Marketing and Outreach

M-0446 Ramp Metering Feasibility Study for Durham and Wake Counties

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Introduction

Key to success in the deployment of new technology such as ramp metering is the successful education of the various constituent groups regarding the goals and benefits of ramp metering. Based on the significant database built from multiple ramp metering deployments, both nationally and worldwide, issues with ramp metering focus on three principal areas of concern:

- The assumption that ramp meters will back up traffic onto crossing arterials, impacting the operation of these facilities.
- The belief that motorists will take another route to avoid ramp metering sites.
- A perception from the public that ramp meters will unfairly increase their trip time.

The overall approach to various stakeholder groups is similar, to present the benefits and dispel the myths of ramp metering. The method of engaging the various groups is different in both the content and amount of detail, because the important issues and the technical knowledge of each stakeholder group is not the same.

This report outlines a recommended approach to address these concerns, dispel the myths, and present the benefits of ramp metering. It will address the important issues that must be faced as a ramp metering program—implemented most likely through multiple projects—moves through design to implementation.

Section 4 of this report presents a series of recommended marketing and outreach tools that should be utilized.

From research and discussions with other agencies that have ramp meter deployments, public support of ramp meters is essential for a successful implementation. Opposition toward ramp metering usually stems from public perception that delays increase due to ramp metering implementation, while their associated benefits may not be obvious. There is also a perception that ramp meters may contribute to increased rear-end accidents due to cars stopped on the ramp. Local agencies tend to assume that the ramp meters will back up traffic and degrade traffic flow on the crossing arterial roadway.

Agencies operating ramp meters have altered these perceptions through focused public communications and involvement. By proactively disseminating information to the public, these agencies are demonstrating the benefits ramp metering can offer.

A marketing and outreach plan must be tailored to address the concerns of the following constituent groups that have respective interests in the proposed project:

- Technical staff – Engineers, planners and related management, who best benefit with information concerning engineering justification of ramp metering,

- Law enforcement/emergency responders – Principally, the NC State Highway Patrol, city police, county sheriffs, local fire and rescue personnel, who are most interested in the impact of ramp meters on their duties and ability to respond,
- Public officials – Appointed and elected citizens on the NCDOT Board of Transportation, Metropolitan Planning Organization officials and local government elected officials, whose interest focuses on funding and public support, and
- General public – End users of the ramp meters, who are most concerned about direct impact on their travel such as safety and delayed travel time.

The target audience for public information dissemination should also include community leaders, elected officials, motorists, enforcement agencies, transit authorities, and notably, the local media. It is important to reach out to constituents—both proponents and opponents—of ramp meters. Many concerns can be addressed in the implementation of ramp meter strategies, as these concerns are often products of misinformation or misunderstanding and can be resolved.

Costs for recommended approach of the marketing and outreach program described in this report could reasonably be in excess of $100,000, and potentially up to $150,000. The range of costs is highly dependent on a number of issues related to how the ramp meters will be deployed.

1. Target Audiences for Marketing and Outreach

The agency staff interviewed for Task 5 - National Research Report stated that public support of ramp meters is essential for a successful implementation. Agencies installing ramp meters can alter many negative perceptions through focused public communications and involvement. It is essential for these agencies to be proactive in disseminating information and demonstrating the benefits ramp metering has to offer.

A marketing and outreach plan must address the concerns of the following constituent groups that have respective interests in the proposed project.

1.1. Agency Staff

Agency staff consists of NCDOT staff, local maintaining entities such as the Town of Cary, Cities of Raleigh and Durham who maintain the traffic signals and the cross roads, and law enforcement and emergency services. Each of these constituent groups has different interests and concerns.

1.1.1. NCDOT staff

Generally, the main concern for NCDOT traffic operations staff is to ensure the proposed operation is an improvement in the level of service, is safe, and does not degrade freeway or ramp operation. The staff members participating in this feasibility study will have become very familiar with ramp metering. The focus for NCDOT staff should be on those who have not participated in this study and are unfamiliar with ramp metering.

Potential concerns for the staff unfamiliar with ramp metering will be design details and safety concerns, and not benefits of ramp metering. Numerous ramp metering evaluation studies can be used to educate unfamiliar staff. In particular, evaluation reports of other agencies will demonstrate the benefits and address the various concerns, and do so with the level of technical discussion expected by these individuals.

1.1.2. Local Municipal Agencies

Local transportation agencies maintain many of the traffic signals where the ramps meet the crossing arterials. In some case these agencies may also maintain the crossing arterial roadways.

The typical concern of local transportation agencies is the perception that ramp meters will back up traffic and degrade the arterial roadway as well as their traffic signal operations. This concern, which is nearly universal, can be countered by numerous experiences and evaluation studies of other agencies where proper software selection, design, and timing parameters are able to mitigate this potential issue.

1.1.3. Law Enforcement and Emergency Services

Law enforcement officers and emergency service personnel (fire and emergency medical services) may have several potential concerns:

- Is there an unsafe situation by installing a ramp meter to stop traffic on a freeway ramp?
- Will the operation impede the ability of law enforcement officers and emergency service personnel to respond to incidents?
- How do we enforce a ramp meter during times when the ramp meter is not operational?

These concerns can best be mitigated through open discussion settings, facilitated by traffic engineers or, ideally, by suitably experienced law enforcement professionals. Suitable large-format schematic graphics, whether static boards or projected, can be used as props and visual aids to facilitate discussions.

1.2. Citizens

Citizen opposition and concerns with ramp meters are directly related to the impact upon their individual trip. Recurring questions and example responses include:

1. "Will traffic back up onto the side street?" *There is the potential on short ramps and very high-volume ramps, but the system will be designed and timed to prevent that. Each ramp meter has detectors to measure traffic volumes and adjust the timing accordingly. Cameras can also be used to observe traffic in real-time.*
2. "When will the ramp meters operate?" *Ramp meters are designed to work at the onset of peak travel times and when traffic volumes dictate. When the traffic volume on the freeway drops below a certain threshold volume, the ramp meters will be turned off.*
3. "What happens if I run the light?" *Legally running a red light on a ramp carries the same penalty as running any traffic signal.*
4. "What happens if there is an accident on the freeway and traffic stops?" *In order to minimize backups onto the cross streets, the ramp meters will automatically be turned off and drivers will enter the freeway normally, as they do when there are no ramp meters.*
5. "How effective are ramp meters?" *When more cars try to merge onto the freeway than there are available gaps in traffic, the traffic slows down. These reduced speeds can cause backups and potential accidents. By matching the entering cars to the available gaps, congestion is less likely. The short wait on the ramp will help maintain the overall operating speed of the freeway.*
6. "What are the goals of ramp meters?" The goals are to reduce delays, reduce accidents caused by congestion where the ramps merge, and provide more reliable and consistent travel times.
7. "How long should I expect to wait?" *Ramp meters are timed according to current highway traffic conditions—the wait may vary but typically should range from a few seconds to not more than a minute.*

8. "Why are ramp meters being installed at my entrance ramp and not upstream, causing me to wait longer than they do?" *An engineering study of the entire corridor has determined that the selected locations will serve the whole corridor and improve operating speeds for all motorists.*
9. "How will I know when the ramp meters are operating?" *Flashing yellow lights with signs located at the beginning of the ramps will alert motorists that the ramp is being metered, and that they should be prepared to stop. Signs and road striping also indicate where to stop and how to proceed.*

1.3. Public Officials

Public officials include those appointees to boards and MPO committees who have some role in the approval of State Transportation Improvement Plan (STIP) projects and MPO plans as well as approval of funding. The public officials' concerns will somewhat be driven by citizen input. By virtue of their public role, these officials are also concerned about budgeting and scheduling.

2. Other States' Marketing Strategies

2.1. Introduction

This section presents information on the marketing and outreach by a select group of states—those that have relatively recently implemented ramp metering. In addition, Minnesota DOT undertook a major reevaluation of its ramp meter system in 2001, and that information has been included as well. Many of the more prominent operators of ramp metering—including Caltrans and Arizona DOT—have mature systems and are not adding significant quantities of new ramp meters.

Common strategies among most of these states include the following:

- Website that provides:
  - Basic project information
  - Project schedule (key dates)
  - Contact information (phone, email, address)
  - Benefits of ramp metering
  - Questions and answers to dispel preconceived opinions or concerns about ramp metering.
- Public meetings for citizen input
- Press releases to announce:
  - Public meetings
  - Implementation dates
  - Key decisions

Some of the more sophisticated marketing plans included a slogan, and all collateral materials followed a consistent theme and style. We have provided select examples of outreach materials used by these states in the Appendices.

In Appendix B, additional examples of press releases, in addition to those referenced below, are included.

2.2. Atlanta, Georgia (Georgia DOT)

Georgia DOT deployed more than 160 ramp meters throughout Metro Atlanta between 2008 and 2010 under Georgia DOT's "Fast Forward" program. Prior to this large implementation, five ramp meters were deployed in 1996 and four in 2005.

The 2008–2010 deployment was the Atlanta area's first significant exposure to ramp meters. Georgia DOT led an aggressive public outreach by submitting press releases for printing in the *Atlanta Journal Constitution,* and by holding at least five public meetings for community groups units. While Georgia DOT believes its outreach methods were successful, numerous complaint calls were received after initial implementation.

Georgia DOT created a very informative website specifically for public outreach (home page is shown in Appendix B-1). The website provides results of earlier Georgia DOT

studies, definitions, facts, need-to-know questions/answers, locations, and hours of operation. The website does not provide contact information. Recently, Georgia DOT added “Ramp Meter Myths” to the website at: http://www.dot.ga.gov/travelingingeorgia/rampmeters/Pages/Myths.aspx.

A video of the before-and-after conditions was prepared to show the improvement in travel and reduction in congestion. This video is available on the internet for viewing at: http://www.dot.ga.gov/travelingingeorgia/rampmeters/Pages/default.aspx.

Georgia DOT conducted tours for representatives of the media and invited them to view the initial startup at the Atlanta traffic management center (TMC).

Georgia DOT staff members reported many calls during the startup phase of the project. As the ramp meters were fine-tuned and drivers adjusted to the presence of ramp meters, the complaint calls died down quickly.

2.3. Kansas City, Missouri/Kansas (Kansas and Missouri DOTs)

The Kansas and Missouri DOTs operate the Kansas City Scout freeway management system. Marketing materials and website follow a consistent theme and style, along with the slogan “Maximizing the Flow.”

About one year prior to ramp meter deployment, the agencies began their public outreach campaign. The campaign was designed to inform the public what to expect and addressed how ramp meters work, how long drivers will typically wait on the ramp, and how drivers will know when ramp meters are in operation, as well as described how other cities are using ramp meters.

They also produced several two-page flyers that included the overview of the project, its benefits, location of improvements, and contact information (phone and website) in easy to understand terms. One of these flyers is shown in Appendix A-1.

Additionally, the DOTs held public meetings at local large businesses and shopping centers near the affected corridor.

The most effective outreach method was found to be the informational website and videos showing ramp and freeway operation before and after ramp meters. The home page of this website is shown in Appendix B-2. The website has much of the same information as the Georgia site, but also includes an executive summary of the evaluation report (http://www.kcscout.net/downloads/RampMetering/2011RampMeteringEvaluationReport.pdf) and videos (http://www.kcscout.net/RMWatchTheVideo.aspx) that discuss the benefits of ramp metering. The executive summary can be found in Appendix B-3.

Also included are hotlinks to web alerts, a mobile web application used for traffic alerts, and a blog that also disseminates the press releases. Specific contact information is difficult to find on the website.

The agency indicated that once the public understood how and why ramp meters worked, the deployment was generally supported.

2.4. Baton Rouge, Louisiana (Louisiana DOTD)

Louisiana deployed 16 ramp meters along I-12 in 2010. Included in Appendix A-2 is a flyer/press release LaDOTD prepared to announce the construction and implementation of a series of ramp meters. The flyer included the following information:

- Facts about ramp meters
- Map of the ramp meter locations along the interstate.
- Information about what drivers could expect.
- Website link for further information.
- Quote from the Department of Transportation and Development Interim Secretary: "The ramp meter system combined with the widening projects on I-12 will result in a reduction of travel times by more than 30 minutes for some commuters."

