and traffic flow in downtown Salisbury. The town wanted to close several crossings. Alternatives to crossings (signalizing) would cost \$100,000 to \$300,000 per site.



The street transportation system was deficient. Closing redundant crossings alone would not lower the exposure rate. Salisbury had an excess of crossings and needed parallel roads on either side of the tracks to provide safer access and to reduce the number of vehicles crossing the tracks.

Draft recommendations were submitted to NCDOT Rail Division for initial review and comment, with recommendations for three closures and other improvements in Phase 1. Phase 2 included two-to-three closures and one grade separation. Phase 3 included five closures, the construction of a parallel corridor (an alternative access route), and two grade separations. NCDOT Rail Division and the consultants coordinated recommendations with Transportation Improvement Program (TIP) projects and presented draft recommendations to the NCDOT Rail Division engineer, North Carolina Board of Transportation member(s), and municipal staff.

Recommendations were presented to the city council, which the mayor had been advising and updating all along. The town had money and wanted to use it to avoid the selection process. The railroad put in money right away.

The consultants incorporated comments into draft recommendations. At this point, NCDOT Rail Division would in the future develop and distribute crossing safety newsletters, but newsletters were not part of the process at this time.

NCDOT Rail Division and the engineering consultants held crossing safety workshops and/or public hearings to present their proposed recommendations. According to city technical staff, “The plan was not a DOT plan. Instead, it was developed under local control to satisfy the local need. Then DOT endorsed the plan.” The city took responsibility for the community involvement so they could “have a plan consistent with the local vision.” “We talked one-to-one with residents and industry.”

The city council and staff dealt with all aspects of gaining community support. The city council, not NCDOT Rail Division, held public meetings and hearings in early 1995 to discuss the affected crossings and give the local citizens an opportunity to ask questions and provide input. According to city technical staff, there was one public hearing on the overall plan and one for each recommended crossing closure. (NCDOT Rail Division was “protected” and not included). Recommendations also appeared in the press. Recommendations were accepted.

NCDOT Rail Division and engineering consultants presented any modified recommendations to municipal staff and requested meetings with local governing bodies to ask for approval of study recommendations. NCDOT Rail Division presented TSS to North Carolina Board of Transportation in summary form. The state and Norfolk Southern railroad agreed to fund it.

### **2.3 Critical Success Factors for Project**

There were a variety of factors that made this project a success. It was significant that “The Corridor Studies and the TSS gave Salisbury a long-range plan to present to the community. It was a structure for promoting rail in North Carolina.”

Also, momentum was created by the fact that there had been several recent accidents (some of them fatal), which drew public attention and support to the effort. The city was well informed in public relations and took advantage of timing and opportunity. At a hearing, the city asked the widow of one of the victims to speak about the importance of safety over mobility.

According to NCDOT Rail Division, Salisbury was a very progressive and aggressive municipality that knew how to put necessary staff and people in place; knew how to get things done, and did not let politics stop them. Incidents occurred, but the town knew to whom to talk. The community received a great deal of attention and support from state government. Also, the mayor was very involved and supportive. There were no community problems.

“The community ran the process.” Because the town led the effort, DOT and (more importantly) the railroad were not perceived as forcing the process on the community. Both Salisbury and Kannapolis share the same newspaper. According to an interviewee in Salisbury, “It was easy to compare the process in the two municipalities. In Kannapolis the community felt the process was rammed down their throats by DOT.”

According to NCDOT Rail Division, “The city engineer smoothed the way and did a lot of what the state does now. Because he was a highway engineer, he was willing to look at the benefits for both modes.” “He was a great person to have.” In addition, outside consultants were seen as bringing real objectivity to the process.

## **2.4 Assessment of the Process**

“The TSS process created a win-win.” According to a town official, “It was a real collaborative effort – a team approach.” NCDOT Rail Division teamed with the town and learned a lot from them.

“Because the process was new in this community, assessments were less detailed, more conceptual, and more evaluative (e.g., traffic volume, rather than assessing the feasibility of options, environmental impact and recommendation, as they would be in the future).” NCDOT Rail Division gave Salisbury a rating of 10 for the outcome, but a 7 or 8 for the effort. The town gave ratings of 9 to 10. DOT did not get one complaint, only praise from the community.

Other comments about implementation included the following. “It would have helped to have a better funding mechanism statewide.” “It took longer than we planned.” “The implementation took six years and was bogged down by the political nature of government.”

Community comments were often contradictory and included many suggestions for improvement. Open communication of the process promoted community input — “With the TSS the state government is willing to listen to the thoughts of the community.” One resident believed that the city council listened to community residents during the process, the decisions were good, and that accidents had been reduced. “Many in the community had trouble understanding the decisions that were being made. Communications should have taken place by letter, not in the newspaper, that many never read.”

The community has strong opinions about the decision. One resident remains frustrated with the outcomes. “Closing the crossings had additional impacts that were not anticipated. The neighborhood was initially zoned ‘light industrial.’ In the process, it was rezoned as residential. Many residents, hoping to have their land bought out by industry, were disappointed.”

“Closing crossings in the neighborhood made abutters feel cut off from the town, to which they had easy access previously (now 2.5 miles instead of .75). No one walks any more. People began moving away and the families of the elderly that died had trouble getting the same market value for the homes. The community was close knit, with many neighbors working at the nearby

mill. Because it is now a dead end, the police do not patrol. The homes have become more rundown. HUD has taken over. There are now more drug dealers.”

“There was a rush to close crossings, with promises of other things to follow, and much of that never happened (traffic separations).” “I wish it all had not happened in my neighborhood. I wonder if at least one crossing could have become safer if the bushes blocking visibility had been cut.”

Other weaknesses of the process were identified, such as the state and railroad needing to be aware of local community goals. “DOT does not know the local concerns.”

