RITA Intelligent Transportation Systems Joint Program Office

Atlanta
Congestion Reduction Demonstration

National Evaluation:
Content Analysis Test Plan

www.its.dot.gov/index.htm
Final – August 2, 2011
Publication Number FHWA-JPO-11-095

U.S. Department of Transportation
Research and Innovative Technology Administration

ATLANTA
CONGESTION REDUCTION DEMONSTRATION

NATIONAL EVALUATION:
CONTENT ANALYSIS TEST PLAN

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Federal Highway Administration (FHWA)
Office of Operations
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Contract No. DTFH61-06-D-00007/ORDER 07-T-08002/WO BA07-041

Final
August 2, 2011

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Technical Report Documentation Page

1. Report No.	2. Government Accession No.	3. Recipient's Catalog No.
FHWA-JPO-11-095		

4. Title and Subtitle	5. Report Date
Atlanta Congestion Reduction Demonstration: National Evaluation: Content Analysis Test Plan	August 2, 2011
	6. Performing Organization Code
7. Author(s)	8. Performing Organization Report No.
Emily Saunoi-Sandgren, University of Minnesota	
9. Performing Organization Name and Address	10. Work Unit No. (TRAIS)
Battelle 505 King Avenue Columbus, OH 43201	11. Contract or Grant No. DTFH61-06-D-00007/ORDER 07-T-08002/WO BA07-041
12. Sponsoring Agency Name and Address	13. Type of Report and Period Covered
U.S. Department of Transportation Research and Innovative Technology Administration Federal Highway Administration Federal Transit Administration 1200 New Jersey Avenue, S.E. Washington, DC 20590	14. Sponsoring Agency Code

15. Supplementary Notes

16. Abstract

This report presents the test plan for collecting and analyzing information on outreach activities, media coverage, and establishment of the partnership for the projects comprising the Atlanta Congestion Reduction Demonstration (CRD) under the United States Department of Transportation (U.S. DOT) Urban Partnership Agreement (UPA) and CRD Programs. The Atlanta CRD projects include the conversion of lanes for high occupancy vehicles (HOV) on approximately 16-miles of I-85 to high occupancy toll (HOT) lanes along with expansion and enhancement of transit service in that corridor, including new and expanded park-and-ride lots. The Content Analysis Test Plan is based on the Atlanta CRD National Evaluation Plan. This test plan describes the media, outreach, and partnership data sources, data availability, and possible risks associated with the data. The methods for analyzing the data are discussed. The schedule and responsibilities for collecting, analyzing, and reporting the data are presented.

17. Key Word	18. Distribution Statement
Urban Partnership Agreement, Congestion Reduction Demonstration, congestion pricing, HOT lane, Express Lanes, congestion reduction, evaluation	

19. Security Classif. (of this report)	20. Security Classif. (of this page)	21. No. of Pages	22. Price
		32	

Form DOT F 1700.7 (8-72) Reproduction of completed page authorized

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ACKNOWLEDGEMENTS

Many individuals from the Atlanta partnership were helpful during the development of this test plan. We acknowledge and appreciate the assistance of many individuals from Georgia Department of Transportation, Georgia Regional Transportation Authority, State Road and Tollway Authority, and that of other partner agencies including Atlanta Regional Commission, Georgia Department of Public Safety, Metropolitan Atlanta Rapid Transit Authority, Gwinnett County Government, Clean Air Campaign, and Georgia Institute of Technology.

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LIST OF ABBREVIATIONS

4Ts	Tolling, Transit, Telecommuting, and Technology
AFV	Alternative fuel vehicles
ALPR	Automatic license plate readers
ARC	Atlanta Regional Commission
CAC	Clean Air Campaign
CBA	Cost benefit analysis
CRD	Congestion Reduction Demonstration
CVO	Commercial vehicle operator
FHWA	Federal Highway Administration
GDOT	Georgia Department of Transportation
Georgia Tech	Georgia Institute of Technology
GRTA	Georgia Regional Transportation Authority
HOT	High occupancy toll
HOT3+	High occupancy toll lane allowing untolled travel by vehicles with three or more occupants
HOV	High occupancy vehicle
HOV2+	High occupancy vehicle with a minimum of two occupants
MARTA	Metropolitan Atlanta Rapid Transit Authority
MOE	Measure of effectiveness
RFID	Radio frequency identification
SOV	Single-occupant vehicle
SRTA	State Road and Tollway Authority
TDM	Travel demand management
UPA	Urban Partnership Agreement
U.S. DOT	United States Department of Transportation
VMT	Vehicle miles traveled

1.0 INTRODUCTION

This report presents the test plan for collecting and analyzing information on outreach activities, media coverage, and reactions of the public, policy makers, and other groups for the Atlanta Congestion Reduction Demonstration (CRD) under the United States Department of Transportation (U.S. DOT) CRD program. The content analysis data will be used in assessing non-technical factors contained in the Atlanta CRD National Evaluation Plan. This plan is one of ten test plans identified in the Atlanta CRD National Evaluation Plan.