2.5. Las Vegas, Nevada (Regional Transportation Commission/Nevada DOT)

Nevada DOT initially deployed ramp meters in 2005. To educate the community and all affected stakeholders, the Regional Transportation Commission (RTC), in cooperation with Nevada DOT and Nevada Highway Patrol, developed a communication plan that consisted of public service announcements, media and community outreach, and intergovernmental relations prior to ramp meter activation. The campaign primarily targeted commuters who used the ramps that planned to be metered. Secondary target audiences included elected officials, owners and employees at businesses adjacent to the affected ramps, local jurisdictions, media representatives, professional drivers, municipal court judges, administrators, and staff. The campaign disseminated information through the following techniques:

- Fact sheets
- Hotline
- Mobile freeway/roadway message signs
- "On the Move" television show story
- "On the Move" newsletter story
- Other jurisdictional newsletters and publications
- Call center quick glance fact sheet
- Nevada Power bill inserts
- Homeowner's association newsletters

This website (shown in Appendix B-4) has hotlinks to follow the RTC on Facebook, Twitter, and YouTube. The Twitter link provides very limited information about an event, and the website has no ramp meter-specific contact information.

Nevada found that law enforcement officers and municipal court judges' methods to uphold enforcement were critical to the success of the ramp meter program. Nevada DOT

entered into agreements with the Nevada Highway Patrol and the Las Vegas Metropolitan Police Department to pay overtime for approximately the first month, as they enforced the ramp meter operation in the morning and evening peak periods. Law enforcement personnel pulled drivers over and explained proper meter use, and traffic fines were suspended for that one-month period.

2.6. Minneapolis/St. Paul, Minnesota, Minnesota DOT

Ramp metering has been deployed in the Twin Cities since 1969; however, most of the region's 433 ramp meters were installed in the 1990s. The last ones were installed in 2000. When the ramp meters were deployed in the 1990s, their marketing and outreach campaign consisted of press releases, brochures, and radio spots that used the tagline, "It's worth the wait."

Minnesota DOT still maintains a website (as shown in Appendix B-5) with ramp meter information at: http://www.dot.state.mn.us/rampmeter/index.html. That website provides much of the same information as Georgia, but also includes cost data. The website also has information on ramp meters elsewhere in the United States (see Appendix B-6), and includes the names and contact information of responsible DOT staff.

In 2001 Minnesota conducted a legislatively mandated ramp meter evaluation study that included turning off the system to do a "before" evaluation study, and then turning the system back on after its completion. As part of this effort, Minnesota DOT employed a citizen advisory committee. This committee represented the public to help ensure the credibility and objectivity of the study. The citizen advisory committee assisted with policy oversight, technical guidance, expertise, and quality control.

Minnesota DOT utilized focus groups and telephone surveys of motorists. During the evaluation, Minnesota DOT provided a lot of materials including survey data, results, evaluation study documents, and future direction of the ramp meter system (see Appendix B-7). Copies of the evaluation reports were also included on the website. Minnesota DOT conducted surveys with the citizens and, from these surveys, found that citizens noticed the increased congestion during the "before" evaluation and supported reactivating the operation at the conclusion of the study.

2.7. Seattle, Washington (Washington DOT)

In July 1999 Washington DOT developed an outreach program, "Go with the Flow," prior to implementing new ramp meters on I-405. A two-page handout extensively covered the reasons for installing ramp meters, where they would be installed, when they would be installed, and how they would operate, and listed common questions and answers about ramp meters. The handout advertised the new ramp meter project as "high-tech freeways" and listed directions for using the newly installed meters. Various methods of contact were listed.

Washington DOT employed an engineering professor to develop a very creative video demonstrating traffic flow theory using rice through a funnel. That video can be viewed at: http://www.wsdot.wa.gov/Traffic/Congestion/Rice/

Washington DOT maintains a web page on ramp meters. The website provides a blind contact email where the user fills out a form to send to Washington DOT that does not reveal the contact information to the user.

2.8. United Kingdom (UK Highways Administration)

Public and local maintaining agencies' responses to ramp meters are largely similar to what has been experienced in the United States. The Highways Administration (UK's equivalent to FHWA) commissioned a video to help explain the concept and benefits of ramp metering to stakeholders such as police, maintainers, operators, and local authorities. Meetings were held with stakeholders prior to implementation. Brochures similar to those used in the United States were handed out to the local public, and news articles were broadcast on local television.

3. Recommended Marketing and Outreach Approach

3.1. Introduction

Marketing and outreach with local agencies, public officials, and citizens is necessary to educate them on the benefits of ramp metering and to dispel any misunderstandings or misconceptions about this type of project. This process is not required, but highly desirable. In fact, many states who operate ramp meter systems say that this marketing and outreach is essential to get local agencies, public officials, and citizens' support for ramp meters.

The marketing and outreach program must be tailored to the expected concerns of the various constituent groups as described below, and to the level of understanding and knowledge of these groups.

3.2. Public Involvement

Environmental analysis required for the proposed ramp metering projects will have to undergo analysis defined by the National Environmental Policy Act (NEPA). That process has separate requirements for public involvement not addressed in this report. The type of environmental analysis is dictated by the type of improvement.

3.3. Marketing and Outreach Resources

A variety of marketing and public outreach tools can be used to develop a marketing and outreach campaign. The following techniques are recommended in the FHWA *Ramp Management Handbook*.

3.3.1. Brochures, Flyers, and Newsletters

Brochures, flyers, and/or newsletters are excellent tools for providing information to the public. These can be mailed or hand-delivered to residents or nearby businesses, major employers, public facilities, and open-house facilities near affected ramps.

It is recommended that the brochures contain the following:

- Reasons why ramp meters are being implemented
- Expected benefits and cost-effectiveness of ramp metering
- Description of the ramp metering to be implemented
- Locations where ramp metering will be implemented
- Contacts or websites where additional information can be obtained or public comments can be collected
- Expected date and/or time of day that ramp metering will be in effect
- Public information and outreach activities and details
- Instructions for complying with ramp metering

As the project progresses, it is recommended that periodic updates be provided through distribution of a newsletter. Key points for newsletters would be at the project initiation, prior to construction, and post-construction after an evaluation is completed.

3.3.2. Websites

Websites are excellent tools for providing information to all constituent groups. A variety of content can be provided that allows the visitor to the site to read as much as desired. Websites can be easily set up to provide general information about the ramp metering implementation as well as specific information about projects where ramp meters are being implemented.

Websites can also be used to disseminate information of ramp closures if they occur during initial construction. Websites can also be changed very quickly as conditions or the need arises.

Website information can also be posted on Facebook pages, and could be “metered out” via Twitter feeds.

It is recommended that a project website include the following information:

- Contact information including name, phone number, and email address as well as mailing address
- Public meeting notices (scheduled dates and minutes)
- Means to providing input to the agency
- Description of the proposed project with timelines and locations (maps would also be very helpful)
- Justification or an explanation of the benefits expected from ramp metering in layman’s terms
- Narrated video explaining how a ramp meter works (videos have been found to be more effective than static images)

3.3.3. Videos and Simulations

Simulation of ramp meter operations can be highly effective to demonstrate or explain the traffic conditions before and after implementation of ramp metering. A narrated video of the actual operation showing the same is even more effective, as it is harder to refute actual video coverage. While videos can be posted on a specific ramp metering website, furnishing a link to a YouTube video provides potentially even more exposure.

A video and simulation is recommended to be used at public meetings and on the website.

3.3.4. Open House Meetings

Open house meetings are excellent tools for providing information to most constituent groups and, more specifically, the general public. They provide an opportunity to ask questions about specific interests and can offer further clarifications not covered in the marketing materials. Meetings with citizens can be held before implementation of ramp meters in order to gather input and disseminate information to the public. Additional milestone meetings can be held following implementation to gather public input.

A recommended format for an open house includes:

- Easy-to-find location with plenty of room.
- Informal atmosphere.
- Maps and conceptual designs sufficient to explain the project.
- Plenty of staff to listen to citizens and respond to their questions.
- Flyers about the project.
- Narrated video and/or a graphic simulation.

The number and frequency of meetings will depend on how the sites will be packaged into projects.

3.3.5. Inter-Agency and Public Officials' Meetings

Meetings in the form of at least two workshops or roundtable discussions are recommended with local agencies, law enforcement, and emergency responders to:

- Promote the benefits and dispel preconceived negative opinions about ramp metering.
- Solicit and gather information regarding implementation and enforcement concerns.

This will also give agencies the opportunity to coordinate operations and activities and express needs related to these activities. An interagency meeting can include more detailed information than a citizen's open house meeting.

A similar set of meetings is recommended with public officials to brief them on the project, although these meetings would be of a less technical content.

3.3.6. Media Releases

News media are always looking for stories. They can be used as a distribution source through interviews with staff, and via paid advertisements. Print media, such as newspapers, can be used to publicize ramp meter locations and implementation dates, along with times and locations of public information meetings.

NCDOT can also release statements or hold press conferences to disseminate information to the media and answer questions. Often, graphic presentations can be prepared to strengthen overall understanding of ramp management strategies.

Media releases are recommended and should include:

- News releases announcing key decisions, events, and schedules.
- Contact information.
- Briefing materials describing the proposed project with timelines and locations.
- Justification or an explanation of the benefits expected from ramp metering.

3.3.7. Automated Messages

Recorded automated messages can be used to give callers basic information pertaining to ramp meters. An option or additional phone number should be available for callers to receive more detailed information or talk to an operator.

Automated messages should include short message to identify where to get more information (e.g., website and contact number).

3.3.8. Signs

Prior to construction portable, changeable message signs are recommended to be posted along the ramps where ramp meters are to be installed to announce the date of construction and operation.

3.3.9. Social Media

Social media such as Facebook, Twitter, and blogs provide another means for constituents with Internet access to interact with NCDOT concerning ramp metering. Optionally, Twitter can be used to provide short messages and can include links to a website.

3.4. Constituent Group Recommendations

The marketing and outreach program for each constituent group must be developed with regard to each group's technical knowledge and concerns.

3.4.1. Local Transportation Agencies

The local transportation agency staff will have significant influence on the decision to implement ramp metering. If a project is not supported by the local agency, it may affect the approval of the project on the MPO's TIP priority project list. Since this constituent group has the most technical knowledge, the level of detail can be greater. The important information to convey to this group includes the following:

- Purpose and need
- Locations
- Benefits:
    - Reduced travel time
    - Trip reliability
    - Safety improvement
    - Air emissions reduction
    - No impact from queues on their facilities
- Schedule
- Contact information

3.4.2. Law Enforcement and Emergency Responders

While this constituent group has less technical understanding of the engineering aspects of ramp metering, these "first responders" are keenly aware of traffic safety and enforcement issues. They will be influential in making a successful ramp metering program. The important information to convey to this group includes the following:

- Purpose and need
- Locations
- Benefits:
    - Reduced travel time
    - Trip reliability

  - Safety improvement
  - Air emissions reduction
- Schedule
- Assurance that response times will not be negatively affected
- Understanding how ramp meters operate
- Legal authority and enforcement issues
- Contact information

3.4.3. General Public

The general public will likely be most interested in the direct impact upon their travel and how much it might delay them. Materials must be developed that have less technical content and very few engineering terms. The important information to convey to the general public includes the following:

- Purpose and need
- Benefits:
  - Reduced travel time
  - Trip reliability
  - Safety improvement
  - Air emissions reduction
- Schedule
- Contact information

3.4.4. Public Officials

Public officials are the ultimate decision makers and will draw upon the input of the other decision makers. The important information to convey to this group includes the following:

- Purpose and need
- Benefits:
  - Reduced travel time
  - Trip reliability
  - Safety improvement
  - Air emissions reduction
- Schedule
- Contact information

3.4.5. Recommended Marketing and Outreach Materials for Each Constituent Group

From the above marketing and outreach resources, certain materials can be designed to serve each constituent group. Table 1 depicts the recommended and appropriate resources for each group. For each constituent group, there are particular marketing and outreach materials that are more effective and more appropriate. As an example, it is more effective to use brochures, flyers, and newsletters, and websites for the general public than it is for public officials, local transportation agency law enforcement and emergency responder staff. A “P” indicates a primary communications media for that constituent group. An “S” indicates a secondary communications media for that constituent group.

Table 1. Constituent Group Recommendations

Resource	Local Transportation Agencies	Law Enforcement and Emergency Responders	General Public	Public Officials
Brochures, Flyers, and Newsletters	S	S	P	S
Websites	S	S	P	S
Videos and Simulations	P	P	P	S
Open House Meetings			P	S
Inter-Agency and Public Officials' Meetings	P	P		P
Media Releases	S	S	P	S
Automated Messages			P	
Social Media			P	S

3.5. Marketing and Outreach Budget

This report describes an approach to a marketing and outreach program, separate from any NEPA requirements for public involvement. The items described above would cost in the range of $100,000 to $150,000. This range is highly dependent on the amount of printing, mailing lists, number and location of public meetings, and how much of this plan is actually performed by agency staff.