The railroad needed to become more aware of community standards. “The railroad is the only agency that cares less about attractiveness than DOT.” “The task is not complete until the site is cleared of debris and restored.”

Little attention was given to pedestrian access. When a crossing is closed, if no legitimate crossing is provided, pedestrians will still walk across the tracks. “In hindsight, we should have widened the roads more.”

## **2.5 NCDOT Rail Division Performance**

NCDOT Rail Division had not expanded its staff at this point; it had no engineers. “DOT was able to get the town in contact with the railroad and obtain resources for us. It had more clout than the town did.” Other positive comments included, “They really came through.” “Real creative on collaborative funding.” “DOT was a strong funding partner in the implementation phase.” “DOT provided moral support when the town was worn out.”

The consensus was that the community wanted a better sense of “what could be done,” but since this was a new process and NCDOT Rail Division was short staffed, they could not provide the information.

## **2.6 Financial Incentive to Town to Close the Crossing**

No incentives were offered or needed; however, the city received over \$1 million worth of street improvements in exchange for closing crossings. “The city administered the construction and DOT reimbursed them.” The traffic control system greatly improved the efficiency of street traffic flow. The municipality received a connector road providing more access for industry, which they would not have received any other way.

“The state offered something in the future (separated crossings) that was (an incentive) for closures.” “Other side benefits were realized later – transportation was improved, new property was opened up, and it was quieter because trains blew their horns less.”

## **2.7 Other Lessons Learned**

Other lessons learned include the following comments. “The process works best if the community drives the process, has as much control as it can handle, understands the current crossing problems, has a future local vision with bigger goals and innovative solutions. The municipality needs to strive to be open-minded about all issues.

Safety is the major issue. Too often critics of the TSS are thinking only about mobility, not safety.” “Look outside-the-box.” “One size does not fit all. Each community needs to look at options for its own situation.”

### 3. BENSON FINDINGS

The process used in the town of Benson evolved from the one used in Salisbury. It was a “straightforward, cut and dry” process with only a few crossings and a few opportunities. There were no real “issues” or conflicts.

#### 3.1 Traffic Separation Study Process

In the first step in the Study Phase NCDOT Rail Division gave notice to proceed to the engineering consultant. The engineering consultant then began to collect crossing evaluation and traffic data.

In Benson there were six redundant at-grade crossings within a 2,250-foot length of track, facing heavy train traffic and limited, light automotive traffic. The town was interested in upgrading the downtown area and wanted some crossings closed, but did not know which ones. Consolidating crossings would not significantly reduce accessibility, adding an extra block to travel for residents and one-half to one full block for emergency vehicles.

The consultants provided traffic modeling and forecasting, which was much more detailed than was needed for the site (as a result, NCDOT Rail Division learned to better oversee and monitor the work of consultants).

Draft recommendations were then submitted to NCDOT Rail Division for initial review and comment. NCDOT Rail Division and the consultants coordinated recommendations with TIP projects and presented draft recommendations to the NCDOT Rail Division engineer, North Carolina Board of Transportation member(s), and municipal staff.

Meetings were held with the town, the railroad, and the consultants. NCDOT Rail Division presented to the city council, where only a few questions were asked, with NCDOT Rail Division providing answers. The council and the mayor did a good job answering questions. There was no controversy and no negative comments at the meetings.

The consultants incorporated comments into draft recommendations. There was no specific community involvement process used. The council held its own hearings with the community.

#### 3.2 Critical Success Factors for Project

Town officials were supportive.

#### 3.3 Assessment of the Process

NCDOT Rail Division considered Benson a “good experience,” and gave the process a B-/C+ rating. They thought they should have been able to close three crossings, but only closed two. The town gave the process a 9, due to the good relationship among the professionals. Although drivers of town emergency vehicles did not want one crossing closed, they felt everything worked out and gave the process an 8.

### **3.4 Financial Incentive to Town to Close the Crossing**

Financial incentives were not needed but CSX (the railroad) offered Benson a cash settlement for rebuilding (paving, smoothing) existing crossings to improve the downtown area. These offers were instrumental in receiving agreement from the town. Three segments of connector roads were closed.

## 4. STANLEY FINDINGS

A DOT board member became interested in talking to officials from the town of Stanley. NCDOT Rail Division approached the town before the introduction of the TSS process. The town of Stanley agreed to a Traffic Separation Study – it was offered free of charge if at least one crossing were closed.

### 4.1 Traffic Separation Study Process

In the first step in the Study Phase NCDOT Rail Division gave notice to proceed to the engineering consultant. The engineering consultants then began to collect crossing evaluation and traffic data. They looked at a number of scenarios, including making a road one way. The railroad passes through the middle of this small town. Six crossings were considered for closure, all with low traffic volumes.

Draft recommendations were submitted to NCDOT Rail Division for initial review and comment and NCDOT Rail Division and the consultants coordinated recommendations with TIP projects. Following this, draft recommendations were presented to the NCDOT Rail Division engineer, North Carolina Board of Transportation member(s), and municipal staff. Two or three crossings were recommended for closing (Parkwood and McLurd), and another intersection was considered for an upgrade. The town agreed to one closing.

One crossing was slated to be closed for a short-term trial, as suggested by the town. (The problem with this approach was that it assumed that the crossing would open again in the future.) The crossing was reopened in a week due to public outcry. “The public was not interested in safety, only their own personal mobility.” The police received many complaints, especially from out-of-towners who drove through the town often.

The town kept asking for additional studies, which NCDOT Rail Division undertook, but which stalled the closing process. They had hoped to obtain separated grade crossings, but it was not possible within the city limits. Town officials, concerned about an upcoming election, would not push the unpopular and inconvenient closing in favor of safety. The consultants incorporated comments into the draft recommendations and recommendations were for a tradeoff: if two crossings were closed, the town could get a signal crossing in Jackson Park.