The Atlanta CRD is one of several large field deployments around the United States that are receiving U.S. DOT funding and which are intended to demonstrate congestion pricing and supporting strategies. The Atlanta CRD national evaluation will address the four primary U.S. DOT Urban Partnership Agreement (UPA) evaluation questions shown in Table 1-1.

Table 1-1. U.S. DOT National Evaluation "Objective Questions"

Objective Question #1	How much was congestion reduced in the area impacted by the implementation of the tolling, transit, technology, and telecommuting strategies? It is anticipated that congestion reduction could be measured by one of the following measures, and will vary by site and implementation strategy: • reductions in vehicle trips made during peak/congested periods; • reductions in travel times during peak/congested periods; • reductions in congestion delay during peak/congested periods; and • reductions in the duration of congested periods.
Objective Question #2	What are the associated impacts of implementing the congestion reduction strategies? It is anticipated that impacts will vary by site and that the following measures may be used: • increases in facility throughput during peak/congested periods; • increases in transit ridership during peak/congested periods; • modal shifts to transit and carpools/vanpools; • traveler behavior change (e.g., shifts in time of travel, mode, route, destination, or forgoing trips); • operational impacts on parallel systems/routes; • equity impacts; • environmental impacts; • impacts on goods movement; and • effects on businesses.
Objective Question #3	What are the non-technical success factors with respect to the impacts of outreach, political and community support, and institutional arrangements implemented to manage and guide the implementation?
Objective Question #4	What are the overall costs and benefits of the deployed set of strategies?

The questions shown in Table 1-1 will be addressed by carrying out the following 12 "evaluation analyses" described in the Atlanta CRD National Evaluation Plan: congestion, tolling, transit, travel demand management (TDM), technology, safety, equity, environmental, goods movement, business impacts, non-technical success factors, and cost benefit. Each of these 12 analyses relies upon various evaluation measures of effectiveness (MOEs).

"Test plans" are the evaluation planning documents that describe how specific data will be collected and processed to yield the evaluation MOEs required for the various analyses. Whereas evaluation analyses are categorized according to related evaluation questions or types of impacts–for example all equity-related impacts are addressed in the equity analysis–test plans are categorized according to common data types or sources. For example, the "Traffic System Data Test Plan" collects and processes all of the traffic data required for the national evaluation. There are a total of ten test plans for the Atlanta CRD national evaluation. In addition to this Content Analysis Test Plan, there are test plans focusing on the following types of data: traffic, tolling, transit, TDM, safety, surveys and interviews, environmental, cost benefit analysis, and exogenous factors.

The relationship between test plans and evaluation analyses is discussed in Section 1.2. In short, analyses describe the evaluation questions and hypotheses to be investigated and the test plans describe how the data and MOEs needed to support the evaluation will be collected and processed. Most test plans collect data and provide MOEs that will be used in multiple analyses and most analyses rely upon data and measures developed through several different test plans.

The remainder of this introduction chapter describes the Atlanta CRD deployments and elaborates on the relationship between test plans and evaluation analyses. The remainder of the report is divided into three sections. Chapter 2 presents the data sources, data availability, and risks associated with the content analysis data collected through this test plan. Chapter 3 discusses how all of the data will be analyzed and used in the national evaluation. Chapter 4 presents the schedule and responsibilities for collecting and analyzing the content analysis data.

1.1 The Atlanta CRD

Atlanta was selected by the U.S. DOT to implement projects aimed at reducing congestion based on a combination of complementary strategies known as the 4Ts: Tolling, Transit, Telecommuting/TDM, and Technology. Under contract to the U.S. DOT, a national evaluation team led by Battelle is assessing the impacts of the projects in a comprehensive and systematic manner in Atlanta and other sites. The national evaluation will generate information and produce technology transfer materials to support deployment of the strategies in other metropolitan areas. The national evaluation will also generate findings for use in future Federal policy and program development related to mobility, congestion, and facility pricing.

The Atlanta CRD partnership is led by three public agencies—the Georgia Department of Transportation (GDOT), the Georgia Regional Transportation Authority (GRTA), and the State Road and Tollway Authority (SRTA). Other partners include Atlanta Regional Commission (ARC), Georgia Department of Public Safety, Metropolitan Atlanta Rapid Transit Authority (MARTA), Gwinnett County Government, Clean Air Campaign (CAC), and Georgia Institute of Technology (Georgia Tech).

