

GRICC White Paper



Data Sharing: Interagency, Private Sector and Website Considerations

Data Sharing: Interagency, Private Sector and Website Considerations

Overview.....	2
CURRENT GCM POLICY AND PRACTICE	4
Policies of Individual GCM Agencies	4
GCM Gateway Web Site - Existing Policy.....	4
Video.....	6
Current Agreements – Specific Agency with Private Entity.....	6
Gateway Progression Toward XML	6
Current Technology Issues and Impacts on Future Development	7
Summary of Technical Discussion	8
REVENUE GENERATION THROUGH TRAVELER INFORMATION	9
New Concerns	9
Revenue Sharing Feasibility	10
Public Agency Accounting.....	10
Revenue Handling and Licensing.....	10
Immaturity and Volatility of the Market.....	11
Institutional Considerations	11
Pricing and Contracting.....	12
Cost Concerns.....	12
The use of private sector data for public and private data dissemination.....	12
Consideration for future technologies and private entity developments.....	13
Future public sector developments.....	13
In-kind Services.....	13
Video.....	14
Evolving Options for Business Models	14
RECOMMENDATIONS	16
Data Menu Model	16
Example Scenario.....	17
Pros/Cons for Data Menu Model.....	18
Terms.....	18
Gateway Impact.....	18
Summary	19

Overview

The Gary-Chicago-Milwaukee (GCM) Corridor Deployment Committee has tasked the Gateway Regional Integration for the Corridor Committee (GRICC) to review data sharing policies and principles, particularly those relating to sharing data and resource allocation with private entities. Specifically, there have been several inquiries regarding the possibilities of generating revenues for the public agencies through data sharing agreements.

Historically, the Gateway and the source agencies have made real-time traffic information available to public and private organizations with few requirements. Providing this information to commercial entities such as broadcast media has been viewed as a low-cost and effective way for the public agencies to disseminate traffic information to the widest possible audience. Under this model, the public bore the costs of system deployment, management, operation and maintenance of the public infrastructure; the private partner bore the cost of the private information collection, distribution and marketing infrastructure. The public sector received the benefit of providing real-time information to transportation system users and the private sector received any revenues that it was able to generate based on the provision of this information. This business model has served both the public and private sector well in the past.

As use of Intelligent Transportation System (ITS) technologies becomes more prevalent and costly, the issue of the resources to develop, test, deploy, operate and maintain the infrastructure and to support the staffing and operations necessary to assure quality services is becoming increasingly important. And the question of the appropriate sharing of these associated costs is becoming more relevant. As transportation agencies encourage public-private partnerships to pursue the use of these technologies, questions begin to arise relating to: 1) sharing data and information between public and private systems, 2) appropriate allocation of the associated costs, and 3) development of a workable business model for resource allocation. Public sector budgets are becoming increasingly strained while customer appetites for timely, accurate information are growing. With private partners making increased use of publicly funded data, expanding private data collection efforts, and generating revenues based on real-time traffic information, the time appears right to re-examine the business model with a view towards defining a mutually beneficial arrangement.

In order to sufficiently address this topic, an understanding of current policies and an awareness of the experiences of other agencies and corridors is important.

As the integration activities evolve within the GCM Corridor, it can be reasonably assumed that more types of data will be shared both to external public agencies and the private sector. The choice to make certain data types available to the public and/or private participants will rely on the policies of the source agencies in conjunction with the policies of the GCM Corridor.

This paper identifies issues involved with data sharing, particularly relative to the private sector, and reviews the technical considerations associated with the current practices and GCM Gateway system. This paper recognizes that policy decisions on these issues are the responsibility of the Executive Committee and the individual GCM partners.

However, the document does address some of the key concerns impacting the ability to both generate revenue and efficiently share data from a Corridor standpoint.