No public meetings were held. When NCDOT Rail Division tried to hold a public meeting with the city council, only a few people attended. The meeting went well, according to the town. But according to NCDOT Rail Division, the public frequently interrupted the presentation. Two competing factions appeared to be fighting about which crossing should be closed. The discussion was never completed. The town officials appeared to have no control over the meeting.

The council was not going to push for a crossing closing. “No one on the council had influence and the council as a whole did not want to take on a risk.”

The town was then informed that the cost of the study, \$35,000, would have to be paid by the town. Since this was the size of the total town budget, the town decided that one closing would

take place. They ultimately agreed to a closing to avoid paying for the study. The Parkwood crossing (the least political with the lowest volume) that was closed has not been a problem since the industry there also has closed.

If they had closed more crossings, they would have received signal crossings as well, paid for by the railroad. (Traffic did ultimately increase so the town did warrant one, paid for through federal funds.)

#### **4.2 Critical Success Factors for Project**

There had been no incidents, so safety issues did not motivate the town.

#### **4.3 Assessment of the Process**

NCDOT Rail Division gave the process a 4 (on a 10-point scale) since the project involved so much staff time and financial resources compared to the resulting number of closings. The consulting engineers gave the overall process an 8.5 rating.

According to one emergency responder, town residents opposed the process. However, according to another town official “the community was not strongly opposed.” “The public was not informed enough in the beginning. People never understood that railroad crossings are dangerous. The council knew the mood of the town. The council never agreed among themselves which crossing should have been closed.”

One town official commented, “The community involvement part could have been more extensive; there was limited education and participation from citizens. “ Town officials report, “Operation Lifesaver might have done more to interest the community in safety.” “It was also hard to know how to involve out-of-towners in the process.”

#### **4.4 NCDOT Rail Division Performance**

NC DOT Rail Division performance was well regarded. “Both NCDOT Rail Division and the railroad were very helpful. They were available to the town and answered questions.” “NCDOT Rail Division, the railroad and the federal government did an effective job in laying out the issues.”

One town official, in support of NC DOT Rail Division stated, “The person who talks to the community residents needs charisma, a good relationship with the community, and needs to be above board in all their communications.”

#### **4.5 Financial Incentive to Town to Close the Crossing**

No real incentives were offered to the town to close crossings. The town said that if DOT had provided grade separations it would have helped.



#### **4.6 Other Lessons Learned**

Some of the lessons learned in the process included comments such as, “most people do not care about closings. The only residents who speak out about closings are the ones opposed to them.”

Temporary closings to “see what it might be like” do not work, was another comment. This is partly because the residents have not yet been sufficiently educated on safety issues. In addition, there is always the expectation that they will open again.

In hindsight, it would have helped to have a public meeting early on and meet more frequently with the full council.



## 5. SOUTH END TSS FINDINGS

### 5.1 Traffic Separation Study Process

To improve safety at railroad crossings in Mecklenburg, Cabarrus, and South Rowan counties, the NC Department of Transportation Rail Division worked together with six municipalities as a group (Charlotte, Harrisburg, Concord, Kannapolis, Landis, and China Grove) to evaluate safety at public highway-rail crossings. The major rail line through these communities is the North Carolina Railroad, owned by the state of North Carolina.

The state and the communities agreed to have an engineering consulting firm conduct a comprehensive engineering evaluation, entitled the South End Traffic Separation Study, to determine whether any of the public crossings should be closed, or grade separated (bridges), to improve safety.

The northern South End TSS communities (except for Charlotte) met together several times. All six communities were worked on simultaneously. According to the consulting engineers, one downside of working the six communities together was that it brought the issue of competition among them to the surface: there was great concern for equity.

### 5.2 Assessment of the Process

The municipalities did not trust the railroad and NCDOT Rail Division. The communities also did not see the value of high-speed rail, regarding it as disruptive to the community. They were not supportive of funding the venture and said they were unlikely to use it. This was especially true in the smaller towns where many citizens were elderly and the towns were not seeing much growth.

“All communities were concerned that they never received the final word regarding who would pay for improvements. The railroads and the Federal Highway Administration never agreed on who would provide the funding.” “Towns were told that they would have to ‘live with it’ when they asked for a promise that the railroad would pay, or requested options or help in mitigating the decisions. That issue was the deal breaker in negotiations with many towns, especially the smaller ones with no funding. In the future, the process should include funding strategies.”

The sequence of events for the South End TSS was complex. A kickoff was conducted with representatives from all municipalities. In each municipality, the consulting engineers worked with their designated representative (town manager or administrator/clerk -- Concord and Kannapolis, being larger, had more staff). They kept the towns informed and collected their feedback as the process moved along. “We needed to be very persuasive in all municipalities except Kannapolis.”

### **5.3 Critical Success Factors for Project**

Initial public workshops were held in each municipality. “From a legal and safety point of view it is important to explain the rationale for closings. This helped the public see that DOT had criteria for closings and that decisions were based on data.” There was surprise at the small showing of residents at community meetings. It was not determined if that was because residents were on summer vacation or if there was another reason.

Open houses included videos on safety, information on near misses and reaction times, and daily train and vehicle traffic at each intersection throughout the corridor for all six communities.

The engineering consultants made presentations of the draft recommendations to individual town councils. Most of the involvement and questions came out of these meetings, as compared to the public workshops. Final recommendations were defined. Presentations of final recommendations were made to individual town councils and public workshops were held (in Kannapolis for northern municipalities, in Harrisburg for southern municipalities). Eventually all crossings recommended for closing were approved. Generally, the crossings with the greatest safety risk were closed first.

The overall process was seen as thorough and well paced, with high quality presentations. One of the engineering consultants had been a town official and was perceived as “a local, who knew the politics and was competent and likeable.”