The Atlanta CRD partners have as a long-term regional goal an integrated system of congestion-priced lanes, enhanced transit service, and advanced technology on 49 miles of I-75, I-85, and I-20. The CRD will establish the first phase of that network on approximately 16 miles of I-85 from I-285 to Old Peachtree Road. The Atlanta CRD projects are described briefly below.

High Occupancy Toll (HOT) Lanes on I-85. As the first phase of a regional integrated system of congestion-priced lanes, the existing high occupancy vehicle (HOV) lanes will be converted to dynamically-priced HOT lanes, called Express Lanes, on approximately 16 miles of I-85 from Chamblee Tucker Road, just south of I-285, to just north of Old Peachtree Road in Gwinnett County. The Express Lanes are depicted in Figure 1-1. The occupancy requirement for using the Express Lanes toll-free will change from the two or more people on the current HOV lanes (HOV2+) to three or more people (HOT3+) and registration will also be required. Registered toll-exempt vehicles include vehicles with three or more people, motorcycles, alternative fuel vehicles (AFV) with GA AFV license plates (but not hybrids), transit, and emergency vehicles. Pre-registered vehicles with less than three occupants will be allowed on the Express Lanes by paying a toll. The lanes will operate with seven entry and exit points in the northbound direction and six in the southbound direction. Tolling will occur 24 hours a day and seven days a week in four southbound sections and five northbound sections. GDOT is responsible for the construction in the HOV to HOT conversion. SRTA will operate the tolling portion of the system.

Transit Enhancements. A total of 36 new buses will be added to the commuter bus fleet on the I-85 corridor, with 20 buses added in 2010 and 16 more in 2011. The expanded fleet will enable five new routes to operate on the corridor, the first of which began in August of 2010. GRTA will purchase the buses. GRTA is also responsible for the CRD-funded park-and-ride lot enhancements. These include three new lots—Mall of Georgia, Hamilton Mill, and Hebron Baptist Dacula—and one expanded lot at I-985/GA 20. The Mall of Georgia lot was the first to open in August of 2010 with 750 leased spaces until the permanent lot opens at that location. Opening in June 2011 are 400 new leased spaces at Hebron Baptist Dacula. Scheduled for July 2011 is the expansion of the I-985/GA 20 lot, which will add 384 spaces to the 347 that already exist today. The Hamilton Mill lot is scheduled to open in August 2011 with 918 spaces. In addition to the CRD-funded park and ride lots, the evaluation will include two other lots that are not funded by the CRD but could be impacted. These include the Discover Mills and Indian Trail Park and Ride Lots.

Automated Enforcement Systems. A gantry-controlled access system for the Express Lanes will consist of approximately 35 overhead gantries or existing structures placed in the median. Readers equipped with radio frequency identification (RFID) will read transponders, and cameras will collect images of vehicle license plates. This information will be used to identify toll violators. Mobile automatic license plate readers (ALPR) camera systems installed in enforcement vehicles will aid police officers with visual occupancy verification of vehicles using the Express Lane. Enforcement officials will be provided with an audible or visual alert if a license plate matches the database of registered HOT3+ users to prompt a visual inspection for vehicle occupancy compliance. Officers will upload a list of occupancy violations written during a shift to the Express Lanes back-office system.