CURRENT GCM POLICY AND PRACTICE

The GCM Corridor Program Plan, prepared in April 1995, identified the vision for the GCM Corridor. Elements of this vision applying to the data sharing issue are paraphrased below:

- Using the GCM Corridor as a national technology testbed
- Addressing institutional issues and barriers identification and research
- Promoting mutual cooperation
- Providing immediate availability of travel information through a variety of devices
- Monitoring and controlling GCM Corridor routes through an integrated system

One of the key goals identified in the plan is to enhance productivity. The objectives associated with this goal are:

- To reduce the travel delay and increase the reliability and predictability of moving people and goods for all transportation users.
- To improve the ability of all users and operators to perform travel planning using real-time travel information.
- To reduce the operational costs to operators incurred from poorly operating transportation facilities.
- To reduce the costs to users and operators incurred from toll, license and penalty fee collection and improve the equity of fee collection.
- To reduce the scheduling and processing delays and costs to users and operators associated with the regulation of vehicles.
- To reduce the costs and improve the quality of data collection for transportation system planning, use, operations, maintenance and installations.

Policies of Individual GCM Agencies

As part of the GRICC's review process, some of the current policies in the region were shared with the GRICC. The majority of the policies were consistent with the Gateway's historic policy (i.e., public sector provided the data for free to all). Some exceptions were the recent Illinois Tollway agreement with Mobility Technologies and some new media agreements in the St. Louis area. These agreements and others address issues of revenue, costs, and standards.

GCM Gateway Web Site - Existing Policy

The GCM Website policy currently exists as follows.

GCM Travel Site Policies

The information provided via this website is currently made available without charge to individuals and companies. The Illinois Department of Transportation has the right to discontinue this service for any reason without explanation. Individuals using information for personal purposes are not required to notify the Department. Any users of the information who either directly or indirectly are providing information for a fee, or reusing the information in any way, must register with the Department at:

ITS Program Office
Illinois Department of Transportation
120 West Center Court
Schaumburg, Illinois 60195
Attention: Internet Registrar
Phone: 847-705-4800
Fax: 847-705-4803

Users should explain the proposed usage of the information including any contemplated advertising, and where the information will be displayed. The Department requires that information be displayed as provided to ensure proper credit to participating agencies in the GCM Corridor Coalition.

The following requirements must be met in order to display GCM Corridor information:

1. Notify the ITS Program Office.
2. The information may not be modified in terms of content or accuracy.
3. Credit must be given to the GCM Corridor for providing the information.
4. A link to a disclaimer should be provided absolving the GCM Corridor and its membership from any liability resulting from the use of the information.

The data available through the web site is currently the same data available to all agencies through the Center-to-Center (C2C) CORBA environment. The www.gcmtravel.com web site is technically a subscriber to this data, similar to a traditional center such as the Illinois Tollway.

The ability to enforce the current policy and monitor data usage is not a straightforward task. Simply, any data available on the internet is subject to 'scraping' and possible use without explicit GCM consent. The ability to manage the data users has been accommodated to date by restricting site access by specific IP addresses if needed. However, these same users can still access the data by changing IP's. This issue has occurred only once and was mainly a problem due to the frequency of site hits that were occurring.

The current Gateway C2C environment allows any CORBA subscriber aware of the report type and naming convention to obtain data via a single subscription 'channel'. To obtain CORBA-based GCM data, users must develop a CORBA interface to build this data subscription and/or publication mechanism. This effort is generally significant, depending on the experience with CORBA that a particular entity may have.

Agencies or private entities wishing to subscribe to data utilizing CORBA have typically been required to purchase and arrange for the installation of fractional T1

communication services to the Gateway server site – the IDOT ITS Program Office in Schaumburg, IL.

Video

Video sharing has unique considerations relative to the Gateway system and sharing concepts relative to traditional ‘traffic data’. It is anticipated that video streams or images will be available directly from the owning agency to private partners via the GCM. This is not anticipated to replace all direct feeds and agreements that individual agencies enter into with private entities. This can be readily accomplished given the emergence and acceptance of IP based digital video through both snapshots and digital motion. The GCM Gateway is a viable hub and service location for images and streaming video to external users as bandwidth issues decrease over time. The issues of image control, image blocking, reliability and stability will be addressed in future development phases.