## 6. CHINA GROVE FINDINGS

### 6.1 Traffic Separation Study Process

In the first step in the Study Phase NCDOT Rail Division gave notice to proceed to the engineering consultants. The next step was for the engineering consultants to begin to collect crossing evaluation and traffic data. When the consulting engineers began work in China Grove in 1997, they found a poor history with Norfolk Southern that needed to be addressed before introducing new issues. The railroad had closed a crossing and left an unsightly landscape of torn-up tracks, asphalt, and gravel. In addition, an intersection improvement project involving a crossing on Church Street had been on the state's agenda for a long time and had still not been implemented. The consultants were able to push that through since it improved grade crossing safety. The Traffic Separation Study for China Grove evaluated seven public street crossings.

Draft recommendations were submitted to NCDOT Rail Division for initial review and comment and NCDOT Rail Division and the consultants coordinated recommendations with TIP projects. Draft recommendations were then presented to the NCDOT Rail Division engineer, North Carolina Board of Transportation member(s), and municipal staff. City administrators, politicians, and technical staff were all kept informed. The engineering consultants met with the town council on two occasions to obtain their input. The consultants incorporated comments into the draft recommendations. The TSS included near-term and mid-term recommendations.

A town official, experienced in public transit, rapidly got on board, supporting and facilitating the whole process. He initiated contact with the community using newsletters and then worked the issues everywhere in town, including in church. Resistance was expected, but never occurred. The fire department had other options than the crossings slated for closing and was supportive.

NCDOT Rail Division and the consultants held crossing safety workshops and/or public hearings to present proposed recommendations. One meeting in October 2000 proposed alternative routes. Turnout was limited and only those opposed to closings attended. The public was skeptical: they saw the proposal as the railroad's push for more business and high-speed rail, not as a safety issue. Residents were focused on their own mobility needs. NCDOT Rail Division held two other hearings for the community. Turnout was good, again mostly from those opposed to closings. "Most opposition was anticipated."

According to NCDOT Rail Division, "the public was concerned that big cities had a louder voice than smaller municipalities. They had a distorted view of FHWA and DOT and had no history with the Rail Division. There were many questions about highways and potholes." Once the community was given the opportunity to talk after the meeting and receive the appropriate FHWA contacts, the discussion progressed.

"Information presented was well thought out and organized." Open houses included videos on safety, information on near misses and reaction times, and daily train and vehicle traffic at each intersection throughout the corridor for all six communities.

According to a town official, “There was much dialogue. Most of the community’s concerns (e.g., Little League access) were not really problems. When residents were concerned about a closing adding travel time to their destination, calculations were made to estimate the amount of time it would take if they were to stop for a train. When they were led through the chances of a train’s passage adding to their travel time, the longer, but surer route was often a better alternative.” “Residents’ negative attitudes reversed when they realized they were going to be well served by the closings.” “A resident from another town tried to stir things up at a meeting, but nothing happened. The town council was unanimous in its support.”

NCDOT Rail Division and the consultants presented modified recommendations to municipal staff. After discussions with China Grove officials and public involvement activities, some of the initial study recommendations were modified.

## **6.2 Critical Success Factors for Project**

Critical success factors for the project include continually communicating and keeping the community involved. “We (the town) tried to accommodate in any way possible.”

## **6.3 Assessment of the Process**

The project was considered a success as it moved through implementation. NCDOT Rail Division and the engineering consultants gave this process a 9 rating. The town of China Grove gave it what it considered a good rating, a 7. Most thought the process was good and worked well. “Everyone had their say.” “Good level of community input.” Stakeholders, such as drivers of emergency vehicles, appreciated being able to complete a questionnaire and *not* having to take time out from their work to attend meetings.

There were concerns about implementation. Citizens were unhappy with the level of commitment to Phase 3 (construction of separated grade crossings), which seemed weak and slow moving. Comments included: “153 is taking forever, but I know it is not the state’s fault. Finishing that and the overpass will improve credibility.” “We have still not resolved with the railroad what to do about bikes and pedestrians crossing the tracks. It has been three to four years. The railroad is opposed to a walk area. But people are going to cross.”

## **6.4 NCDOT Rail Division Performance**

The NCDOT Rail Division staff experience evoked these comments: “Presentations were good”; “Engineering reports were good.” “NCDOT Rail Division is good to work with”; “NCDOT was always available to answer questions and helpful.” “NCDOT Rail Division had good technical experience, but an experienced, trained facilitator or mediator would have been helpful.”

## **6.5 Financial Incentive to Town to Close the Crossing**

Receiving highway funds (Section 1103: Crossing Hazard Elimination funds) was a clear incentive that NCDOT Rail Division provided. Roads were realigned. NCDOT Rail Division also applied for grants available to states from the Next Generation High-Speed Rail Program.

## 6.6 Other Lessons Learned

An emergency responder saw both sides of the issue and suggested, “Give the community lots of statistics to address the safety issue. Citizens Against Closings have concerns about getting to the other side of tracks in an emergency. There are lots of railway accidents and train wrecks. People are always trying to beat the train. The risk of an emergency vehicle carrying a resident’s family member to a hospital and being substantially delayed due to a crossing being closed is *tiny* compared to the risk of being killed by a train.”

Other lessons learned in the process included: “The process would work better with more timely enhancements. Make Phase 1 more than just closings. Don’t give them all the ‘carrots’ at the end and just the ‘stick’ up front.” And at community meetings, “do not overwhelm the community with eight to 12 professionals when three are sufficient” (one host to present the big picture, one technical expert, and one person as recorder). Structure community meetings to allow time to handle the psychological impact of the recommendations on citizens.





## 7. CONCORD FINDINGS

### 7.1 Traffic Separation Study Process

The Concord study was completed in June 1997. Recommendations included two near-term closures, one on either side of a major thoroughfare. One was near another bridge and was redundant. Another was a one-lane crossing, whose closure would reduce drug dealers in the neighborhood. One more closing is possible in the future. A four-quadrant gate was to be installed at one crossing and a concrete crossing surface at the other, near the streets where much NASCAR racing takes place.