3.6. Schedule

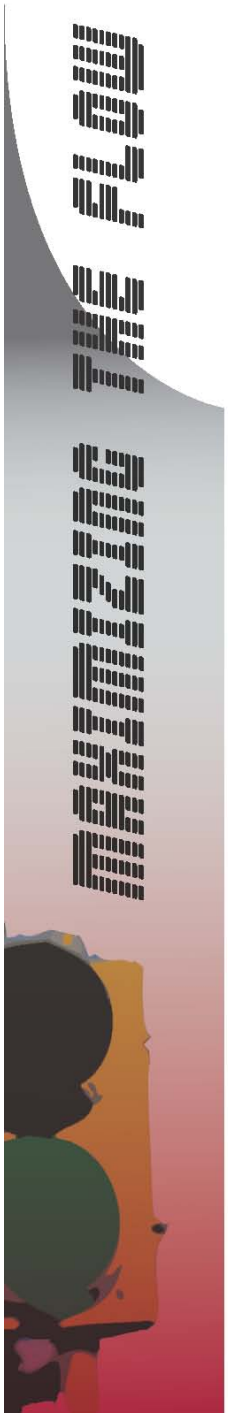
The process of marketing and outreach should begin once funding is secured for the first project. For local transportation agencies, law enforcement and emergency responders, and public officials, marketing and outreach should begin prior to the approval of funding, when the projects are being reviewed for inclusion in state and MPO TIPs.

Ideally, the marketing program for the general public should begin 1 year prior to implementation. It should continue through design and after implementation, and until the results of the first installations can be evaluated.

Appendices – Example Marketing Materials

Appendix A. Brochures, Flyers, and Newsletters

A.1. Kansas City SCOUT Flyer



KANSAS CITY SCOUT
MoDOT KDOT

Ramp Metering

Kansas City Scout is Growing

The Kansas and Missouri Departments of Transportation operate the Kansas City Scout Freeway Management System, which is designed to improve traffic flow on Kansas City freeways by:

- Locating and identifying freeway incidents and lane blockages.
- Communicating freeway information to the public using electronic message signs.
- Decreasing the number of accidents and improving emergency response and incident clearance times.

KC Scout is about to get even better by adding ramp metering. Ramp meters are special traffic signals that regulate the rate at which vehicles enter the freeway from the on-ramps. Ramp metering will help decrease congestion by ***maximizing the flow*** on Kansas City freeways. You will notice:

- Smoother and safer freeway entries.
- More consistent traffic flow.
- Improved freeway speeds.
- Decreased travel times.

Ramp meters will be installed at on-ramps along I-435 between Metcalf Avenue and the Three Trails Memorial Crossing (formerly the Grandview Triangle). They will enhance KC Scout's existing system of cameras, pavement sensors, and electronic message signs.

The new meters are part of a Kansas City Scout pilot program. Successful implementation of the program could lead to the installation of ramp meters on other Kansas City freeways.

I-435 ramp metering

What Ramp Metering Can Do for I-435

During your daily commute, have you experienced instances where you've been "forced" to suddenly switch lanes or hit your brakes to make room for seven or eight vehicles merging onto the freeway at once? Have you sat in stop-and-go traffic thinking an accident must be ahead only to find it's merely the result of a busy on-ramp? Ramp meters can help reduce your freeway frustration because they regulate the flow of cars and create space between those entering the freeway. This reduces sudden weaving and braking and decreases accidents. ***Ramp meters allow more cars to use the freeway and drive smoothly along the road.***

Typical ramp meter

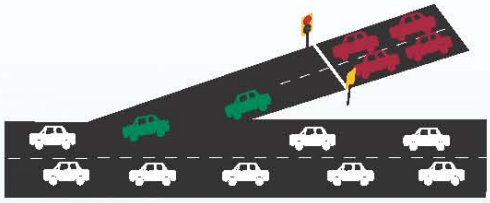
Questions/ Comments?

Visit
www.kcscout.net/
rampmetering
or call
(816) 622-6500
for more information.

FAQs

How do ramp meters work?

Ramp meters work and look similar to traffic signals. Drivers must consider and obey them as they would other traffic signals. A red light means stop, a green light allows vehicles to proceed down the ramp and merge onto the freeway. The meters monitor and control traffic entering the freeway during the morning and afternoon commutes. They are designed to turn off if the number of cars waiting on the ramp grows to the point where they back up onto city streets, and they turn back on once the ramp queue is reduced to a reasonable level.



Ramp meter illustration

How long will I wait on the ramp?

About one minute or so. The meters are timed according to current freeway traffic conditions. Detectors installed in the pavement measure traffic flow and vehicle speeds. The results are used to determine the best rate at which vehicles can enter the freeway. Better traffic flow once on the road ***actually reduces your overall commute time.***

How will I know if the ramp meter is turned on?

Flashing yellow lights located near the ramp entrance alert motorists that the ramp is being metered and that they should be prepared to stop. Signs and road striping also indicate where to stop and how to proceed.

Are other cities using ramp meters?

Yes, ramp meters are used in most major metropolitan areas across the country including Milwaukee, Seattle-Tacoma, Portland, Phoenix, Minneapolis-St. Paul, Denver, Chicago, and many other cities.

A.2. Louisiana DOTD Flyer

Geaux WIDER and go safer!

DOTD BUILDS THE WAY

Ramp Meters Coming to an I-12 On-Ramp Near You

- Reduces Congestion and Improves Safety -

Ramp meters will soon be installed at 16 on-ramps along Interstate 12 between the Essen Lane and Walker/LA 447 interchanges. Once turned on, the ramp meter signals will stop vehicles for no longer than four seconds on the on-ramp and allow drivers to access the interstate in an orderly and evenly-spaced fashion, sometimes described as a zipper effect. If the ramp meter is turned off, drivers should proceed without stopping.

The Department of Transportation and Development (DOTD) is embracing new traffic management systems such as ramp meters because building new roads or widening current roads is only one way to address the needs of the traveling public.

Installation work starts mid-May at Airline Highway eastbound and westbound, Jefferson Highway eastbound, and Essen Lane westbound.

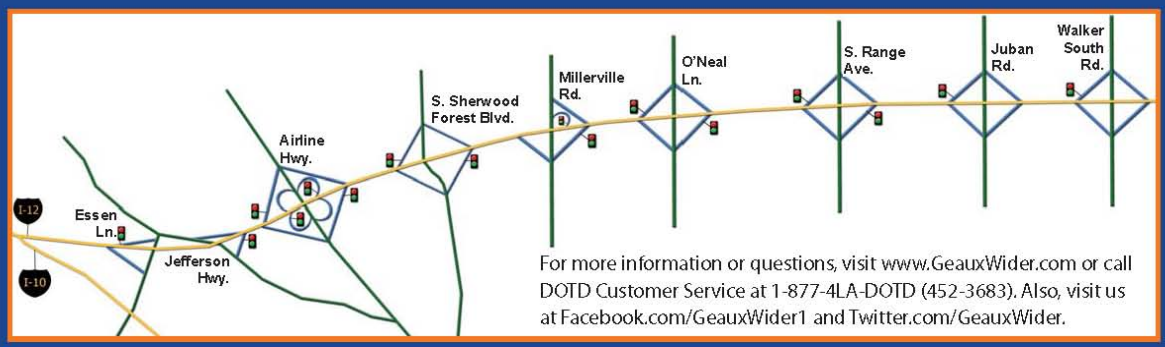
Ramp Meter Facts

- Operate only during peak travel times
  - 6-10 a.m. westbound and 2-7 p.m. eastbound
  - During special events and incidents
- Continually monitored by DOTD staff
- Reduce congestion
- Provide safer merging
- Improve travel time reliability
- Complement current I-12 widening projects

"The ramp meter system combined with the widening projects on I-12 will result in a reduction of travel times by more than 30 minutes for some commuters."

••• DOTD Interim Secretary Sherri LeBas

Ramp Meter Locations Along I-12



For more information or questions, visit www.GeauxWider.com or call DOTD Customer Service at 1-877-4LA-DOTD (452-3683). Also, visit us at Facebook.com/GeauxWider1 and Twitter.com/GeauxWider.

What Drivers Can Expect

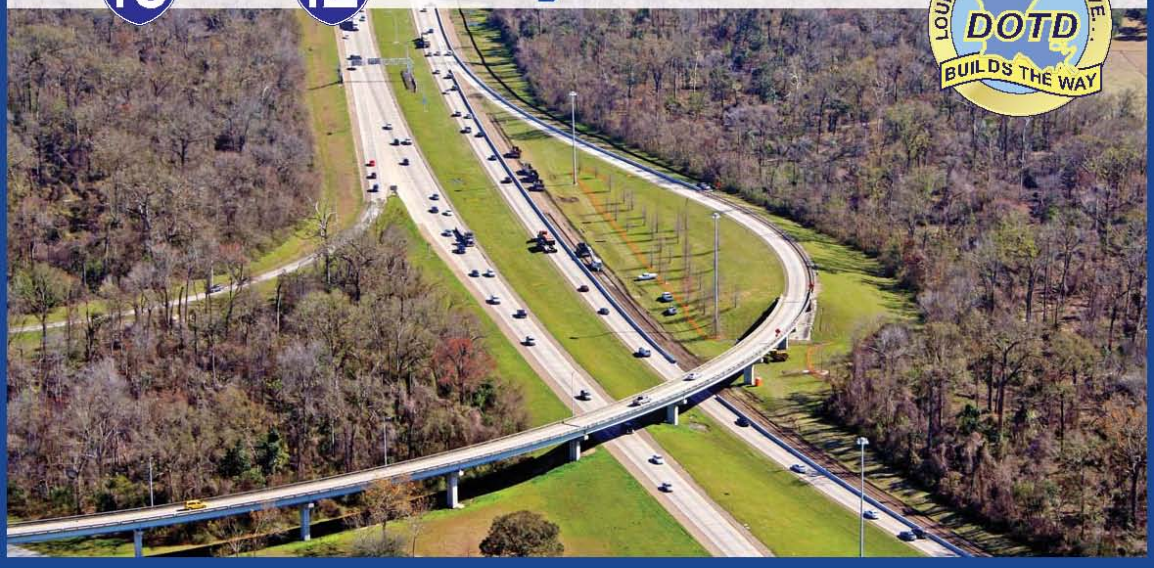
- Mid-May - begin electrical work
- May - begin mast arm and pole installation
- Prior to activation, the ramp meters will be covered and Variable Message Signs (VMS) notify motorists of the upcoming change
- May or June - first ramp meter activated at Essen Lane westbound on-ramp
- Through 2010 - installation work continues at all locations

Before you go ...

GeauxWider.com

for 10 and 12 widening information.