Current Agreements – Specific Agency with Private Entity

The sample agreements provided to the Committee by the individual agencies were typically identified as ‘contracts’ with two years being the typical effective term. Most of the agreements refer to use of data being at the user’s own risk and do not specify a data quality.

The agreements typically state that the agency will have the right to withhold data at any time and require that the user not blame the provider for any problems with the data.

Most of the agreements do not specifically identify who owns the data, but do require that the user specifically credit the source of data or video. The credit or development of a revenue stream to the agencies is at the heart of the issue.

One key clause of interest from one of these contracts is the following:

“{Private Entity X} further agrees not to sell the {Agency} information to other users, not to misrepresent the source of the {Agency} information, and not to misrepresent the availability of {Agency} reports to others.”

This statement is subject to the following distinction and likely interpretation by information service providers (ISP’s). Typically, these private data users are adding real or perceived value to the data either by changing the look and feel or by making it available through devices or products that the agencies do not possess or have available. At this point, private entities that credit the agency as the source of data will generally consider it their right to charge customers fees for these services and data as legitimate.

Gateway Progression Toward XML

As requests for Corridor traffic data increase, the need to efficiently make the data available to the requesting parties has grown. Extensible Markup Language (XML) is a simple text format that applies well to electronic publishing and data exchange,

particularly on the web. The tutorials and understanding of XML is straightforward for many developers.

As IDOT noticed an increasing overhead and labor cost associated with answering questions and requests relative to the CORBA subscription, creating an XML version of the data reports was a logical choice and fairly easy one for the Gateway development team to implement. The XML reports are directly created from the CORBA data structures.

XML considerations are presently under consideration by the NTCIP C2C Working Group.

The XML reports are also only available to 'secure' users who access the reports through an 'https' connection. This provides the GCM with one level of control over data availability.

The cost to produce XML output was very low and the cost to maintain and add users is insignificant. The GCM Gateway can simply add an account for the approved users.

At this time, the ability to read back XML data into the Gateway system does not exist. It will likely be a major consideration in future Gateway development as it will provide more flexibility for future centers that emerge in the region. XML does not mean the end of the CORBA 'infostructure' in the region, as it is simply a different and additional mechanism for data sharing that will play larger role in future Gateway activities.

Current Technology Issues and Impacts on Future Development

As the Gateway system is starting to mature and stabilize, the following issues with data exchange have come to the forefront. Some have already been addressed; others will require consideration in future developments and be impacted by policy considerations.

Ø Infrastructure management of private entity connections into the Gateway.

The overhead of these connections has been greatly reduced through the XML report mechanism. The ITS Office does not need to be available for or assist in the coordination of communication lines. It should be noted that "heavy" users may still connect to the Gateway through the CORBA interface which require a higher level of management and support from the Gateway to maintain. CORBA is the more mature technology for GCM developments and provides appropriate security for Center-to-Center data and control transactions.

Ø Impact of private connections on Gateway system performance.

Isolation of private entity access to secure reports has some impacts on bandwidth and demand on the web server. This demand is presently managed by utilizing 'zipped' reports for XML subscribers with secure access. CORBA subscribers have had little negative impact on system performance to date.

Ø Security of private connections

Both the CORBA and XML data is relatively secure. The CORBA subscriptions cannot be accessed without firewall changes performed by IDOT. XML data is only available through an IDOT provided Username and Password via an https connection. The XML also provides one additional advantage, as users are not connected to the Gateway's servers directly.

One potential security issue will be addressed if the choice to restrict data access by user and data type becomes policy. This would be implemented for specific agencies within the GCM Gateway and would apply as datasets expand. Presently, there is one CORBA subscription channel allowing all datasets to be available to all subscribers. Similarly, there is only a single level hierarchy of XML Usernames and Passwords. A fee-based approach to GCM data will require a well-documented approach to security. Fee-paying subscribers will expect that their competitors are subject to similar arrangements.