NCDOT Rail Division worked with Concord's professional staff. This was a difficult process because of the size of the community and the number of meetings held, although none of the closings was expected to disrupt traffic very much.

There was initially some resistance from residents and the city council. NCDOT Rail Division had many meetings with the city council, which were large and complex. The county worked well together. There were many questions and the feedback town members received was good. There was no real resistance later on.

The town ultimately saw the merits of the recommendations. Two crossings could be closed easily. Some emergency responders were reportedly supportive; they wanted one crossing closed since it had become a hangout for local drug traffickers and would reduce access to a local drug and crime site. Community residents agreed.

The fire department changed the master plan for the location of a new fire station because of the recommendations. The consultants incorporated comments into draft recommendations. The council requested that several items be incorporated into the plan and this was accomplished. NCDOT Rail Division developed and distributed crossing safety newsletters, including points of contact. One of the town's technical staff reported that this was extremely helpful, "I used them as fact sheets to answer questions."

NCDOT Rail Division and the consultants held crossing safety workshops and/or public hearings to present proposed recommendations. The community involvement part of this process was relatively easy and went well. Ten to twelve residents attended a public hearing and few comments were made. The town was surprised that so few attended the public hearing, because either few residents were impacted by the chosen closings or few knew about the meeting.

One town official said, "Concord had few at-grade crossings; most were already separated. There were no real disputes." Many residents were actually pleased a crossing was being closed, since it was used as a cross-through for heavy local business traffic. They saw the funding increase and the land use improve.

The closure of Meisenheimer Drive needed to be coordinated with China Grove. Several other crossings were closed together in nearby towns as well.

## **7.2 Assessment of the Process**

In assessing the process, NCDOT Rail Division gave this closing a rating of 8. Some of the comments follow. “The approach was good.” “Everyone had input into the process.” “Everyone was listened to.” “Everyone was involved early – before the evaluation began.” “The town and railroad crews were well coordinated.” “There was little negative feedback on the process or closings.”

Comments also highlighted some weaknesses in the process. “The presentations to the council were more detailed than they needed to be, especially given the limited resistance to the closings.” “The only negative was the amount of time it took for the railroad to finish its improvements to close the second crossing, which it said was a scheduling issue. That was very disappointing. It should have been completed within a couple of months.” “The delays caused problems with the new people moving into neighborhoods who did not know about the study. They had not been part of the process and then had to be brought up to speed and brought on board.”

## **7.3 NCDOT Rail Division Performance**

NCDOT Rail Division performance was uniformly encouraging as comments show. “State role was positive”. “NCDOT Rail Division did a good job and stayed on top of everything they could control. NCDOT Rail Division maintained weekly contact.” “NCDOT Rail Division was aggressive in providing information and notifying residents.” “Good presentations and good hearings.” “The study was done well and presented well.” “Good information was presented on safety.”

## **7.4 Financial Incentive to Town to Close the Crossing**

Concord received some incentives toward closing crossings: a four-quadrant gate, concrete crossing surface, and Crossing Safety state funds. The closings resulted in reduced drug traffic and crime.

## **7.5 Other Lessons Learned**

There were other lessons learned in the process, evoking these comments: “Although the law (unlike re-zoning situations) does not require the notification of crossings considered for closings to impact businesses and residents, this might be a useful activity.” “This has not been a problem so far, but always make sure professionals (emergency vehicles, bus drivers) have plenty of lead-time to prepare for meetings and closings.”

## 8. LANDIS FINDINGS

### 8.1 Traffic Separation Study Process

The traffic separation study for Landis, completed in August 1997, evaluated four public railroad crossings between East Round Street and Central Avenue. For the previous ten years, East Mills and East Round Streets had a significant number of recorded accidents. The most recent fatality occurred at Mills Street on September 4, 1998.

There was a great deal of initial resistance to the TSS process. The large residential communities in this municipality have a history of resistance to high-speed rail, most of which comes from residential communities near the tracks where high-speed rail is expected. They were also skeptical about NCDOT Rail Division's motives in the TSS process and its ability to follow through with closings. Once their misinformation was corrected and their concerns were addressed, barriers were reduced.

Meetings were held with the town and the town council. Two crossings with little traffic volume, compared to the other towns, were recommended for closing. Town officials objected to the recommendations and some of the initial study recommendations were modified.

Community meetings continued to be held in Landis. Town officials saw much conflict in those meetings. According to NCDOT Rail Division, with no engineering department to work with the community, it was difficult for Landis officials to come to a decision on closures.

They recently agreed to one closure.

### 8.2 Critical Success Factors for Project

The town was more willing to work with NCDOT Rail Division after it saw NCDOT Rail Division helping it with other non-rail safety initiatives.

### 8.3 Assessment of the Process

NCDOT Rail Division gave the process a score of 8. The town was concerned about equity and thought Landis was less powerful in being grouped with other towns, believing each town separately should have looked at how closings would impact it. It had issues that it believes should have been addressed before the other five communities were involved. They were particularly concerned about how safety would be compromised by closing all crossings but one and funneling all traffic onto one unseparated crossing (e.g., school children, who would cross anywhere they wanted; emergency vehicle access).

There was a perception that the engineering consultants were inflexible and, as a result, there were many criticisms of the organization. A few in the town believe they were "held hostage" and pressured by the offering of an industrial track spur, rather than seeing it as an enticement. "If we don't go along with the closings we won't get the spur."

The Public Works Department would have liked to be involved earlier and more thoroughly in the process.

#### **8.4 NCDOT Rail Division Performance**

“NCDOT Rail Division staff was helpful. We had many conversations. They provided helpful information, but had no power.”