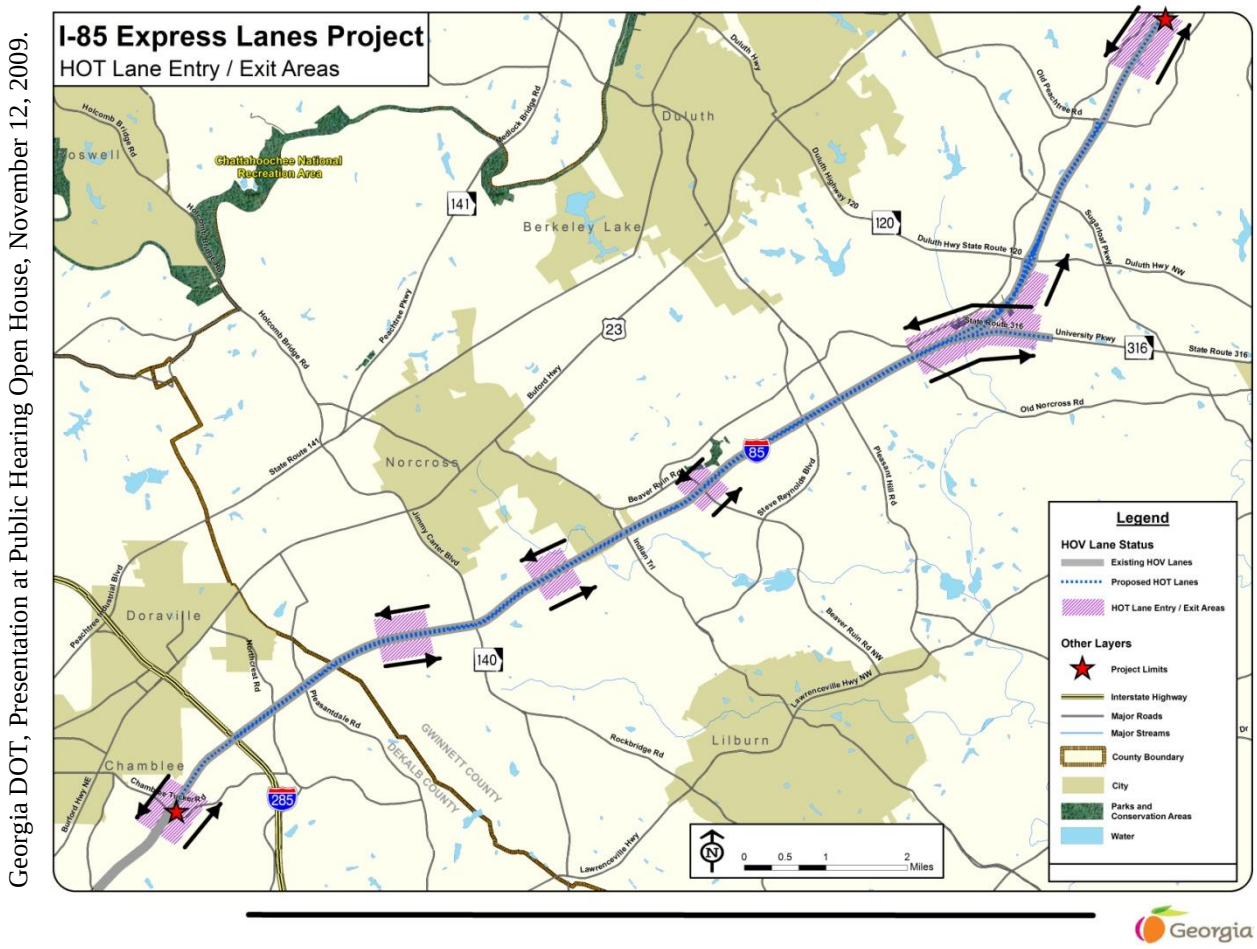

Figure 1-1. I-85 HOV to HOT Conversion Project

Carpooling Outreach. To support the CRD projects, the Clean Air Campaign will undertake public outreach to increase the number of 3 person carpools in the I-85 Express Lanes corridor. Their efforts will focus on converting existing 2-person to 3-person carpools and on creating 3-person carpools from single-occupant vehicle (SOV) drivers. CAC will use existing carpooler databases to identify and contact 2-person carpoolers. In conjunction with SRTA, CAC will identify SOV commuters who travel in the I-85 Express Lanes and encourage carpool formation. SOV drivers will also be targeted through outreach to employers in the I-85 corridor and to employers outside the corridor who may have employees who use the I-85 corridor.

Schedule for the Atlanta CRD Projects. The projects to be evaluated go into operation between August 2010 and July 2012. Table 1-2 presents the dates at which each of the Atlanta CRD projects are expected to be in operation.

Table 1-2. CRD Project Schedules

Projects	Operational Date
Express Lanes on I-85	September 2011
5 New Bus Routes	August 2010 – July 2012
Park-and-Ride Lots	August 2010 – August 2011
Automated Enforcement	September 2011
Carpooling Outreach	Spring 2011 – Winter 2012

1.2 Atlanta National Evaluation Plan and the Use of Content Analysis Data

Table 1-3 shows which of the various Atlanta CRD test plans will contribute data to each of the evaluation analyses. The "flow" between test plans is "one way" in the sense that test plans feed data and measures to the analyses rather than the reverse. The solid circles show where data from a given test plan constitutes a major input to an analysis; the open circles show where data from a given test plan constitutes a supporting input to an analysis. As shown in Table 1-3, the Content Analysis Test Plan provides major input to the evaluation of non-technical success factors.

Table 1-4 includes a summary of the content analysis data elements, the MOEs and the hypotheses/questions the data will be used to evaluate.