Ø *Impact of using the internet for communications*

One other consideration is the impact of the extensive use of the internet as a means of communications. As an entity, the internet has been in existence for approximately 20 years. The last ten years or so have seen dramatic increases in its use both in volume and as a common tool for business and personal use. The internet as a system has grown considerably and has become much more robust. However, it is still susceptible to security concerns, and (much like the highway networks transportation agencies manage) performance can degrade considerably with total network traffic. For most users of GCM data this will likely not be a major concern – if the internet is down, everyone has bigger problems than looking for traffic data. However, for those whose business depends on this data, a more secure and robust connection, or a duplicate connection, may be desirable.

Summary of Technical Discussion

The costs of making data available to private entities has dramatically decreased over the last few years as technology options have improved for data sharing. As noted, the costs to the GCM Corridor are significantly lower through the XML approach.

The concern over data access to private entities is the key issue. Gateway system development previously focused on the Corridor goals as a test bed for technologies and the objective to improve availability of real-time travel information to all users. As new data types come into play regionally, the ability to control access to information, particularly to those outside of the cooperative Corridor agencies, will become imperative. Recent concerns over the potential to generate revenue with this data necessitate the same considerations.

Current private subscribers who have directly talked to the IDOT ITS Office to obtain connection to the GCM Data include 3 confirmed CORBA subscribers and 3 confirmed XML users. There is currently one known private entity using the html reports in an application. There are numerous regular heavy users of the site, whose use is reviewed only for evaluating issues with web site performance.

REVENUE GENERATION THROUGH TRAVELER INFORMATION

Two documents have been reviewed and weigh heavily in the discussion of revenue generation. The first is Sharing Data for Public Information: Practices and Policies of Public Agencies. This document was prepared for the US Department of Transportation, ITS Joint Program Office. It identified the state of the practice for data sharing as of early 2002 and specifically identifies many issues.

The second document under review is the Los Angeles/Ventura Advanced Traveler Information System (ATIS) Meeting - Blue Ribbon Summit from May of 2003. This document was prepared for the Los Angeles County Metropolitan Transportation Authority, where these same issues were discussed relative to specific systems.

New Concerns

The recent feedback and comments within the Corridor have centered on two questions.

1) Where is the public agency revenue share? - meaning that individually agencies may feel entitled to revenues generated by the use of data available through the publicly funded website to the extent that such revenues are, or may be, forthcoming.

2) How do agencies protect their data?

There are a number of issues that make these questions difficult to answer. Technically, as previously discussed, the issues are minimal given the current policy. However, changes in policy will require changes to the Gateway system. These changes are likely to be needed regardless of revenue sharing, as the breadth of data available to the Gateway increases. The institutional and administrative concerns are more interesting. More to the point, the agencies need to determine the purpose in protecting the data.

The following key issues were highlighted in the aforementioned US DOT ITS Joint Program Office Report:

- Revenue sharing has had little success to date within the industry.
- Revenue handling and licensing.
- Cost concerns in providing the data to private entities.
- Public data dissemination as a public service.

From the Blue Ribbon Summit, the change in economic climate has impacted the Traveler Information business framework. It has been recognized that Information Service Provider products and services can reach a wider audience than public agencies. The original hope was that revenues from the private sector use of Advanced Traveler Information System (ATIS) data could help support the operation and maintenance of the information portals. Changes in economic circumstances have left that expectation unfulfilled.

While the information discussed in the US DOT Data Sharing document and the Blue Ribbon Summit should not determine the feasibility for revenue generation for the GCM Corridor, there are significant issues and lessons learned that should be addressed if GCM data sharing policies change. It should be noted that the referenced documents are from 2002 (FHWA) and 2003 (Blue Ribbon Summit).

Revenue Sharing Feasibility

According to the US DOT document, there has been very little success in the revenue sharing efforts to date. Per Section 3.2 of the report, "(a)ttempts at commercialization can lead to prices charged to the private sector that many view as too high. The result is that demand for data falls off very quickly and revenue to the public agency is usually very weak. Information has high elasticity of demand because people will often do without it." Simply, private entity demand for data is still low.

From the GCM perspective, the private uses of GCM data can be considered in its infancy. With the notable exception of media outlets and a small handful of ISPs, the demand for data is just starting. These exceptions are also the large scale users and commercial entities in the industry.