#### **8.5 Financial Incentive to Town to Close the Crossing**

As part of an ongoing safety initiative, an application was made for an industrial track spur through the Rail Division’s program for Industrial Rail Development to provide shipping access between a manufacturing facility and freight railroad cargo lines. DOT had additional leverage when the town saw that DOT would help with other initiatives. The town finally was satisfied with a study to determine the merits of separating one of the grade crossings.

#### **8.6 Other Lessons Learned**

Other lessons learned in the process included the following comments: “do not start the initiative from scratch; build on the municipality’s existing safety concerns and initiatives.”

## 9. KANNAPOLIS FINDINGS

Kannapolis was the first community addressed in the South End TSS and was seen as a test by other towns. “Other cities saw the backlash, in terms of people’s concern for safety. But good information went out. Kannapolis ultimately made it easier for other towns.”

### 9.1 Traffic Separation Study Process

The Traffic Separation Study for Kannapolis, completed in June 1997, evaluated nine public street crossings of Winecoff Avenue, McGill Avenue, Meisenheimer Drive, and Corban Avenue. In the previous ten years, Winecoff and Corban Avenues had been the site of five accidents, including a fatality at Corban Avenue.

Three hazardous crossings were identified for closure. The feasibility studies reduced accidents by one-third. The town planning director made many of the presentations to the city council. There were many political considerations in the town, including political clashes between the philosophies of the Chamber of Commerce members and nonmembers, and between new and older members of the city council. According to one town official, “What didn’t work was due to much turnover in the Kannapolis town management.”

NCDOT Rail Division came out with two newsletters. The first discussed the process and recommendations. The second addressed why three crossings were chosen to be closed. Both included contact information. NCDOT Rail Division and the consultants held crossing safety workshops and/or public hearings to present proposed recommendations. An open house was held for citizens with the media present.

NCDOT Rail Division encountered much resistance at one crossing at a state highway, the most dangerous crossing of the 39 across the six towns. Two local residents and the owner of a store were particularly concerned about the inconvenience and risk to business (although once the crossing was closed this did not occur) and formed a political action committee: PAC Against Crossing Closures.

NCDOT Rail Division had frequent conversations with townspeople and met with the PAC many times. The PAC, which was small – only about 12 people – wrote articles and editorials. The business owner spoke at the Kannapolis town meeting. He then went around to meetings in other communities to try to generate support for the PAC. There was no resistance from anyone else.

It was a hard sell to the town with much pressure on the council. The council knew the community well, appreciated the safety issues, and supported the TSS process. Ultimately, they were willing to make the decision for closures, though it was hard. They eventually took on a lot of risk by taking a very difficult stand. The town agreed unanimously with the TSS recommendations.

When time for the closure arrived the town was concerned that members of the PAC might resist using violence and firearms. The town asked the NCDOT Rail Division for assistance in terms of manpower and a plan. The resources of the state highway patrol, railroad staff, the police and highway staffs were called into service. As it turned out, no active resistance took place.

Kannapolis was able to close three of nine crossings and changed the timing of the lights without degrading the level of service. One municipal crossing had to be closed to accommodate a new train station. The town is comprised of very different socio-economic groups. As a result, the town decided to close all crossings at the same time for equity, three in April 1999. There will need to be a lot of future coordination with Landis, which concerns Kannapolis.

## **9.2 Assessment of the Process**

NCDOT Rail Division gave the process a score of 9.5. “Most of the feedback from the community was positive. Most people were very concerned about the eight fatalities.” According to one town official, “It was a difficult community. It cost one city council member a board seat. It was very politically charged. The engineering consultants “did an excellent job; they were good technically,” according to the city.

## **9.3 NCDOT Rail Division Performance**

“The process was handled well. We were pleased with the rail folks.” “DOT did a good job.” “They did an excellent job. Very supportive and attentive. Provided lots of assistance. Kept us updated and informed. They continue to be involved.” “The charts and maps really are helpful in simplifying the presentation of accident statistics.” “Helpful in public meetings and responding to questions.”

## **9.4 Financial Incentive to Town to Close the Crossing**

The town considered an overpass and reviewed the possibility of relocating a crossing, but decided on a four-quadrant gate instead.

## **9.5 Other Lessons Learned**

According to a town official, “There was much public concern about mobility, but once they got used to the new driving patterns they realized it wasn’t so bad. The challenge is the educational factor – how to change people’s perceptions. For that you need an aggressive educational plan that takes into account the long learning curve.”

There were other related suggestions: “Notification of the public is hard. We put notices in the paper, sent information out in water bills and had newsletters, but maybe we should have also sent a direct mailer out to all the people involved as well. We should inundate people.” According to the town, “We hired a public information officer after that process. If we had had that person then it would have helped us in getting the information out. The media coverage was sensationalized. If I had it to do again, I would have started the process even sooner and deluged the public with information from the city government on the purpose of closings, danger, and safety issues.” “Get more public input up front.”

## 10. HARRISBURG FINDINGS

### 10.1 Traffic Separation Study Process

The Traffic Separation Study for Harrisburg, completed in August 1997, evaluated six public railroad crossings. Halfway through the TSS process, the town decided it wanted to build a park and changed its thoroughfare plan. In the data collection process, town representatives believe they stated clearly that they thought closing any crossings “would ruin the town.”

Of the six crossings that were assessed, none were recommended for near-term closing. One was recommended for mid-term closing and two were recommended for long-term closing. Although NCDOT Rail Division thought Harrisburg would be satisfied with this, town representatives reported being angry that their wishes to not close any crossings were ignored. They had the impression that they could have no say about thoroughfares that were state roads.

Twenty to 30 people spoke at the town council meeting. “There was much resistance for broad reasons, despite the fact that none of the closings were to happen near-term.” According to NCDOT Rail Division, the town had not done much long-term planning and the TSS raised many peripheral and unrelated issues.