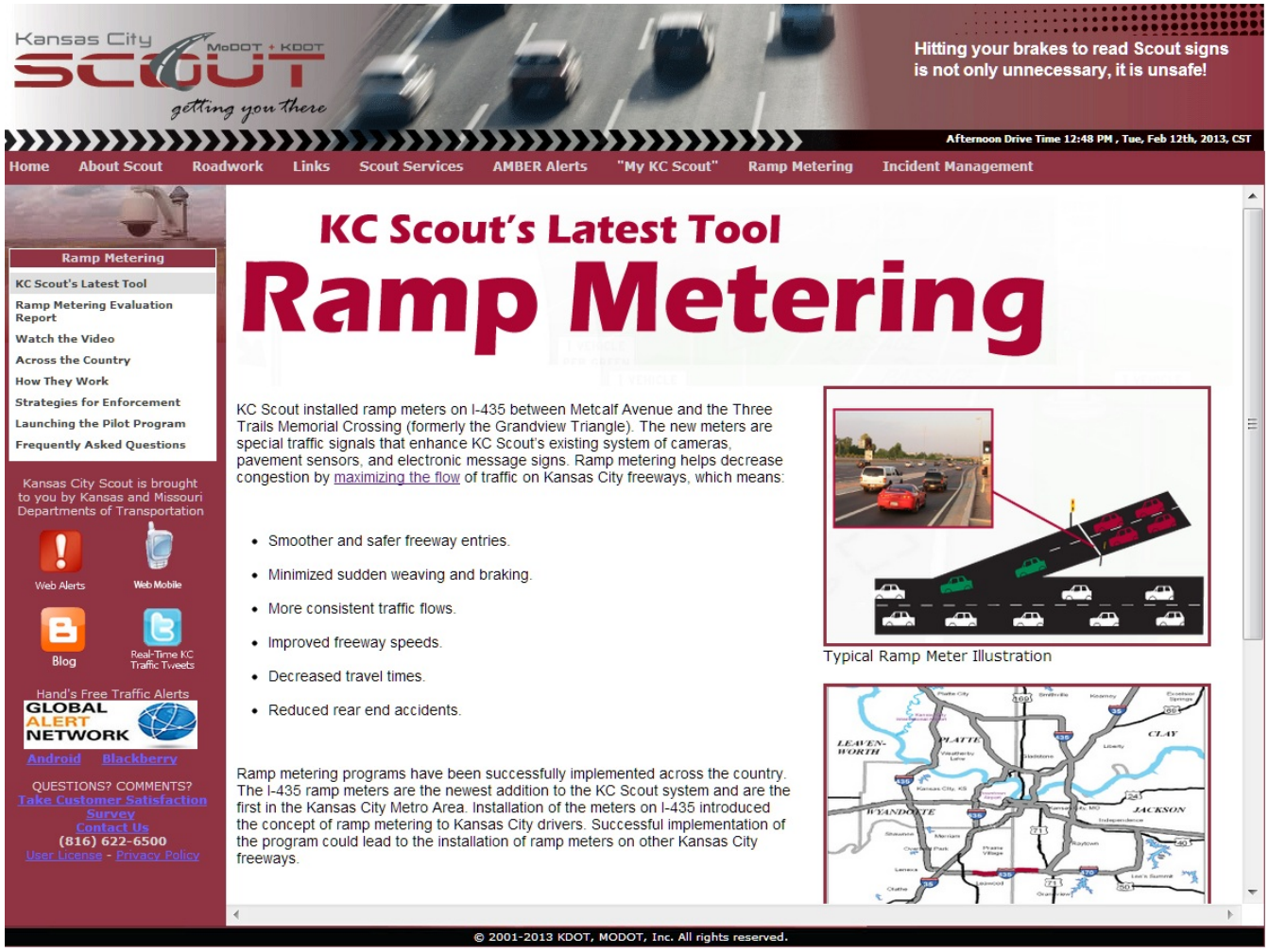
LOUISIANA'S ON THE MOVE... DOTD BUILDS THE WAY



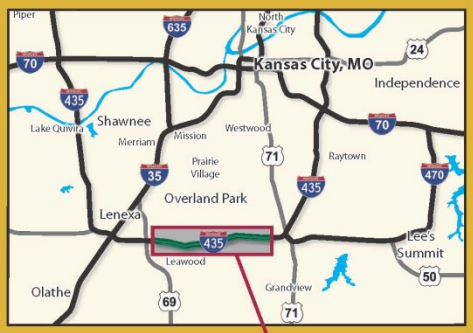
Appendix B. Websites

B.1. Georgia DOT Website

B.2. Kansas City Scout Website



B.3. Kansas City Scout Executive Summary



RAMP METER LOCATIONS

A total of seven interchanges are metered on I-435 between Metcalf Avenue and the Three Trails Memorial Crossing (formerly the Grandview Triangle). Metered on-ramps include I-435 at:

- **Metcalf Avenue** (1 dual lane eastbound ramp)
- **Nall Avenue** (1 dual lane eastbound and 1 dual lane westbound ramp)
- **Roe Avenue** (1 dual lane eastbound and 1 dual lane westbound ramp)
- **State Line Road** (2 single lane eastbound ramps and 1 dual lane westbound ramp)
- **Wornall Road** (1 dual lane eastbound and 1 single lane westbound ramp)
- **Holmes Road** (2 single lane eastbound ramps and 2 single lane westbound ramps)
- **103rd/104th Street** (1 single lane eastbound ramp)

Executive Summary

Using a variety of tools, including ramp metering, the Kansas Department of Transportation (KDOT) and Missouri Department of Transportation (MoDOT) jointly operate Scout to improve traffic flow on Metro freeways.

Scout deployed a ramp metering pilot program on I-435 between Metcalf Avenue and the Three Trails Memorial Crossing in early March 2010 with the goal of decreasing congestion and improving merge safety. The meters have been assessed twice since being installed: once six months after installation and again after twelve months.

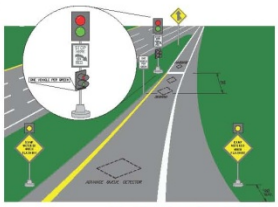
Both evaluations considered the effectiveness of the I-435 ramp meters according to the following factors:

- Safety and accident reduction
- Speeds and travel times
- Compliance
- Ramp delay
- Traffic Incident Management
- Feedback from the general public, local officials, and law enforcement

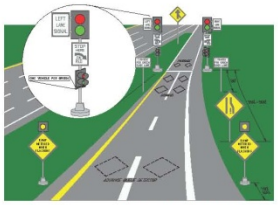
The 12-month evaluation indicates that ramp metering has effectively improved I-435 by:

- Decreasing overall accidents on the freeway by 64%.
- Cutting accidents that could possibly be attributed to merging by 81%.
- Helping motorists merge more easily and move at a consistent rate within the corridor.
- Sustaining overall travel times and speeds at reliable levels, despite increased traffic volumes.

What's more, Scout educated motorist assist, emergency responders, and law enforcement personnel as well as motorists about ramp meter operations and enforcement through the Maximizing the Flow community outreach campaign. As a result, Metro motorists are complying with the meters. Two out of three residents along I-435 who participated in the 2011 Scout survey responded that the ramp meters have improved the freeway; a similar number said other Metro freeways should include ramp metering.



Single Lane Ramp Meter Illustration



Dual Lane Ramp Meter Illustration

Given the success of the I-435 ramp metering pilot program, Scout may explore ramp metering for other congested freeway segments.

Introduction

KDOT and MoDOT designed Scout to provide drivers in the Kansas City Metropolitan area with less highway congestion, fewer rush hour accidents, improved rush hour speeds, quicker emergency response times, and much more to help them navigate their way along a safer, smoother, and smarter journey. In March 2010 Scout added ramp meters to I-435 between Metcalf Avenue and the Three Trails Memorial Crossing.

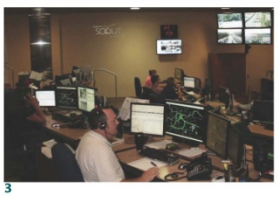
The meters are special traffic signals that regulate the rate at which vehicles enter the freeway from the on-ramps. From its Lee's Summit Traffic Management Center (TMC), Scout uses the I-435 ramp meters, freeway message boards, closed-circuit television (CCTV) cameras, roadway sensors, media partnerships, and the web to manage traffic and provide drivers with helpful information about the freeway system, such as travel times and traffic delays, caused by accidents and lane closures.

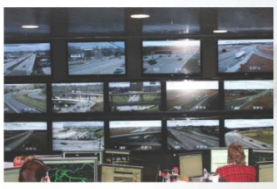
Scout is the Metro's first Intelligent Transportation Systems (ITS) provider. It is one of only a few bi-state ITS providers in the United States and the only one in the region. ITS solutions like ramp metering are an option when communities need to respond to the increasing traffic congestion that results from population growth while also promoting safer, more efficient travel using limited financial resources. With the increasing traffic on the south I-435 corridor, KDOT and MoDOT determined that a ramp metering pilot program should be implemented through Scout at a cost of approximately $30,000 per on ramp in order to:

- Decrease the number of sudden weaving and braking moments that happen as vehicles merge onto the freeway from the on-ramps.
- Allow more cars to smoothly drive along the freeway.
- Reduce accidents.

MoDOT and KDOT conducted a 12-month evaluation of the I-435 ramp metering pilot program. The evaluation began in April 2010 and ended in March 2011.

KDOT and MoDOT jointly own and operate Scout's TMC





Evaluation Factors

With an evaluation team consisting of engineering and planning consultants, Scout evaluated the effectiveness of the I-435 ramp meters, looking specifically at the following elements:

- Safety and Accident Reduction
- Speeds and Travel Times on the Freeway
- Compliance with the Meters
- Delay on the Ramps
- Traffic Incident Management
- Community Feedback

Ramp Meter Illustration

Data Collection

To gather information about the I-435 ramp meters, the evaluation team:

- Observed the ramp meters in action on-site at the on-ramps and off-site using the Scout CCTV cameras.
- Collected traffic data for a 12-month period after the meters were in operation spanning from April 2010 to March 2011.
- Compared the "after" findings to traffic conditions on I-435 based on an average of the conditions between April 2008 - 2009 and March 2009 - 2010—before the meters were installed and turned on.
- Talked with transportation professionals and law enforcement staff to better understand their experiences with the meters after turn-on.
- Conducted a survey to gather feedback from the general public about Scout in general and the I-435 ramp meters specifically.

Ramp Metering on I-435

Observations and Trends

The evaluation team's findings are included in the following pages and organized by evaluation factors.

SAFETY & ACCIDENT REDUCTION

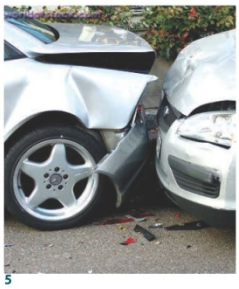
One month before the ramp meters were installed, Scout implemented its new Advanced Traffic Management Software to track in greater detail accident characteristics, such as lane blockages, locations, duration of time, and causes of accidents with greater detail and accuracy. Data was collected for the weekday morning (6:45 a.m. – 8:45 a.m.) and afternoon (3:45 p.m. – 5:45 p.m.) rush hours. Scout used the data from the new software plus a review of accident reports for the I-435 corridor to develop a one year summary of safety and accident information for the ramp metering pilot program. Data sets from 2008 and 2009 were averaged together to create the "before" condition while 2010 data provided the "after" condition.

Number of Accidents Per Year

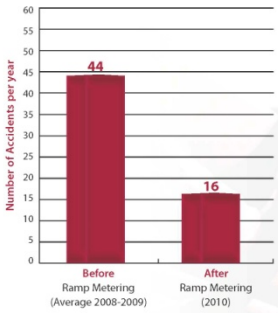
Accidents on I-435 dropped 64% after the ramp meters were installed. The decrease is greater than that found in ramp meter evaluation studies in Milwaukee, Portland, Detroit, and Denver, which have shown that ramp meters can reduce crashes by 26 to 50% when metering is applied throughout the highway systems of these metropolitan communities.

Ramp metering improves safety by decreasing accidents.

Rear ends and side swipes are the most common accidents likely attributed to merging



Number of Accidents



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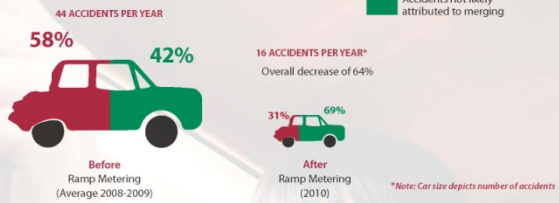
Accidents Per Year that are Likely Attributed to Merging

Of all the accidents that occurred along I-435 prior to ramp meter installation, more than half were possibly attributed to merging. Merging accidents typically result when interchanges are spaced close together or when acceleration and deceleration lanes are short. Rear ends and side swipes are common examples of merging accidents.

Accidents

- Accidents likely attributed to merging
- Accidents not likely attributed to merging

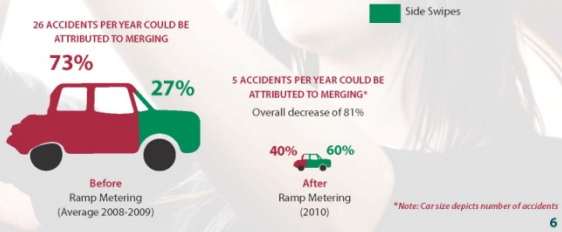


Types of Accidents

Before ramp metering was added to I-435, nearly 75% of the accidents that could be attributed to merging on I-435 were rear ends. After the meters were added, the number of accidents that could be attributed to merging operations dropped to just 19% of the before average.

Types of Merging Accidents

- Rear Ends
- Side Swipes



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SPEEDS AND TRAVEL TIMES ON THE FREEWAY

The speeds and travel times along I-435 were evaluated using a series of travel time surveys. The "before" speeds and travel times were calculated and measured in 2007 during the ramp meter design studies. The "after" speeds and times were calculated and measured in 2010 and 2011 after the ramp meters were installed and in operation for just over one year.