Table 1-3. Relationships Among Test Plans and Evaluation Analyses

Atlanta CRD Test Plans	Congestion Analysis	Tolling Analysis	Transit Analysis	TDM Analysis	Technology Analysis	Safety Analysis	Equity Analysis	Environmental Analysis	Goods Movement Analysis	Business Impact Analysis	Non-Technical Success Factors Analysis	Cost Benefit Analysis
Traffic System Data Test Plan	●	●		○	○	○		●	●			○
Tolling Data Test Plan		●					○		●			○
Transit System Data Test Plan			●				○	○				○
TDM Data Test Plan		○		●			○	○		○		○
Safety Data Test Plan					●	●						○
Surveys and Interviews Test Plan	○	○	●	●		○	●	○	○	○	●	○
Environmental Data Test Plan							○	●				○
Content Analysis Test Plan											●	
Cost Benefit Analysis Test Plan												●
Exogenous Factors Test Plan	○	○	○	○	○	○	○	○	○	○	○	○

● — Major Input ○ — Supporting Input

Table 1-4. Content Analysis Test Plan Data Elements Used in Testing Evaluation Hypotheses/Questions

Atlanta Content Analysis Data Element	Atlanta Measure of Effectiveness	Atlanta Hypotheses/Questions*
1. Partnership Documents	• Partnership documents (e.g., Memoranda of Understanding)	AtlNonTech-2 AtlNonTech-3
2. Outreach Materials/Activities	• Outreach materials (e.g., press releases, brochures, websites, etc.) and activities	AtlNonTech-3 AtlNonTech-4
3. Media Coverage	• Newspaper, Radio, TV, Blogs	AtlNonTech-4

*Listed are acronyms corresponding to hypotheses/questions to be addressed with data from this test plan. An explanation of these acronyms can be found in Appendix A, which contains a compilation of the hypotheses/questions for all the analysis areas from the Atlanta CRD National Evaluation Plan.

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2.0 DATA SOURCES, AVAILABILITY, AND RISKS

This chapter identifies the sources for the content analysis and discusses the availability of those data and any potential risks associated with collecting and processing them for use in the evaluation.

2.1 Data Sources

Table 2-1 summarizes the content analysis data needs, including individual data elements associated with each of the three major data types (outreach materials, partnership documents and media coverage), the data collection timelines, and data sources. Each of the data types are discussed below. Together, these data will allow us to understand what the local partners did to make their project successful and the keys to success and lessons learned. For example, outreach material/activities will provide information on how and how well the partners engaged targeted audiences (political decision makers, agency leaders and technical staff, the general public, etc.) and what messages the local partners communicated. Partnership documents will provide insights into how the multi-agency Atlanta CRD coalition was united. Media coverage data will indicate how the media reacted to the project and portrayed it to the public.

Partnership Documents: To the extent possible, all UPA partnership documents will be archived and transmitted by local partners to the national evaluation team in electronic format during the baseline stage. Partnership documents include the original proposal and teaming agreement executed with U.S. DOT as well as communications among partners during the proposal development and project implementation stage (i.e., baseline).

- **GDOT** – Information includes, but is not limited to, materials stored on the project website that is hosted on GDOT's website as well as agreements SRTA has made with other Atlanta CRD local partners.
- **SRTA** – Information includes, but is not limited to, agreements SRTA has made with other Atlanta CRD local partners.
- **GRTA** – Information includes, but is not limited to, agreements GRTA has made with other Atlanta CRD local partners.

Outreach Materials/Activities: To the extent possible, all outreach materials related to the Atlanta CRD project that are created and distributed by local partner agencies (or any marketing or communications contractors) will be compiled and archived by the local partners and transmitted by the local partners to the national evaluation team in electronic format during both baseline and post-deployment periods. In addition, any outreach activities conducted by the partner agencies and any marketing or communications contractors will be logged and reported by the local partners to the national evaluation team during these same periods.

- **GDOT** – Information will include all outreach and communications efforts related to construction and the overall communications plan for the Atlanta CRD.
- **STRA** – Information will include all outreach and communications efforts related to the overall marketing and communications plan for the Atlanta CRD.
- **GRTA** – Information will include all outreach and communications efforts related to transit.