Part of the resistance was due to Harrisburg, as a suburb of Charlotte with 3,000 residents, being very concerned with “getting swallowed up” and losing its identity due to the fact that the town was experiencing rapid growth and increased traffic. It saw the closing of crossings, instead of building grade crossings, as reducing further development.

The town tried to leverage the study to obtain money for highway projects that had not been researched. From NCDOT Rail Division’s perspective, it was never clear what side the various town officials took. According to a town official, the town was initially excited about improvements to safety, especially the fire department, schools, and rescue team. They had videos of people sneaking across train tracks and believed gates or grade separations would be much safer than closing crossings. The town then proposed a prioritized list of the three crossings it wanted to close, with incentives for closing them. The council’s perception was that engineering consultants seemed inflexible and based decisions only on money, which upset the townspeople and led to negative press coverage.

Harrisburg was the community where the newsletter was first used as a community involvement tool. The town began sending out newsletters to activate the townspeople to reject the TSS process, suggesting that NCDOT Rail Division and the railroad were not working together.

NCDOT Rail Division then distributed its own newsletters to counter the town’s. It saturated the area with newsletters, placing them next to the ones for the opposition. NCDOT Rail Division convinced the town to also include the newsletter with other information on improvements in the electric bills. NCDOT Rail Division later realized the value of a proactive media campaign.

NCDOT Rail Division and the consultants held crossing safety workshops and/or public hearings to present proposed recommendations. According to a town representative, “The town wanted to publicize the meetings. Public hearings were scheduled for Kannapolis, when the town wanted it in Harrisburg. For the meeting, a day was chosen that conflicted with other town activities (NASCAR race) and only 14 people showed up. Everyone else stayed away because of the

expected traffic. We weren't allowed to hold another meeting. Finally the town did set up another meeting and sent out a mailing.”

The town conducted the meeting and would not let the engineering consultants talk. More than 700 people showed up at the church gymnasium, which was standing room only. The town questioned the data in the report and wanted new roads and grade separations if they agreed to closings, but did not have the money to build it themselves. “We don't know why we were told ‘no,’ when at least one of them would have been easy,” stated someone from the town administration.

## **10.2 Assessment of the Process**

Although Harrisburg was not committed to closing crossings, it eventually became a turnaround situation. In the end, NCDOT Rail Division thought the project was a success. Everyone was heard. NCDOT Rail Division and the railroad showed that they were working well together. This process ended up going well and NCDOT Rail Division gave this TSS a score of 10.

According to an emergency responder, “It was a typical process. Because we are volunteers, we are always the last to know. As in all issues, communications with us were poor. We had little input. We never get dates of closings with enough (lead) time to plan.”

Other comments included: “It was a cumbersome process,” according to a town representative. “Everyone was nice and they let us talk, but may not have listened.” “I don't understand the roles or the money trail between DOT and DOT Rail.”

## **10.3 NCDOT Rail Division Performance**

“NCDOT Rail Division was tuned in to all the issues,” according to a town representative.

## **10.4 Financial Incentive to Town to Close the Crossing**

A location had been identified for a grade separation, but the town opted for a park and a new library instead.

## **10.5 Other Lessons Learned**

Other lessons learned in the process included: “make sure all stakeholders are involved in the process early,” “describe the decision-making process up front, including the criteria for making decisions and the authority of each stakeholder group to make and veto decisions.” “Begin with some commonly agreed upon definitions (of terms such as “*major crossing*”).” “When the municipality takes over the communication process, it may continue to reflect institutional problems” (e.g., communication hierarchy).



## 11. CHARLOTTE FINDINGS

### 11.1 Traffic Separation Study Process

The city was built up, with much heavy traffic, including college traffic. The engineering evaluation for Charlotte examined eight public street crossings. Accidents had occurred at several of the crossings, resulting in three fatalities at Craighead Road and one at Sugar Creek Road in the previous ten years.

Because it is a big city, Charlotte has many resources. The city had NCDOT Rail Division working with its professional staff (a Transportation Committee, the Safety Committee, the council and the final board), but never the mayor. The professional staff was very competent and knowledgeable. They knew the issues and took the process on. The consultants incorporated comments into draft recommendations and after discussions with Charlotte officials, the engineering consultants developed ideas for improvements.

Many public meetings were held, each in two settings. The TSS supported the City Transportation Plan. There was no resistance. Some of the comments included: “The public was very much involved.” “The residents initially agreed with DOT and wanted to build an overpass, but eventually decided to close the crossing to control traffic.”

### 11.2 Critical Success Factors for Project

“The city staff was extremely competent and took charge.” “The city had a good working relationship with other towns and cities”.

### 11.3 Assessment of the Process

According to NCDOT Rail Division, “Of all the communities in this report, this was the longest and most bureaucratic process.” “Although the issues were complex, people were generally amiable and the meetings went well.” Everyone involved seemed pleased with the process. NCDOT Rail Division and the consulting engineers thought the process went well and both gave this TSS a score of 8.5 out of 10.

“The process was good and I felt listened to. I understood the wish to close the crossing.” According to the city: “Overwhelming support. You always have some opposition.” “Good package of recommendations.” “I liked having short, medium, and long-term recommendations.” “Some of the things the community worried about never happened.” “The consulting engineers were really good with public involvement. They listened well and communicated well.” “I wish public safety was given more weight.” “It was a long learning curve on everyone’s part.”

### 11.4 NCDOT Rail Division Performance

“The meeting was not fun, but it was good to have NCDOT Rail Division there to listen.”

### **11.5 Financial Incentive to Town to Close the Crossing**

Incentives included left-turn lanes, a traffic signal, and widening a crossing.

### **11.6 Other Lessons Learned**

Other lessons learned in the process include the following comments: “The TSS process often helps municipalities begin to do long-term planning around traffic issues.” “Bring the community into the process earlier. The residents thought the decision was already made when they were brought in. Also, they had a lot of good ideas that had not been considered.”