According to the US DOT Report, private agencies desiring data voiced the following specific concerns regarding revenue generation:

- There is not enough revenue to share
- The data is collected at taxpayer expense; therefore all taxpayers including private firms should have access to the data at no cost. A private firm would be paying double, if charged for the data.
- The private sector is serving a public mission by getting traveler information out to the public; therefore, they should not pay for fulfilling a public sector mission.

These issues are offset by the significant investments made into ATIS systems, while support and funding to maintain and operate these systems have been lacking.

The revenues being generated by private entities are typically through a combination of data 'packaging' and advertising sales. These advertising dollars range from sale of airtime to internet banners. The ability of agencies to tap into the revenues generated by advertising is unclear.

Public Agency Accounting

The ability of agencies to obtain any revenues from private entities that feed back into the respective ITS programs is a concern. The procedures for administrating revenue generation for ITS data are undefined at this time and will clearly impact these efforts. Potential legal issues must also be reviewed.

Revenue Handling and Licensing

Many of the agencies seeking revenue sharing believe that there is simply not much revenue that can be generated. Many of the agencies recommending revenue sharing see it as simply a means to recover the costs associated with providing the data. They also advise that receiving some 'in-kind' contributions in exchange for the data is a noble goal.

"Infrastructure gaps" were also cited as a key reason for the weak revenue potential for traveler information. There simply may not be enough data to market that will produce significant revenues.

Currently, the use of IDOT data via the GCM Travel site has allowed for a demonstration unit of a cell phone based traffic report to be provided to IDOT. The company utilizing this data charges a small monthly fee to customers subscribing to their service, which is available through a single cellular provider at this time.

There are no guarantees of uptime for the GCM Data to any users. As the current policy notes, neither the GCM Corridor, nor its partners, are responsible for maintaining or providing this data and can discontinue data availability at any time. It can be reasonably expected that private entity expectations for service will greatly increase in a revenue generation scenario. The ability to obtain enough revenues through these arrangements to accommodate these raised service expectations is difficult to measure.

One company has agreed to provide some equipment back to GCM on a loan basis that may, in-turn, improve quality of data being made available. Another private entity is willing to explore options to provide computer equipment back to GCM to improve data availability. Further discussions with this ISP are pending and will likely coincide with additional development work.

Additionally, the potential to 'grandfather' long time ISP or Media connectivity may be feasible. This approach, while easily accommodated, is an issue of fairness.

Immaturity and Volatility of the Market

The overall immaturity of the traveler information market shows very little revenue potential at this time, according to the US DOT report. Market conditions and changing technologies greatly impact the revenue generating capabilities.

From the GCM perspective, while initial interest in the data has been very high, the long-term use and positive application of the data has been minimal. This is demonstrated by the lack of follow-up by most interested parties once they have become aware of how the data is structured. However, it should be noted that a small handful of private sector subscribers are committed to utilizing the data. These parties, as mentioned previously, may offer support or in-kind services in exchange for the data.

The potential growth of the traveler information market means that a revenue sharing approach should appropriately be able to grow with the market and be flexible as technologies change and emerge.

Institutional Considerations

Pricing and Contracting

Setting prices for 'data licenses' and terms for contracting, along with the administration of licenses or contracts for this information, will be significant tasks. The following are options for consideration:

- One price for all or a tiered pricing approach based on data desired.
- Length of 'contract' for data subscriptions.
- The amount of resources necessary to administer these potentially small contracts along with the appropriate work to distribute monies to the individual agencies.
- Policing of data is also a key task whose cost may not be justified relative to revenues generated.
- The history of no-cost data sharing in the region will impact the palatability of charging fees.

For IDOT, this last point is of particular concern. While it seems apparent that certain private entities will invest in the data and/or possibly CCTV images and feeds, many of these same users have had a form of free access to IDOT data for many years. It is important that data sharing policies with all private sector entities are administered fairly.