Table 2-1. Summary of Data Needs for Atlanta CRD Content Analysis Test Plan

Data Element		Data Collection Frequency	Data Collection Timing				Data Reporting Frequency	Data Source
			Baseline		Post-Deployment			
			Begin	End	Begin	End		
1.0 Partnership Documents	1.1 Partnership Agreement Documents	One time	First occurrence	NA	NA	NA	One time in 2011	GDOT, SRTA, GRTA
	1.2 Memoranda of Understanding	One time	First occurrence	NA	NA	NA	One time in 2011	GDOT, SRTA, GRTA
	1.3 Other Documents (examples might include agency resolutions authorizing initial participation in the CRD application, committing project funding, and designating staff support, meeting minutes from CRD Partner Coordination Meetings and other key meetings)	One time	First occurrence	NA	NA	NA	One time in 2011	GDOT, SRTA, GRTA
2.0 Outreach Materials/ Activities	2.1 Press Releases and eNewsletters	Continuous	First occurrence	Start of HOT operation	Start of HOT operation	One year after HOT operation begins	As occur	GDOT, SRTA, GRTA
	2.2 Project or Agency Website Used for External Communications of CRD Project	Continuous	First occurrence	Start of HOT operation	Start of HOT operation	One year after HOT operation begins	On-going	GDOT, SRTA, GRTA
	2.3 Tours/Public Meetings/Presentations	Continuous	First occurrence	Start of HOT operation	Start of HOT operation	One year after HOT operation begins	As occur	GDOT, SRTA, GRTA
	2.4 Distribution of Materials (e.g. where, to whom, how many)	Continuous	First occurrence	Start of HOT operation	Start of HOT operation	One year after HOT operation begins	As occur	GDOT, SRTA, GRTA
	2.5 Other Media Events	Continuous	First occurrence	Start of HOT operation	Start of HOT operation	One year after HOT operation begins	As occur	GDOT, SRTA, GRTA
3.0 Media Coverage	3.1 Local and national newspapers; Blogs; Magazines; Local radio and TV clips	Daily e-clippings	First occurrence	Start of HOT operation	Start of HOT operation	One year after HOT operation begins	As occur	GDOT

Media Coverage: From its first occurrence, all media coverage of the Atlanta CRD will be sought for the national evaluation. The primary source for the data will be GDOT, which will provide media clippings from local media sources pertaining to the CRD project. For that purpose, GDOT will add the national evaluation team to its media clipping service to provide additional information on local TV/radio media coverage for CRD projects. GDOT will also add the national evaluation team to its email list to receive updates on construction that are distributed to the media.

2.2 Data Availability

The national evaluation team will coordinate with the local partners on data availability and data delivery in the following manner:

- **Partnership Documents:** GDOT, SRTA, and GRTA will assemble any relevant materials they are able to find (e.g., meeting dates, meeting participants, and meeting notes) that are not already available electronically via the project's public website and deliver them electronically to the national evaluation team.
- **Outreach Materials/Activities:** GDOT, SRTA, and GRTA will assemble the information related to its outreach, such as stakeholder meetings, communications plans, printed or electronic marketing material and provide these electronically to the national evaluation team via email. The national evaluation team already has access to the Atlanta CRD project website, GDOT's Construction Media Kit and Communications Plan, and meeting agendas from older outreach events.
- **Media Coverage:** This material is already being collected and organized by relevance to the CRD projects by GDOT through a media clipping service. GDOT has already provided the national evaluation team access to the clipping service and to the email service of construction updates.

2.3 Potential Risks

There do not appear to be any significant risks associated with collecting the data required for the content analysis. A minor risk is that not all desired outreach materials, partnership documents and information on outreach activities will be archived by the local partners. This risk is being mitigated by having the partners send material on a regular basis, thus avoiding the need to archive and the possibility of data failing to be archived. Another minor risk, one that impacts the national evaluation overall, is that delays in project deployment may require adjustment in the evaluation timeline, and thereby extend the overall data collection period.

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3.0 DATA ANALYSIS

The content analysis will be carried out in accordance with the overall approach for the non-technical success factors analysis (of which the content analysis is one component) described in the Atlanta CRD National Evaluation Plan. The content analysis is directed by two key questions: 1) What did the partners do to try to make their CRD projects successful?; and 2) What were the keys to success and what are the associated lessons learned that will be useful to U.S. DOT and other state and local transportation agencies?

The analysis will assess public reaction to the Atlanta CRD project, chronicle project hurdles and challenges, and evaluate the methods used to overcome the hurdles and challenges. The analysis will also examine the role the media plays as both an intermediary in conveying information to the public as well as a shaper of public opinion. In addition, the analysis will assess whether and how there was a coherent marketing and communications plan for the CRD project and will explore the dynamics of collaboration through partnership documents.

All outreach materials/activities, partnership documents, and media coverage data will be stored, organized and analyzed by the national evaluation team using NVivo, a qualitative data analysis software.[1] Utilizing the NVivo software is a benefit for the content analysis. The software creates project efficiencies through its ability to store, organize and link project materials in one location. The software also has the ability to develop and store qualitative analysis techniques such as document coding and tracking characteristics and counts for each project element. NVivo will also be used to store, organize and analyze the stakeholder interviews and workshops – additional elements of the non-technical success factors analysis. NVivo can link the content analysis data elements to the data from the stakeholder interviews and workshops, thereby facilitating a more in-depth non-technical success factors analysis. In addition, NVivo can verify inter-coder reliability by tracking and reporting the similarities or differences among multiple coders.