Survey information was collected for both the morning (6:00 a.m. to 8:00 a.m.) and afternoon (4:00 p.m. to 6:00 p.m.) rush hour periods. The evaluation team used the Floating Car Method, which involves driving the survey vehicle as the average vehicle in the traffic stream passing about as many vehicles as pass it, to gather the data.

The information from travel runs in each of the westbound and eastbound directions during the before and after periods was complied and processed to ensure that the standard deviation of the samples were within the acceptable range of the true averages based on a five percent margin of error. Nearby construction projects located at either end of the corridor, including the Antioch Road and Three Trails Memorial Crossing interchanges, that increased traffic volumes on I-435 were also considered.

Speeds by Freeway Segment:

Speeds during the rush hours increased on several segments of I-435, especially between State Line and Wornall Roads regardless of the direction or rush hour period. Some speeds decreased along the corridor, especially in the eastbound direction during the afternoon rush hour period.

Speeds by Freeway Segment

Eastbound Freeway Segment	Morning Rush Hour	Afternoon Rush Hour
Metcalf Avenue on-ramp to Nall/Roe Avenue off-ramp		
Nall/Roe Avenue Interchange		
Nall/Roe Avenue on-ramp to State Line Road off-ramp		
State Line Road Interchange		
State Line Road on-ramp to Wornall Road off-ramp		
Wornall Road Interchange		
Wornall Road on-ramp to Holmes Road off-ramp		

Westbound Freeway Segment	Morning Rush Hour	Afternoon Rush Hour
Holmes Road on-ramp to Wornall Road off-ramp		
Wornall Road Interchange		
Wornall Road on-ramp to State Line Road off-ramp		
State Line Road Interchange		
State Line Road on-ramp to Nall/Roe Avenue off-ramp		
Nall/Roe Avenue Interchange		
Nall/Roe on-ramp to Metcalf Avenue off-ramp		

Significant Increase | Significant Decrease | No Significant Decrease or Increase

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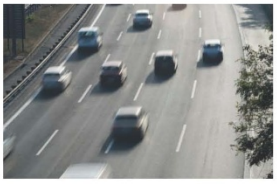


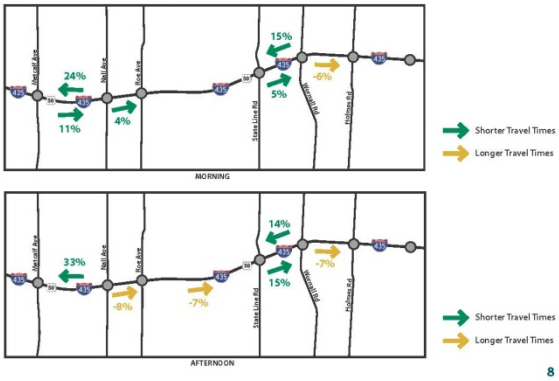
Travel times along south I-435 improved during morning rush hour.

Travel Times by Freeway Segment:

Travel times along south I-435 improved when ramp metering was added. The improvement is the result of a net overall effect of some freeway segments that experienced faster freeway speeds combined with those that did not. Segments with significant increases or decreases in travel time speeds are shown on the maps below. Any decreases that appear on the maps are minimal, consisting of no more than a few seconds within the eight-mile ramp metering corridor.

Traffic from nearby construction projects increased freeway traffic volumes but overall speeds and travel times in the corridor maintained reliable levels.

Segment Travel Time Changes on I-435



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Travel Time Index Report

Ramp Metering is a traffic control tool that provides consistency in travel time reliability to the I-435 corridor by metering oncoming ramp traffic. The Travel Time Index is a Federal Highway Administration travel time reliability performance measure. The average travel time indices for 2008 & 2009 on I-435 before ramp metering was installed were 1.10 westbound and 1.05 eastbound for the morning rush hour and 1.20 westbound and 1.33 eastbound for the afternoon rush hour. In 2010 the indices post ramp metering installation were 1.08 westbound and 1.04 eastbound for the morning rush hour and 1.15 westbound and 1.30 eastbound for the afternoon rush hour.

The Travel Time Index for I-435 has decreased since ramp meters were installed causing a more reliable commute.

Travel Times Index

		2008-2009 Average Before Ramp Meters	Trend	2010 After Ramp Meters
Morning Rush Hour	I-435 Westbound	1.10	↓	1.08
	I-435 Eastbound	1.05	↓	1.04
Afternoon Rush Hour	I-435 Westbound	1.20	↓	1.15
	I-435 Eastbound	1.33	↓	1.30

The Travel Time Index (TTI) is defined as the ratio of the average travel time over the free flow travel time for a section of the freeway. For a specific lane and time period, this is calculated as follows:

$$TTI = TT_{Avg} / TT_{FreeFlow}$$

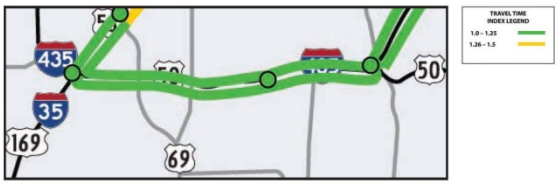
To calculate the TTI for a station, a weighted average is used with the lane volume as a basis, as follows:

$$TT_{Station\ Avg} = \frac{\sum(TT_1 * V_1) + (TT_2 * V_2) + (TT_n * V_n)\ldots}{\sum V_n}$$

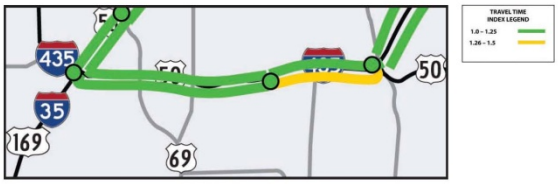
The TTI for a freeway section is then calculated using a weighted average of all Station TTI averages using VMT as a basis, (VMT being defined as the product of the total station volume and the distance that station represents). The TT calculation is shown below:

$$TT_{Section\ Avg} = \frac{\sum(TT_{Sta\ 1} * VMT_{Sta\ 1}) + (TT_{Sta\ 2} * VMT_{Sta\ 2}) + (TT_{Sta\ n} * VMT_{Sta\ n})\ldots}{\sum VMT_n}$$

Travel Time Index – Morning Rush Hour



Travel Time Index – Afternoon Rush Hour



The Travel Time Index (TTI) can be understood by relating the value to a percentage. If the TTI is 1, then the average travel time is the same as the free flow travel time, meaning there is no delay. If the TTI is 1.5, then the actual travel time is 150% of the free flow time, or it takes 1.5 times longer to travel a segment than it would under uncongested conditions. For this analysis, it was assumed that the Travel Time Index cannot be less than 1, which occurs when the average speed is greater than the speed limit.

As shown in the Travel Time Index maps above, there was no delay in travel time due to ramp meters along I-435.

COMPLIANCE WITH THE METERS

To teach Metro drivers about the new meters before they were turned on, Scout implemented its ***Maximizing the Flow*** community outreach campaign. The effort involved:

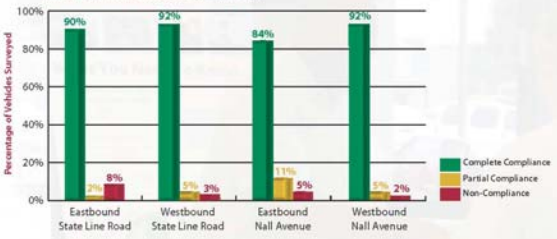
- Discussing the ramp metering pilot program with local municipalities (Kansas City, Leawood, and Overland Park), and law enforcement agencies.
- Educating and answering questions from the general public through meetings at local schools, community centers, shopping centers and with an on-line public meeting.
- Posting project information on the website.
- Blogging on the Scout blog site.
- Developing an informative, ramp meter video and public service announcement and sharing it with local media outlets which then covered the installation of the meters.
- Providing fact sheets, handouts, and slideshows that responded to the interests of key ramp metering audiences: the general public, local public officials, technical staff and officials, and law enforcement.

During the campaign Scout explained to motorists that compliance with the ramp meters occurs when bringing their car to a full or rolling stop at a ramp meter signal that displays a red light. Partial compliance occurs when a driver does not pull his car close enough to the stop bar to activate the ramp meter. Partial compliance also happens when a motorist at a two-lane meter obeys the directions of the ramp meter signage for the opposite driver rather than the signage for their designated lane. Non-compliance is synonymous with a motorist's complete disregard for a ramp meter that shows a red light. On-site observations indicate that drivers:

- Appear to be aware of the flashing yellow lights that indicate that a ramp is metered, changes in signal colors, and signage explaining where to stop and how to proceed. A few drivers seem to miss or disregard the same information.
- Comply with the ramp meters in greater proportions since the six month evaluation.

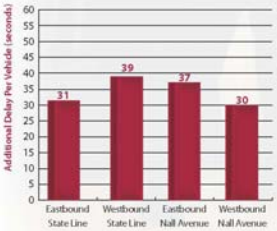
MAXIMIZING THE FLOW

Ramp Meter Compliance (2010)



The Maximizing the Flow community outreach campaign informed and educated motorists about the I-435 ramp meters, fostering higher levels of ramp meter compliance.

Ramps with Perceived Delays
after Ramp Meters Were Installed (2010)



DELAY ON THE RAMPS

Ramp meter compliance can impact the amount of delay drivers experience on the ramps. The evaluation team measured the delay on the ramps that interviewees believed had compliance issues. The data collected shows that Kansas City motorists experienced less than one minute of additional wait time per vehicle on the ramps after the ramp meters were installed. The added time is less than the minute wait Scout promised when it began educating the public about the meters.

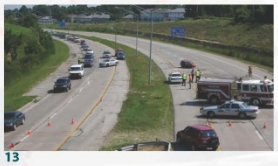
TRAFFIC INCIDENT MANAGEMENT

Traffic incidents are lane blockages involving many factors such as, single or multiple cars, vehicular fires, debris, or stalled vehicles in travel lanes. For every minute a freeway lane is blocked during the rush hour, a minimum 10-minute backup will result after the incident is cleared. As a result, it is critical that Scout monitor and track incident times and implement measures that will improve incident clearance times.

Proper traffic incident management is a vital factor in the battle to combat congestion, to improve public safety, and to advance the overall quality of the commute for drivers in the Kansas City Metro. Through its Traffic Incident Management Program, Scout coordinates the resources of a variety of partnering agencies and private sector companies to identify, respond to, and clear traffic incidents as quickly as possible while protecting the safety of on-scene responders and the traveling public.

The Scout Traffic Incident Management Program coordinates the activities of responding agencies in a way that:

- Addresses their needs and priorities while maintaining the safety of all involved.
- Utilizes Scout's system of message boards, closed-circuit television cameras, roadway sensors, and web resources to reduce the amount of time vehicles involved in accidents sit on Metro freeways.
- Clears incidents quickly and efficiently.



Combining traffic incident management with ramp metering and other Scout tools helped lower incident clearance times from about 22 minutes to approximately 15 minutes overall during rush hours.

Teamwork Makes Quick Clearance Possible

As the Metro grows, more and more vehicles are using the freeway system. As freeways near capacity, the implementation of ramp metering and other strategies becomes essential.

Quick incident clearance is necessary to ensure better traffic flow, congestion prevention, and improved safety. Motorist assist and emergency response operators work together with other on-scene responders to make quick incident clearance happen through Scout's Traffic Incident Management Program. Partnerships and proper training are essential in making the quick clearance concept work. Scout has helped facilitate an atmosphere of collaboration by having a bi-state ramp metering project, with a regional focus of incident management inside the project boundaries.

Improved Traffic Incident Clearance Times

Several factors have helped improve incident clearance times on I-435:

- Ramp meters helping motorists to merge more easily and move at a consistent rate on the corridor; thereby causing fewer back-ups, secondary accidents and congestion.
- Emergency personnel arriving to the scene faster and clearing incidents at a faster rate.
- Increased collaboration and communication on incidents due to Scout's Traffic Incident Management Program.

Ramp meters improve clearance times.

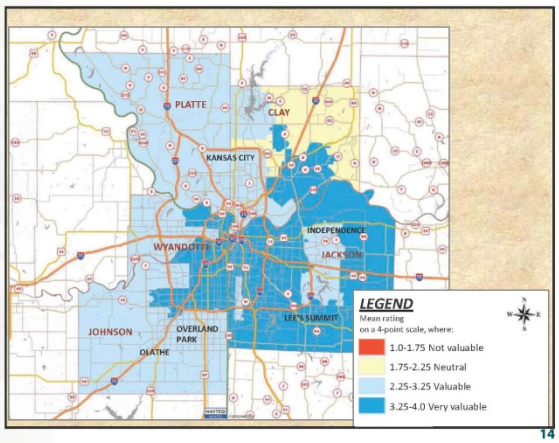
Working together to provide faster incident clearance.