## 12. WAKE FOREST FINDINGS

### 12.1 Traffic Separation Study Process

The Wake Forest Traffic Separation Study was completed in November 1999. It evaluated eight public street crossings. The proposed extension of Rogers Road across the tracks also was evaluated. There is currently only freight service in Wake Forest. In the past ten years, three train/vehicle crashes occurred in Wake Forest; one resulted in a fatality. The site was unusual as it was tied to a private developer's construction of a development of 4,000 homes, obviously increasing the traffic in town.

There were several board meetings and many questions about safety. There was much concern about what would happen if passenger train traffic resumed on a dedicated track, as proposed by the Triangle Transit Authority. There were also many questions about extensive congestion on the old US1A road at the schools at either end of the street, which the developer agreed to address.

Town staff generally saw the process as an opportunity. Three crossings were recommended for closing. One would have been closed anyway, since it was redundant with a new one being proposed and its closure was required by CSX. The developer agreed to build a new at-grade crossing with better sight lines.

NCDOT Rail Division developed crossing safety newsletters. Newsletters and maps were distributed. "I don't know if this was of value. A newspaper reporter followed the process and that was definitely helpful."

Several public workshops were held. "The informal meetings seemed to work better than structured ones." More residents came out than expected. "It was hard to keep the community on track at the meeting." The residents were very active – property owners had concerns about bus and truck reroutings. "There was some resistance – but there always is, based on people's habits." The residents were concerned about the historic buildings and the downtown area.

There was some frustration and resistance surfaced by the town's rapid growing pains, new businesses and resulting commuting problems. The road infrastructure had not been able to keep pace with the rapid growth and traffic demands.

The new development required a lot of work. Some thought the developer had a great commitment to the town. Others thought there was resistance to the developer by the community. There was also a lot of concern about the appearance of a relationship between NCDOT Rail Division and the developer.

### 12.2 Assessment of the Process

There were a variety of opinions about the process. NCDOT Rail Division thought they worked hard and the process worked well. They gave the process between an 8 and 8.5. "The Board of Commissioners worked well with the town manager."

“The council was happy. We wanted to close unsafe crossings.” “Great process”; “The process was satisfactory; there were no problems”; “It was a smooth process – there were no complaints”; “The process worked well; it was the best way to handle it,” according to the town. “Presentations were well-thought-out, well-prepared, and well-presented.” “All sides were weighed.” “We were kept well-informed – by letter, contact, or email.” The developer felt his relationship with the town was good, “public hearings were held when I asked.” “Different opinions were handled well.”

NCDOT Rail Division thought they could have been more proactive by writing letters to the newspaper. The consulting engineers thought they could have better explained what they were doing and “why” up front, before proposing a solution.

“Adequate involvement -- some had more input than others.” “The process was more contentious and took longer than it needed to. There was conflict between the council, which was ready to move along, and the others who wanted to do more studies.”

There was much concern about when grade separations would be built and who would pay for what. “I wish everything (all closings and construction) could have been done at once.” “I’m glad it is over. It was very frustrating – many hurdles. I don’t know why it took so long. Residents did not have problems with it – they thought it was improving the community. Few were upset about a crossing being closed. I never knew what to expect next.” “I don’t understand the role of the railroad.”

### **12.3 NCDOT Rail Division Performance**

NCDOT Rail Division was involved from the beginning.” “They worked well with the Planning Department and the landowners. “They listened well to the input.”

### **12.4 Financial Incentive to Town to Close the Crossing**

Incentives included road improvements, a constructed overpass, and crossing improvements. We supported the railroad’s attitude and the cost sharing: they saved us money on equipment and maintenance.”

### 13. CONCLUSIONS

There have been many long-term benefits to using the Traffic Separation Study process. These include the introduction of a planning initiative and collaborative process for smaller towns, and making decisions that are based more on the goals of community safety than individual driver's mobility.

U.S. legislation changed over the period to include support for financial incentives for crossing consolidations. Cumulative successes of the incentives within the TSS process led to private stakeholders increasing the financial incentives they offered.

In addition, NCDOT Rail Division's image improved in the eyes of the community (including more positive press coverage). NCDOT Rail Division is now seen as a professional organization, aligned with municipalities and committed to improving safety.

The TSS process was well thought out, improved with use, and was tested over time. It continues to serve North Carolina well and would be a good model for other states and other transportation modes. Other lessons learned include:

- The better the process and more skilled the North Carolina DOT staff and engineering consultants involved, the better the results. Continue to use independent engineering consultants.
- The more proactive the effort the better. Involve the community early and often to educate them about crossing safety. Speak with citizens in terms they understand (i.e., equate grade crossings to highway interchanges (controlled access)).
- Seek out and support champions and change agents within the community.

This document and other success stories can promote further enhancements to the crossing consolidation process and future research could further improve the TSS process. This study can serve as a new baseline for future crossing safety endeavors.



# **APPENDIX A INTERVIEW QUESTIONS**

## Appendix A. Interview Questions

1. What was the Traffic Separation Study process as you remember it?
2. What are the critical success factors for you for a project like this?
3. What was the importance of each of the following factors for this project?
  - The process used.
  - The experience of the staff.
  - Being able to provide statistics and rapidly respond to community questions.
  - Providing financial incentives to the town to close crossings.
4. How well did NCDOT Rail Division do in each of these areas?
  - How would you rate the overall process (0 to 10 with 0 being poor and 10 being ideal)? Why?
  - Was the process fair and open to your input?
  - What parts of the process went well?
  - What steps or activities could have worked better?
  - How would you rate the experience of the NCDOT Rail Division staff?
  - How well did NCDOT Rail Division do providing statistics, and rapidly responding to community questions?
  - How would you rate the size of the financial incentive to the town to close the crossing?
  - Did your opinion about the decision on how to address the traffic separation problem change over the life of the project?
5. What would you say to other towns and cities that are about to embark on a traffic separation study?