The development cycles and implementation timelines for different agencies is extremely variable. The integration activities in the GCM Corridor are proof of this. Project funding and implementation timeframes vary and impact both the chosen technologies and the methods to share data within the framework of the current Gateway system.

Cost Concerns

Nearly all agencies surveyed in the US DOT Report require private agencies to purchase and maintain their own equipment being used to obtain data.

There are costs to both the private entities and public agencies in data dissemination discussions. Changes in formatting and protocols provide a significant cost to the private and public sectors. The costs to the public agencies are typically funded through individual projects. The costs to the private entities are typically in software, hardware, and/or communications as technologies and data types and data availability change. These costs, on top of the costs for access to the data, impact the value of the data relative to the return that the public agencies may expect to gain.

As previously discussed, the availability of XML data reporting will likely reduce the cost to provide data in the current Gateway system. The pending procurement of additional web server machines will improve both general public and private entity data access.

The use of private sector data for public and private data dissemination

If private entities have made data available to the agencies, the redistribution of this data to public and private entities must be addressed.

For example, if Private Entity X has identified an incident for an Agency, the rights of that Agency to then redistribute that information to both public and private partners is a key element to consider. Agencies should recognize that limiting data availability in these situations may result in scrutiny. The protection of Private Entity X's interests by not distributing the data to ALL parties who may assist the public in responding to incidents or helping motorists avoid an incident area is an example of the careful considerations required. Selective sharing of data in this example calls into question the responsibility of public agencies to provide data openly to the public.

Consideration for future technologies and private entity developments

It is worth noting that emerging technologies, such as cell phone based travel times, private call-taking centers such as OnStar, parties installing off of right-of-way cameras, and others may greatly impact these public-private relationships.

It can be foreseen that private sector developments may supply additional data that will have significant value to the agencies. Some of these developments will not involve deployment of technologies on the agency rights-of-way.

The potential for agencies to utilize and access data generated by private entities will impact the public-private partnerships and revenue sharing models.

There is also a theory that if private entities were willing or able to undertake the function of traveler information, government may not need to provide the resources to do so. Thus providing quality data to the private entities would reduce the need for public agencies to do so.

The current policy fosters a cooperative environment between the public agencies and private entities including the media. To a degree, public agencies are already a competitor to the ISPs, particularly through the Gateway web site. There is another intriguing argument that the sale of data obtained on public right-of-way may be subject to private entities arguing for access to this same right-of-way to obtain similar data perhaps at a cheaper price. This is an interesting thought; however, the maturity of the markets and amount of data available make this a somewhat idealistic view at this time.

Future public sector developments

The data availability within the corridor will expand in depth as more agencies provide additional data to the Gateway system. The breadth of data will also increase over time as new technologies are deployed and new datasets are defined. For example, security related information relative to infrastructure and critical events may be part of future developments. While providing availability of this data to private entities will not be typical, the C2C aspect of data sharing has similar technical considerations as private to public data sharing.

In-kind Services

Separate from the licensing and fee collection standpoint, some of the applications being developed by private entities provide data and/or technologies that may be made available at no cost or a significantly reduced cost to the public agencies as part of a

data sharing agreement. While the value of these 'in-kind' services is somewhat subjective, these services, at a minimum may enhance the overall availability and quality of data being provided within the GCM Corridor, and provide a return on the public investment.

Video

To an extent, video images are just another form of data as addressed throughout this document. However, with many TV stations now reporting local traffic on their newscasts and showing video images in most markets, there is a much greater demand for this form of data. The more the committee looked at this issue, the more they realized that video carries with it a separate set of needs and concerns.

Evolving Options for Business Models

The committee realized that examination of a simple data sharing agreement was not the real issue. Since the committee has already gone this far, it was recommended that total business models be examined and not just simple data agreements. The issues of costs and revenue have become considerably more complex, as well as the simple documentation of data needs.

Given these considerations, a number of concepts have been advanced for consideration as new business models. These options are simply listed here for the purpose of better defining the option and to generate discussion as to the merits and shortcomings of each approach. The goal is to define and evaluate these options to provide the Executive Committee with sufficient information to establish a data and resource sharing policy for the GCM Corridor. At this point in time, the following list should be considered neither complete nor comprehensive, but rather exploratory.