Program Partners

Scout dispatches its Motorist Assist Program operators to support law enforcement. Through its Incident Management Program, Scout has partnered with first responders from more than 50 KC Metro organizations including: fire, law enforcement, towing and recovery, media and motorist assist.

Residents believe traffic incident management is valuable to the region.

Value of Traffic Incident Management (2011 Scout Survey)



COMMUNITY FEEDBACK

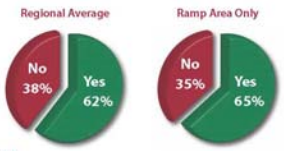
Scout issued a 21-question survey to measure the perceived value in the Kansas City Metro of its existing freeway management system, the I-435 ramp meters, and community interest in expansion and future use of Scout tools. The survey was administered by mail and phone to a random sample of residents in the Kansas City five-county metropolitan area consisting of Johnson and Wyandotte Counties in Kansas and Clay, Ray, and Jackson Counties in Missouri. The results were separated into the **Regional Area** (309 respondents) and the **Ramp Meter Area** (130 respondents) for a total random sample of 439 respondents. The **Ramp Meter Area** included those zip codes where a ramp meter was located (66210, 66211, 64114, and 64131). The **Regional Area** has a 95% level of confidence with a precision of at least +/- 5.5% and the **Ramp Meter Area** has a 95% level of confidence with a precision of at least +/-8.7%.

Key survey results include:

- Ramp meter motorists use Metro freeways. Forty-one percent (41%) of respondents drive on a major freeway daily and the same percentage drives on a major freeway several times each week.
- Over half the motorists in the Ramp Meter Area have experience with the I-435 ramp meters. Those surveyed were asked if they had gotten on I-435 when a ramp meter was in use. In the Regional Area, 31% had, and in the Ramp Meter Area, 58% had experienced the ramp meters on I-435.
- Respondents agree that ramp meters have improved I-435. Sixty-two percent (62%) of survey respondents in the Regional Area and 65% in Ramp Meter Area said "yes", ramp meters have improved I-435. Overall, most respondents who were located within close proximity to the South I-435 Corridor were neutral on the meters' value. Respondents farther away rated them as either valuable or non valuable. Respondents in northeast Wyandotte County view the meters as very valuable.
- Respondents said there should be more ramp meters. According to survey respondents in the Regional Area and in the Ramp Meter Area, 70% and 62%, respectively, stated "yes" there should be more ramp meters on Metro freeways. The survey did not ask respondents to suggest potential locations for additional ramp metering.

Have Ramp Meters Improved I -435?

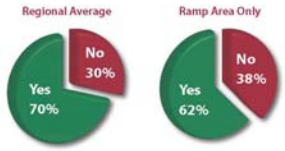
by percentage of respondents



Scout issued a 21-question survey by mail and phone to a random sample of residents in the Kansas City five-county metropolitan area.

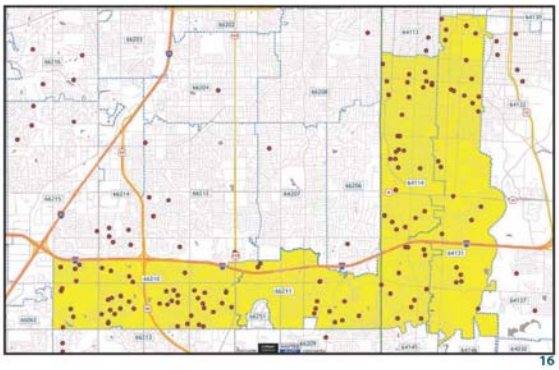
Should Other Metro Freeways Include Ramp Metering

by percentage of respondents



According to the 2011 survey, respondents indicated support for ramp meters on Metro freeways.

Location of Survey Respondents from Zip Codes Where Ramp Meters are Located (2011 Scout Survey)



Conclusion

The goal of the I-435 ramp metering pilot program was to help decrease congestion by maximizing the flow of traffic and increasing merge safety on the freeway. The results of the current evaluation study indicate that ramp metering is benefiting traffic flow on I-435 because:

- The number of accidents along the corridor has significantly been reduced. Drivers are more easily able to find gaps in the flow of freeway traffic when entering from the on-ramps than they were before ramp meters were added to the route.
- Freeways travel speeds and times have remained reliable overall. Specifically, freeway speeds have continued to increase within several segments of the corridor and travel times have improved slightly regardless of the increase in overall traffic volumes that resulted when major interchange construction projects, such as the Antioch Road and Three Trails Memorial Crossing Interchanges, were added to both ends of the corridor.
- Motorists have generally accepted the meters, choosing to comply with rather than ignore them, thereby helping to improve the safety of their commutes.
- Motorists have also indicated that meters should be added to other Kansas City Metro freeways.
- Emergency responders are able to achieve faster incident clearance on the freeway with the combination of traffic incident management, ramp metering, and other Scout tools.
- As promised, Kansas City Metro motorists experienced less than one minute of additional wait time per vehicle on the ramps after the ramp meters were installed.

Travel times along south I-435 improved when ramp metering was added.

The 2011 Scout survey indicates drivers with ramp meter experience are generally located along the I-435 ramp metering corridor. The vast majority of the region lacks experience with the I-435 meters. Further, transportation professionals and law enforcement officials maintain that additional driver's education would help strengthen compliance and improve merging skills.

Scout could address the need for further education by organizing a second phase of its Maximizing the Flow outreach campaign that is focused on ramp meter instruction. As part of the instructional phase, a narrative video shot from the driver's perspective could be produced to provide additional detailed instruction about what motorists should know and do to properly drive through a metered on-ramp and improve compliance. Such a video could be shared with media outlets, area municipalities, driving institutions and instruction agencies, and others.

Greater ramp meter experience and compliance will not keep traffic flowing near the posted speed limit (65 mph), but it will make merging smoother and reduce rear-end and side-swipe accidents. Other transportation improvements may ultimately be necessary to improve congestion issues along I-435 and its cross-streets.

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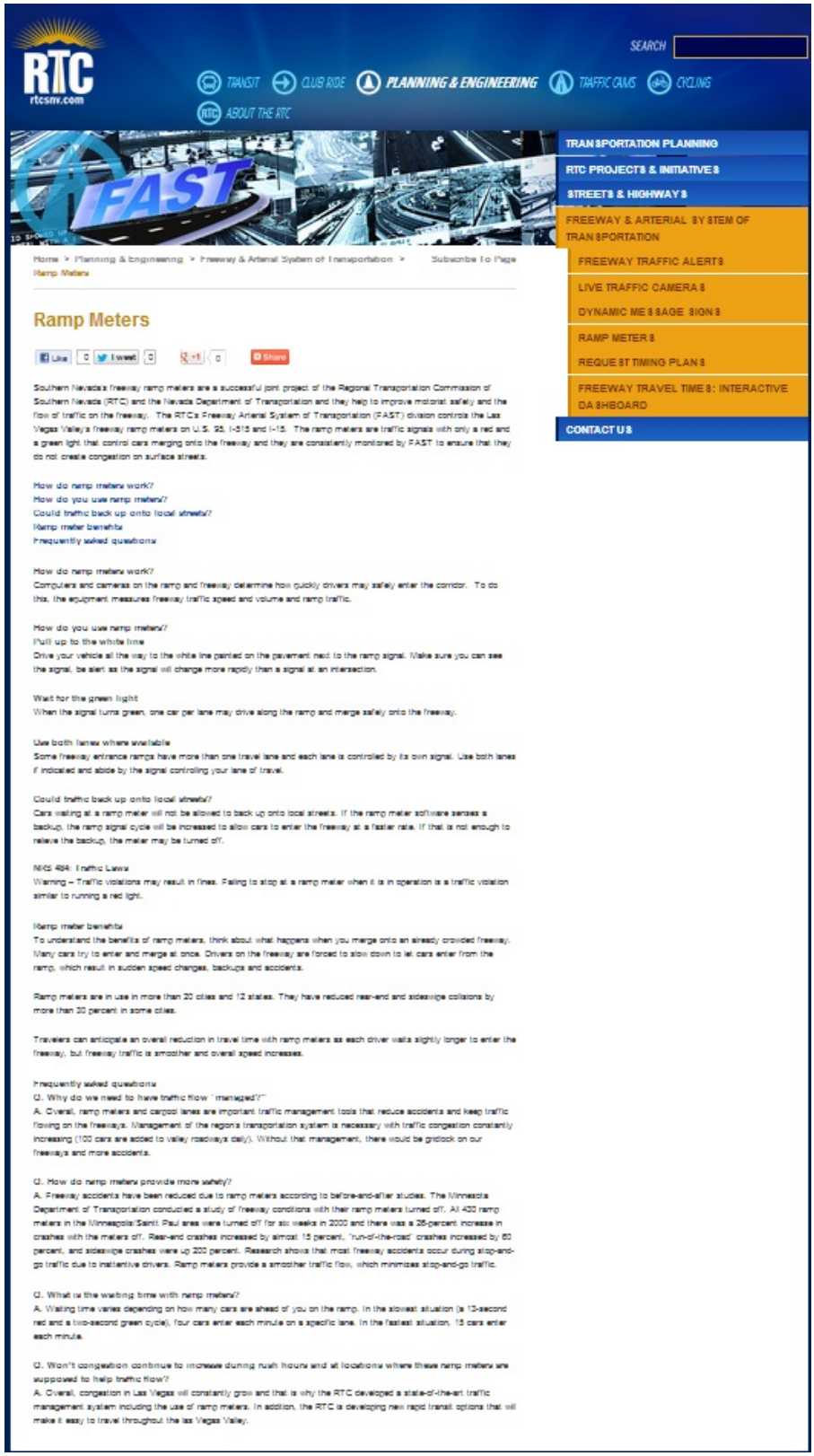
Top 5 Tips for Driving the I-435 Ramp Meters Effectively

1. Notice the flashing beacons on the "Ramp Metered When Flashing" signs that alert motorists that the ramp is being metered and they should be prepared to stop.
2. Pull all the way up to the white stop bar to trigger the ramp meter signal.
3. Follow the signage that indicates the number of cars allowed to proceed per green light. Some ramp meters allow one car per green; others allow two per green.
4. Recognize that ramp meters work and look similar to traffic signals. Drivers must consider and obey them as they would other traffic signals.
5. Understand that ramp metering is an adaptive system that works only when metering is needed on I-435.

18

B.4. Las Vegas RTC Website



B.5. Minnesota DOT Ramp Meter Home Page

Minnesota Department of Transportation

511

MnDOT A to Z | General Contacts | Simple Search | Advanced Search

Ramp Meters
What they are, why we have them and what we've learned

Home | Ramp Meter Study | Ramp Meters Nationwide | Contact Us

Background Facts

Metro Meters

- MnDOT installed the first meters on I-35E at the entrance ramps from Maryland Ave and Wheelock Parkway in St. Paul in 1969.
- The Twin Cities Metro Area has 433 ramp meters. Some operate only in the morning peak (5:30 a.m. - 9:00 a.m.), some only during the afternoon peak (2:00 p.m. - 6:30 p.m.), and others during both peaks.

Activation Factors

- Factors that determine the timing rates of ramp meters include congestion conditions on the freeway and real-time traffic levels on the metered ramp.
- Ramp meters react to freeway congestion conditions up to three miles from the ramp. Queue detectors help determine queue lengths and prevent long waits. Meter timing adjusts every 30 seconds.

What are Ramp Meters?

Ramp meters are traffic signals on highway entrance ramps designed and proven to:

- Reduce crashes
- Reduce congestion
- Provide more reliable travel times

MnDOT Ramp Meter Goals

- Ensure ramp meter waits are no more than four minutes per vehicle on local ramps and two minutes per vehicle on freeway-to-freeway ramps
- Ensure vehicles waiting at meters won't back up onto adjacent roadways
- Ensure meter operation responds to congestion and operates only when needed

More on ramp meters

In 2001, MnDOT released the results of an independent study on ramp metering in the metro area:

- Summary (PDF 62 KB)
- Final Report (PDF 20 MB)
- Evaluation Report (PDF 788 KB)
- Evaluation Plan (PDF 3.5 MB)

Contact Brian Kary for more details.