A descriptive analysis will be used for the outreach materials/activities and partner documents. This will involve a detailed description for each data element that answers the following questions: 1) what was done? 2) when did it happen? and 3) what form did it take? This descriptive information will then be correlated with the media coverage data. For example, a timeline of outreach and partner activities will be developed and compared with the amount and type of media coverage generated over the same time period.

For the media coverage, NVivo will be used to code the data. In order to assure reliability and validity of the analysis, at least two coders will be utilized to determine the appropriate coding categories. NVivo will identify any disagreement among coders, which will then be resolved by coming to an agreement among coders as to the appropriate coding category. A preliminary coding structure organizes the data into the following categories:

[1] For more information on the NVivo software, please visit: http://www.qsrinternational.com.

- ***Outcomes:*** impact of project on public perception of congestion relief, on how partner agencies do their work; success or failure of project to meet its stated goals
- ***Public reactions:*** does the public react to the project? If they do, is it positive, negative, constructive?
- ***Challenges:*** any events that occur that challenge the successful outcome of the project
- ***Nature of media coverage*****:** opinion-based, public education, portray project as positive, negative, or neutral
- ***People:*** skills, background, and attitudes people and organizations bring to the success (or failure) of the project; who and how are key actors and organizations talked about
- ***Context:*** initial project conditions such as general environment (turbulence, competitive and institutional elements) and direct antecedents (conveners; general agreement on the problem; existing relationships or networks); ongoing examination of context throughout project life cycle.
- ***Discourse:*** stories people tell, debated categories (what is the purpose and outcomes of the UPA project, symbols, importance and function of documents, reports, etc.)

Based on this coding structure, NVivo can create a number of nodes and sub-nodes that have names tied directly to the above categories. Snippets of text from each type of data included in the content analysis (e.g., news media articles, outreach materials) are allocated to whichever node or sub-node most clearly reflects the content. The software thus gives the ability to conduct qualitative analysis thematically by analyzing the information assigned to each node and sub-node.

One aspect of the media coverage analysis will remain in question until the national evaluation team has received a substantial amount of the data. There is potential for a large volume of media coverage that will render difficult an analysis of each media piece. In this case, the national evaluation team would keep a count of all media coverage, but perform an analysis on a sample of the media, perhaps selected during spikes in coverage.

4.0 SCHEDULE AND RESPONSIBILITY

The schedule for collection and reporting of the data for the content analysis varies by data element as indicated in Table 2-1. The baseline data collection begins with the first occurrence, e.g., activities associated with the initial local partnership formation that led to the funding application to U.S. DOT. The start of operation of the Express Lanes in September 2011 will designate the end of the baseline period and the start of the post-deployment data collection phase. The post-deployment content analysis data will be collected for one year through July 2012.

Outreach materials and information on outreach activities and media coverage will require continuous collection by local partners. Reporting to the national evaluation team will occur as materials are developed and events occur (that is, reporting should be occurring now). Partnership documents, on the other hand, are a reflection of past actions and need to be assembled by the partners and sent only once to the national evaluation team.

The partners' responsibilities for this test plan include:

- GDOT will collect and provide media coverage, outreach materials/activities, and partnership documents to the national evaluation team.
- SRTA will collect and provide outreach materials/activities and partnership documents to the national evaluation team.
- GRTA will collect and provide partnership documents and any other relevant data for the content analysis plan that is otherwise not available through GDOT and SRTA.

The national evaluation team will receive, analyze, and report on the above listed data.

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APPENDIX A – COMPILATION OF HYPOTHESIS/QUESTIONS FROM ATLANTA CRD NATIONAL EVALUATION PLAN