Your FAQs

Why am I waiting on the ramp when the mainline is free flowing?
Ramp meters react to actual travel conditions by delaying the onset of congestion. By allowing vehicles to enter the freeway one at a time, this precludes large numbers of vehicles from joining traffic all at once. This would create slowdowns around the entrance ramp and increase travel times.

Why is the meter running fast when the highway is stop and go?
The ramp metering policy provides a balance between maximizing the efficiency of the freeway system with traffic flow on the local streets while keeping ramp waits to less than 4 minutes. If there are too many vehicles on the ramp, this causes back ups onto local streets. The RTMC then changes the timing on the meter so that more vehicles can flow onto the mainline.

Why are meters continually flashing yellow when the highway is stop and go?
MnDOT decided not to meter at certain locations. These ramps either carry too little traffic to justify activating the meter or else they have too much traffic to effectively meter without exceeding the maximum queue waits.

Can I use my MnPASS transponder to use the ramp bypass lane?
No, drivers can only use transponders on the I-394 and I-35W MnPASS Express Lanes.

2000-2012 Minnesota Department of Transportation
395 John Ireland Blvd, St. Paul, MN 55155-1899
651-296-3000 Toll-free 800-657-3774 or 800-627-3529 (TTY, Voice, ASCII)
To request a MnDOT document in an alternative format, call 651-366-4718 or e-mail ADArequest.dot@state.mn.us

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B.6. Minnesota DOT Ramp Meter Nationwide Page

Minnesota Department of Transportation

MnDOT A to Z | General Contacts | Simple Search | Advanced Search

Ramp Meters
What they are, why we have them and what we've learned

Home | Ramp Meter Study | Ramp Meters Nationwide | Contact Us

Ramp Meters Nationwide

What other areas use ramp metering?

The largest ramp metering system in North America is located in Los Angeles County with more than 1000 meters. Since 1989, the number of meters nationwide has increased from about 1,600 to over 2,300. By the end of 1999, at least 33 metro areas had meters operating (source: Federal Highway Administration), including:

Metropolitan Areas with more than 50 meters	Metropolitan Areas with less than 50 meters
Chicago, IL Los Angeles, CA Minneapolis/St. Paul, MN New York, NY Orange County, CA Phoenix, AZ Portland, OR San Diego, CA San Jose/San Francisco, CA Seattle, WA	Atlanta, GA Columbus, OH Denver, CO Detroit, MI Fresno, CA Houston, TX Milwaukee, WI Northern Virginia, VA Riverside, CA Sacramento, CA San Antonio, TX San Bernardino, CA Toronto, ON

How do these metering systems differ from one another?

There are two basic metering control strategies. One is "**local control**," in which a ramp meter operates based on conditions only on the ramp and the mainline point adjacent to the meter. Variations of this strategy are located in Chicago and Toronto.

The second strategy is "**central control**." Ramp meters and traffic detectors communicate with a central computer, typically located at a Traffic Management Center. The central computer processes the information and tries to coordinate timing among several ramp meters within a corridor. Several cities have centrally controlled systems including Seattle, Denver, San Diego and the Twin Cities. Each city, though, has its own strategies and goals for operation. Denver, Seattle, and the Twin Cities are examples of cities that incorporate information from queue detectors into the ramp meter timing.

MnDOT regulates meters based on a set of complex mathematical formulas. The formulas take into account various congestion level thresholds - including volume data (information on the numbers of vehicles actually traveling through the system). The more than 5,000 loop detectors (sensors) located in the pavement throughout the Metro area, collect the data. A computer at the Regional Transportation Management Center polls these sensors every 30 seconds. If there is sufficient traffic on the ramp and mainline, then the computer activates the meter. If there is very little traffic, the meter remains in a flashing yellow mode.

How effective is ramp metering?

Performance Measure	Location & Result
Travel time	Atlanta – 10% decrease in peak period Houston – 22% decrease in peak period Arlington – 10% decrease in peak period
Travel speed	Milwaukee – 35% increase in peak period Portland –155% increase in peak period Detroit - 8% increase Los Angeles – 15 miles per hour faster
Crash rate	Phoenix – 16% decrease during metered hours Milwaukee- 15% decrease in peak period
Crash frequency	Portland –43% decrease Sacramento – 50% decrease Los Angeles – 20% decrease
Driver hours saved	Sacramento – 50% decrease Los Angeles – 8,470 hours per day
Vehicle volume	Milwaukee – 22% increase in peak period Sacramento – 5% increase in peak period Detroit -14% increase in volume Los Angeles – increase of 900 vehicles per day
Gallons of fuel saved	Portland – 700 gallons per weekday
Emissions Reduction	Minneapolis - reduction of 1,160 tons annually
Benefit/Cost ratio	Atlanta – about 4:1 in year 1, about 20:1 after five years

B.7. Minnesota DOT Ramp Meter Evaluation Study Page

Minnesota Department of Transportation

MnDOT A to Z | General Contacts | Simple Search | Advanced Search

Ramp Meters
What they are, why we have them and what we've learned

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Twin Cities Metro Area Ramp Meter Study

In 2001, MnDOT released the results of an independent study on ramp metering in the Twin Cities metro area. Cambridge Systematics of Cambridge, Mass. evaluated the traffic flow and safety impacts associated with turning off all 430 ramp meters for six weeks as mandated by the 2000 Legislature.

The study began with a five-week pre-study data collection in Sept. 2000 in order for the consultant to compare against the data collected when the ramps would be shut down in Oct. In total, both the "before" and "after" data collection took approximately 12 weeks. Read the May 13, 2002 final report.

Objectives

- To fully explore the impacts of ramp metering on freeways, local roads, and on transit operations.
- To identify the public perception of ramp metering.
- To compare Minnesota's ramp metering system and timing strategies with other regional systems across the country.

Ramp meters in action

Public involvement a key contributor
Throughout the study process, MnDOT sought guidance from two committees; a Citizens Advisory and a Technical Committee, both of which were charged with representing the public and ensuring the credibility and objectivity of the study. Both committees provided policy oversight, technical guidance, expertise and quality control.

Additionally, to measure customer satisfaction, the consultant used a series of focus groups and telephone surveys to talk to 1,540 users of the system. The consultant sought out individual traveler-oriented perspectives regarding ramp meters and ramp meter operations. See FAQs about the study.

Results

Results presented to MnDOT by Cambridge Systematics showed that without ramp meters there was:

- A 9 percent reduction in freeway volume.
- A 22 percent increase in freeway travel times.
- A 7 percent reduction in freeway speeds, which contributed to the negative effect on freeway travel times. The reliability of freeway travel time was found to decline by 91 percent without ramp meters.
- A 26 percent increase in crashes, which was averaged for seasonal variations. These crashes broke down to a 14.6 percent increase in rear-end crashes, a 200 percent increase in side-swipe crashes, a 60 percent increase in "run off the road" crashes, and an 8.6 percent increase in other types of crashes.

Market research data collection results showed a number of changes in attitudes among area travelers that occurred once meters were shut off, including:

- Most survey respondents believed that traffic conditions worsened.
- Support for modification of the metering system increased from 60 to 70 percent of respondents, and included such changes as using faster cycle times, having shorter operating hours, and using fewer meters.

Actions taken
In 2002, MnDOT launched its new responsive ramp meter timing system to:

- Reduce delays caused by congestion and crashes.
- Reduce the number of crashes caused by congestion.
- Provide travelers with more reliable travel times.
- Manage ramp meter wait times.

A key aspect of the new system was the addition of automated monitoring of wait times at meters so they can be adjusted as needed by MnDOT's traffic management center computers. The new system provides real-time information about ramp delays and limits wait times based on ramp conditions as well as freeway conditions. Specific system features include:

- Ramp meter waits will be no more than four minutes on local ramps and no more than two minutes on freeway-to-freeway ramps.
- Vehicles waiting at meters will not back up onto adjacent roadways.
- Meter operation will respond to congestion and only operate when needed.

Appendix C. Media Releases

C.1. Caltrans Press Releases

State of California • Department of Transportation

CALTRANS COMMUTER ALERT

Date: Wednesday, September 12, 2012
District: 6 - Fresno
Contact: Jose Camarena (559) 488-4067
Email: jose_camarena@dot.ca.gov

CALTRANS ANNOUNCES
NORTHBOUND STATE ROUTE 41 RAMP METERING
SYSTEM TO BE ACTIVATED NEXT WEEK

WHAT: **ACTIVATION OF NEW RAMP METERING SYSTEM**

WHEN: **FULLY FUNCTIONAL BEGINNING WEDNESDAY, SEPT. 19TH FROM 4:15 P.M. UNTIL 6:00 P.M. AND CONTINUING EACH WEEKDAY AT THE SAME TIME.**

WHERE: **WITHIN THE CITY OF FRESNO; EASTBOUND & WESTBOUND STATE ROUTE 180 CONNECTORS TO NORTHBOUND STATE ROUTE (SR) 41.**

The California Department of Transportation (Caltrans) will activate its first freeway-to-freeway connector ramp meters next week, beginning on Wednesday, September 19th at 4:15 p.m.

As part of the activation process, **beginning on Monday, September 17th and on Tuesday, September 18th** from **4:15 p.m. to 6:15 p.m.** ramp meters will operate in an **"all green mode"** in order for motorists to become accustomed to the new metering system prior to full activation (vehicles will be stopped at the meters and released two cars at a time per lane) scheduled for Wednesday, Sept. 19th.

Various changeable message signs along SR 180 & SR 168 will be activated beginning tomorrow, Wednesday, Sept. 12th and continuing until next Tuesday, Sept. 18th from 3:00 p.m. until 7:00 p.m. in order to notify motorists of upcoming ramp meter activations.

(Ramp activation schedule subject to change due to unforeseen operations or weather)

For further information regarding this project, contact the Public Information Office at the number listed above.

###

C.2. Caltrans Project Fact Sheet

FOOTHILL FREEWAY (I-210) CONGESTION RELIEF PROJECT

Fact Sheet

The Project
The Foothill Freeway (Interstate 210) is a vital component of the Los Angeles County and Ventura County freeway network. This heavily traveled corridor varies from three to six lanes including High Occupancy Vehicle (HOV, or carpool) lanes.

The main objective of the I-210 Congestion Relief Project is to better regulate vehicle flow upon entering the freeway system. This is being accomplished with advanced metering equipment and technology for use with on-ramp meters, freeway-to-freeway connector meters and HOV Bypass Lane metering.

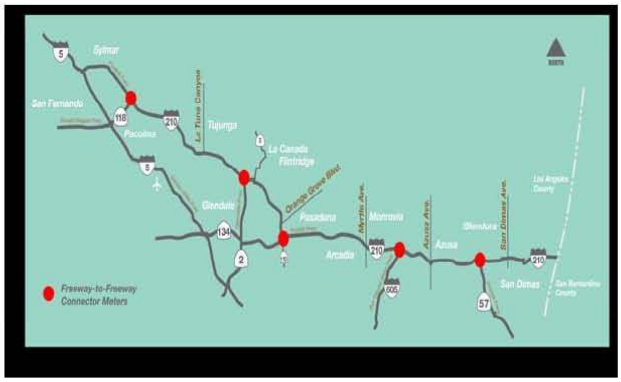
On-ramp meters: New on-ramp meters along a 50-mile corridor of eastbound and westbound I-210 are fully operational from the San Bernardino County line to the Golden State Freeway (I-5) in Sylmar.

Freeway-to-freeway connector meters: Freeway-to-freeway connector meters have been installed at nine connectors to transition motorists onto I-210 from State Routes 2, 57, 118, 134 and 605. To date, four connectors are activated (SR-57 and SR-605) and the other five are scheduled for activation in winter 2009. Nowhere in the nation, or the world, has freeway-to-freeway connector metering been used with such innovation and to the extent as in Los Angeles County.

HOV Bypass Lane meters: The I-210 Congestion Relief Project includes metering all HOV Bypass Lanes to better manage the flow of carpool lane users onto the freeway mainline. HOV Bypass on-ramp lanes are metered separately from single-occupant on-ramp lanes.

Summary
Metering is one strategy in the congestion relief effort, a part of Governor Schwarzenegger's Strategic Growth Plan. Ramp metering involves a sophisticated technology called SWARM, or System-Wide Adaptive Ramp Metering, one element of this plan to alleviate gridlock in the region. This advanced strategy works by evaluating real-time traffic situations throughout the corridor to predict bottlenecks and properly set "upstream" ramp metering rates to help alleviate congestion. Using wire loop detectors, fiber optic connections, calculations and historical and real time traffic data, every meter will, in a sense, be able to speak to each other to better manage the corridor.

Caltrans District 7 (Los Angeles & Ventura Counties)
100 South Main Street, Los Angeles, 90012
213-897-3656
Contact: Maria Raptis, Public Affairs Office
213-897-9372



Benefits
Corridor metering will significantly reduce bottleneck congestion points and control overflow of vehicles when freeway demand exceeds its capacity. Ramp and connector metering will improve mainline freeway traffic flow and decrease freeway congestion.

Project Status
The project was initially activated in March 2008 from the San Bernardino County line to Pasadena when ramp metering began and four freeway-to-freeway connector meters were activated from northbound Orange Freeway (SR-57) and northbound San Gabriel River Freeway (I-605) to eastbound and westbound I-210. Flashing beacon signs near the four interchanges alert motorists to reduce speed with messages of "Route 210 Meter On" and "Prepare to Stop."

Project Schedule
The final portion of the project will complete when freeway-to-freeway connector metering is activated at the following five interchanges:

- Northbound Glendale Freeway (SR-2) to eastbound and westbound I-210;
- Eastbound Ronald Reagan Freeway (SR-118) to eastbound and westbound I-210; and
- Eastbound Ventura Freeway (SR-134) to westbound I-210.

Project Cost
$16.4 million

www.dot.ca.gov/dist07
Updated: 6/17/2009

C.3. Georgia DOT Press Release

GEORGIA DEPARTMENT OF TRANSPORTATION

For Immediate Release
Monday, February 23, 2009

Contact: Paul Marshall
(404) 631-1830

MORE RAMP METERS ON I-20 INSIDE I-285

ATLANTA, Ga. – The Georgia Department of Transportation will sequentially activate 7 meters on I-20 entrance ramps between Capitol Avenue and Candler Road. The first three meters will be turned on during morning rush hour on Tuesday, February 24. The remaining four will be activated during afternoon rush hour on Tuesday, February 24. Additional meters may be activated this week (to be determined).

Ramp meters are turned on just before heavy rush hour traffic begins, and stay on until traffic begins to subside at the end of the peak period. They resemble standard traffic lights, and are installed approximately two-thirds of the way down the entrance ramps. Every 3-5 seconds the meter cycles from red to green, allowing one vehicle at a time to merge onto the freeway. On two-lane ramps, the left and right lanes have alternating green lights, so the left lane goes while the right is stopped, and vice versa.

"Although motorists will spend a little extra time on the ramp, they should see a decrease in overall travel time," Georgia DOT Operations Director Steve Henry said. "We'll monitor these new ramp meters very carefully. If traffic starts to back up on the ramp, sensors will speed up the meters to allow more vehicles to move through. If our cameras show traffic spilling out onto the surface streets, we can turn them off completely."

One hundred-seventeen ramp meters currently operate in metro Atlanta:

- 24 on I-75 between Midtown and Chastain Road
- 8 on I-75 (south side)
- 15 on I-75/85 (Downtown Connector)
- 14 on I-285 (north side)
- 9 on I-285 (northwest)
- 11 on I-285 (east side)
- 11 on I-85 (northeast)
- 8 on I-575
- 17 on I-20 inside I-285

They have collectively reduced average rush-hour commute times in these corridors by significant margins. Preliminary studies show that metered corridors have between 30 and 90 percent fewer congested traffic days than those without metering. Other benefits include reductions in merging accidents and vehicle emissions. The Department will release a completed ramp meter study later this year.

"There will be a short learning curve period in the first few days as the public adjusts," Georgia DOT Atlanta Regional Media Coordinator Mark McKinnon said. "We realize that we may need to tweak specific meters. Please bear with us, and keep in mind that there is no one 'silver bullet' solution to eliminate congestion. Ramp meters are just one of several tools that can help fight it."

Ramp meters have been used for over 20 years in more than 20 cities across the country. They are placed on entrance ramps to help control the flow of traffic from the surface streets onto the freeway. Without metering, vehicles push their way all at once onto the interstate in a disorderly and potentially dangerous manner. Once these vehicles reach the merge point, they force their way into the travel lanes, causing additional congestion due to stop-and-go merging activity on the freeway. When this happens on already traffic-heavy freeways, there is a total breakdown of free-flow near the on-ramps, which has a ripple effect on traffic for many miles. Even with no stalls or accidents, heavy on-ramp traffic causes congestion that both extends and continues throughout the rush-hour.

The new ramps that will be operational during the week of February 23 are:

- Tuesday morning: Flat Shoals Road, Glenwood Avenue, and Moreland Avenue to I-20 westbound
- Tuesday afternoon: Capitol Avenue, Moreland Avenue, Glenwood Avenue, and Candler Road to I-20 eastbound
- Additional meters TBD

The Georgia DOT urges travelers to call 511 for updated information about this or any other construction project on interstates and state routes. Georgia 511 is a free phone service that provides real-time traffic and travel information statewide, such as traffic conditions, incidents, lane closures, and delays due to inclement weather. Callers also can transfer to operators to request assistance or report incidents 24 hours a day, seven days a week. More information is available at www.511ga.org.

The Georgia Department of Transportation is committed to providing a safe, seamless and sustainable transportation system that supports Georgia's economy and is sensitive to both its citizens and its environment. For general information on the Georgia DOT, please visit our Web site (www.dot.ga.gov).

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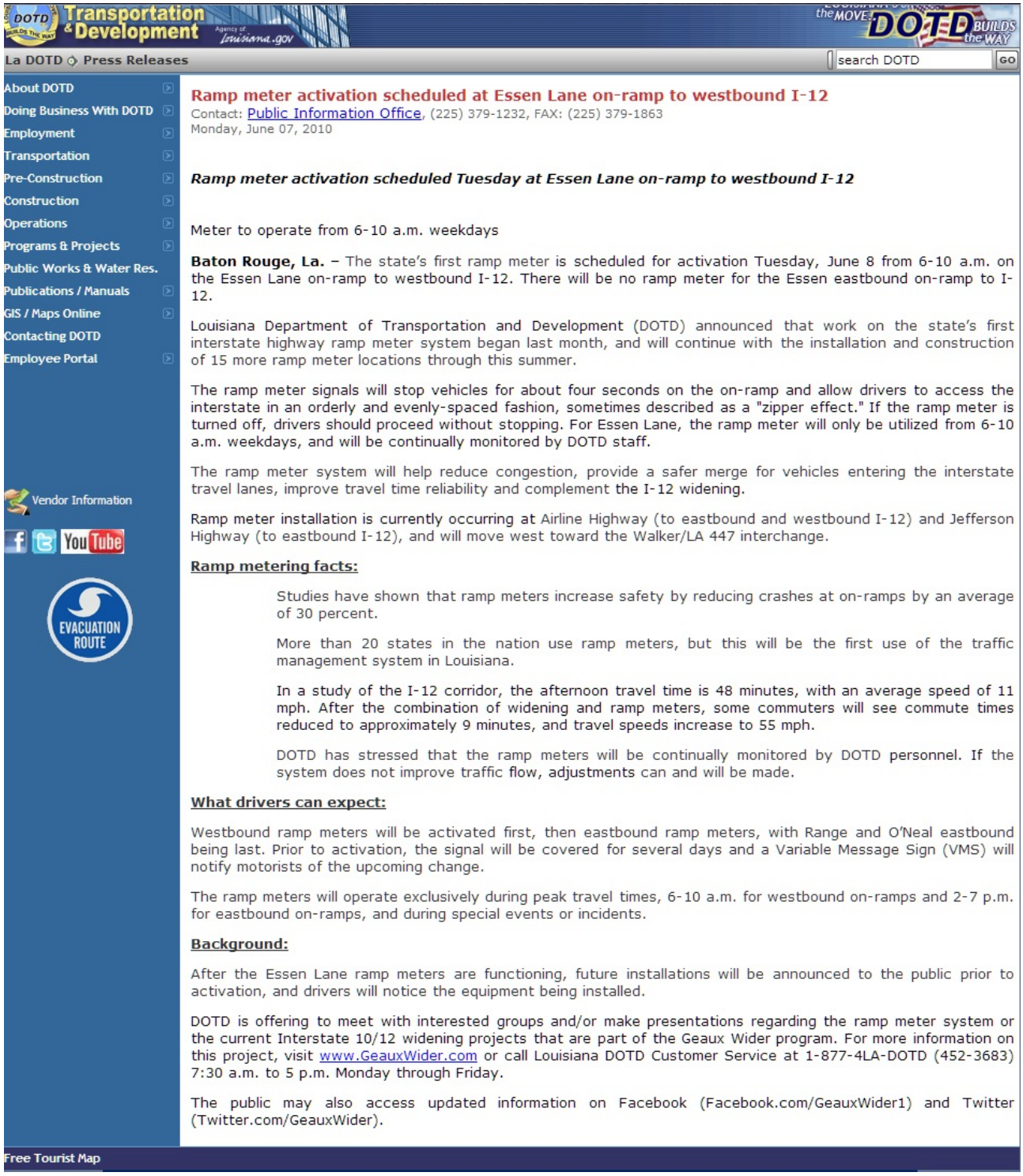
C.4. Louisiana DOTD Press Release



DOTD Transportation & Development — Agency of Louisiana.gov — the MOVE: DOTD BUILDS the WAY

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EVACUATION ROUTE

Ramp meter activation scheduled at Essen Lane on-ramp to westbound I-12

Contact: Public Information Office, (225) 379-1232, FAX: (225) 379-1863
Monday, June 07, 2010

Ramp meter activation scheduled Tuesday at Essen Lane on-ramp to westbound I-12

Meter to operate from 6-10 a.m. weekdays

Baton Rouge, La. – The state's first ramp meter is scheduled for activation Tuesday, June 8 from 6-10 a.m. on the Essen Lane on-ramp to westbound I-12. There will be no ramp meter for the Essen eastbound on-ramp to I-12.

Louisiana Department of Transportation and Development (DOTD) announced that work on the state's first interstate highway ramp meter system began last month, and will continue with the installation and construction of 15 more ramp meter locations through this summer.

The ramp meter signals will stop vehicles for about four seconds on the on-ramp and allow drivers to access the interstate in an orderly and evenly-spaced fashion, sometimes described as a "zipper effect." If the ramp meter is turned off, drivers should proceed without stopping. For Essen Lane, the ramp meter will only be utilized from 6-10 a.m. weekdays, and will be continually monitored by DOTD staff.

The ramp meter system will help reduce congestion, provide a safer merge for vehicles entering the interstate travel lanes, improve travel time reliability and complement the I-12 widening.

Ramp meter installation is currently occurring at Airline Highway (to eastbound and westbound I-12) and Jefferson Highway (to eastbound I-12), and will move west toward the Walker/LA 447 interchange.

Ramp metering facts:

Studies have shown that ramp meters increase safety by reducing crashes at on-ramps by an average of 30 percent.

More than 20 states in the nation use ramp meters, but this will be the first use of the traffic management system in Louisiana.

In a study of the I-12 corridor, the afternoon travel time is 48 minutes, with an average speed of 11 mph. After the combination of widening and ramp meters, some commuters will see commute times reduced to approximately 9 minutes, and travel speeds increase to 55 mph.

DOTD has stressed that the ramp meters will be continually monitored by DOTD personnel. If the system does not improve traffic flow, adjustments can and will be made.

What drivers can expect:

Westbound ramp meters will be activated first, then eastbound ramp meters, with Range and O'Neal eastbound being last. Prior to activation, the signal will be covered for several days and a Variable Message Sign (VMS) will notify motorists of the upcoming change.

The ramp meters will operate exclusively during peak travel times, 6-10 a.m. for westbound on-ramps and 2-7 p.m. for eastbound on-ramps, and during special events or incidents.

Background:

After the Essen Lane ramp meters are functioning, future installations will be announced to the public prior to activation, and drivers will notice the equipment being installed.

DOTD is offering to meet with interested groups and/or make presentations regarding the ramp meter system or the current Interstate 10/12 widening projects that are part of the Geaux Wider program. For more information on this project, visit www.GeauxWider.com or call Louisiana DOTD Customer Service at 1-877-4LA-DOTD (452-3683) 7:30 a.m. to 5 p.m. Monday through Friday.

The public may also access updated information on Facebook (Facebook.com/GeauxWider1) and Twitter (Twitter.com/GeauxWider).

Free Tourist Map

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