Evaluation Analysis	Hypothesis/ Question Number	Hypothesis/Question
Congestion	AtlCong-1	Converting the I-85 HOV lanes to HOT operations will improve travel time and average travel speeds on both the general purpose and high occupancy lanes on I-85
	AtlCong-2	Converting the I-85 HOV lanes to HOT operations will improve travel time reliability and reduce variability on both the general purpose and high occupancy lanes on I-85
	AtlCong-3	Deploying the CRD improvements will result in more vehicles and persons being served on I-85
	AtlCong-4	Implementing the CRD improvements in the I-85 corridor will reduce the spatial and temporal extent of congestion
	AtlCong-5	As a result of the CRD improvements, the perception of travelers is that congestion has been reduced in the I-85 corridor
Pricing	AtlTolling-1	Tolling will increase vehicular throughput on I-85 Express Lanes and improve travel reliability
	AtlTolling-2	What changes in usage will occur as a result of the conversion of the HOV2+ lanes to HOT3+ lanes?
	AtlTolling-3	How much will travelers utilize the I-85 Express Lanes system?
	AtlTolling-4	Variable pricing on the I-85 Express Lanes will regulate vehicular access so as to improve the operation of the lanes
Transit	AtlTransit-1	Atlanta CRD project will enhance transit performance in the I-85 corridor
	AtlTransit-2	Atlanta CRD project will increase ridership and facilitate a mode shift to transit within the I-85 corridor
	AtlTransit-3	Increased ridership / mode shift to transit will contribute to congestion mitigation within the I-85 corridor
	AtlTransit-4	What was the relative contribution of each Atlanta CRD project element to increased ridership and/or mode shift to transit within the I-85 corridor?

Evaluation Analysis	Hypothesis/ Question Number	Hypothesis/Question
TDM	AtlTDM-1	Promotion of commute alternatives removes trips and vehicle miles traveled (VMT) from I-85
	AtlTDM-2	CAC incentives support formation of 3+ carpools and vanpools on I-85
	AtlTDM-3	What was the relative contribution of the Atlanta CRD TDM initiatives on reducing I-85 vehicle trips/VMT?
Technology	AtlTech-1	Using advanced technology to enhance enforcement will reduce the rate and type of violators in the corridor
Safety	AtlSafety-1	The collective impacts of CRD improvements will be safety neutral or safety positive
	AtlSafety-2	Gantry-controlled access technology will reduce buffer-related incidents and buffer violations
	AtlSafety-3	Tolling strategies that entail unfamiliar signage will not adversely affect highway safety
Equity	AtlEquity-1	What are the direct social effects (travel times, tolls, and adaptation costs) for various transportation system user groups from tolling and other CRD strategies?
	AtlEquity-2	What is the spatial distribution of aggregate out-of-pocket and inconvenience costs, and travel-time and mobility benefits?
	AtlEquity-3	Are there any differential environmental impacts on certain socio-economic groups?
	AtlEquity-4	How does reinvestment of toll revenues impact various transportation system users?
Environmental	AtlEnv-1	What are the impacts of the Express Lanes project in the I-85 corridor on air quality?
	AtlEnv-2	What are the impacts on energy consumption?
Goods Movement	AtlGoods-1	Commercial vehicle operators (CVOs) will experience reduced travel time by reduced congestion on general purpose lanes
	AtlGoods-2	Operators with light-duty trucks will prefer to use Express Lanes to general purpose lanes for faster travel times
	AtlGoods-3	Operators delivering goods will perceive the net benefit of tolling strategies (e.g., benefits such as faster service and greater customer satisfaction outweigh higher operating costs due to tolls)
	AtlGoods-4	Operators report changing operational decisions due to use of Express Lanes (e.g., changing delivery times)

Evaluation Analysis	Hypothesis/ Question Number	Hypothesis/Question
Business	AtlBusiness-1	What is the impact of the strategies on employers? e.g., employee satisfaction with commute and increased employment-shed to downtown/mid-town Atlanta
	AtlBusiness-2	What is the impact of the strategies on businesses that rely on customers accessing their stores, such as retail and similar establishments?
	AtlBusiness-3	How are businesses that are particularly impacted by transportation costs affected (e.g., taxis, couriers, distributors, tradesmen)?
Non-Technical	AtlNonTech-1	What role did factors related to “people” play in the success of the deployment? People (sponsors, champions, policy entrepreneurs, neutral conveners)
	AtlNonTech-2	What role did factors related to “process” play in the success of the deployment? Process (forums including stakeholder outreach, meetings, alignment of policy ideas with favorable politics, and agreement on nature of the problem)
	AtlNonTech-3	What role did factors related to “structures” play in the success of the deployment? Structures (networks, connections and partnerships, concentration of power and decision-making authority, conflict-management mechanisms, communications strategies, supportive rules and procedures)
	AtlNonTech-4	What role did factors related to “media” play in the success of the deployment? Media (media coverage, public education)
	AtlNonTech-5	What role did factors related to “competencies” play in the success of the deployment? Competencies (cutting across the preceding areas: persuasion, getting grants, doing research, technical/technological competencies; ability to be policy entrepreneurs; knowing how to use markets)
	AtlNonTech-6	Does the public support the UPA/CRD strategies as effective and appropriate ways to reduce congestion?
Cost Benefit	AtlCBA-1	What is the net benefit (benefits minus costs) of the Atlanta CRD projects?

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FHWA-JPO-11-095

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