- A) Public sector provides data to private partners for a fee. As noted, there are significant issues to be addressed in setting this fee. Should it be based on revenues generated by the private sector? Should it vary depending on the data being used?
- B) Public sector provides data to private partners in return for resources in the form of equipment and/or staffing.
- C) Private partner provides infrastructure to independently collect and process data and provides this data to the public in return for access to public data.
- D) Private sector pays the public sector to cover the public cost to provide the data. Is this the direct cost? Should it include a share of the public infrastructure cost?
- E) Keep the existing model of providing data at no substantial cost. Are there potential long-term benefits?

Additional options can and need to be defined. Each case generates questions. These questions need to be explicitly stated and addressed.

The ATIS U.S. Business Models Review paper prepared for the US Department of Transportation, ITS Joint Program Office was reviewed as part of the process. It identified the state of the traveler information business models as of 2001 and

specifically identifies various examples across the country, including our existing model/policy.

Summary

Under current policy, and within the current development status of the GCM Gateway system, the capability to generate revenue from the data is presently generally low for the following reasons:

- Current policy does not dictate revenue generation
- There is not a licensing or contracting approach defined for collecting revenue

Even if the policy and approach for revenue generation were defined, the following considerations must be carefully examined.

- Does revenue generation with traveler information conflict with public agency missions and the GCM Mission?
- The market for the information is immature.
- Does the value of the data warrant the necessary efforts to collect revenues?

The Gateway system has been developed specifically for the C2C exchange of travel data and conditions. The www.gcmtravel.com web site is the public traveler information component of the Gateway and is still maturing. In August of 2003, Gateway site hits numbered over 5,000,000 from 32,415 unique locations. The numbers of hits and unique visitors have increased each month since March 2003 when site statistic collection began.

In order to determine if revenue generation is viable for the region's traveler information, cost-benefit ratios will need to be explored. Given the inputs to this working paper, there has not been a particularly successful approach to date, that has generated the desired revenues for most agencies.

RECOMMENDATIONS

The next iteration of the Gateway system should address the potential to isolate various datasets, by providing a configurable hierarchy to restrict access to specific datasets, thus making access as open or as restrictive as desired by both the GCM as a whole and the individual partners.

It must be recognized that the technical issues for sharing data are decreasing as these systems begin to advance. The cost to produce data in a usable format is currently very low. The decision on whether traveler information can viably be used as a revenue source is more complex than simply licensing. As noted, the maturity of market, amount and quality of data available, and past history of data sharing are key considerations to changing the current policies and selecting or implementing new ones. It must also be considered that at this time, the GRICC has not found a model or models where significant revenues are being generated for agencies providing the data.

A recommendation that will facilitate a more advanced level of control of GCM data, with or without revenue sharing is described in the following sections.

The GRICC is recommending a model that facilitates flexibility for the GCM partner agencies. This model employs a Barter or Data Menu approach, where private entities wishing to subscribe to GCM data may negotiate directly with individual agencies for data access. This approach provides significant flexibility to the GCM partner agencies.

Two other options have been reviewed but do not provide the potential benefits or the Data Menu Model. First, keeping the same open policy can be accommodated without additional investment. Secondly, consideration for a model such as Transcom's, within the I-95 Coalition, where a separate entity may be established to manage data sharing arrangements may be viable. None of the arrangements reviewed for this document have revealed a model that is producing significant levels of revenue to the agencies.

Data Menu Model

It is anticipated that subscription-based data sharing, with revenues defined by data source and type, can be negotiated by the source agencies with private subscribers on an annual basis. This model can be looked at as a 'Data Menu' for the entities. The data menu will allow the GCM Partners to control access to data and potentially set their own pricing for data, even by type.

Rights of distribution for the subscribing entities can be defined explicitly by the agencies providing data. It is recommended that these services be based on annual terms.

The prices can be set by data type and the number of types to which an entity selects.

The process can be summarized as follows

1. A private entity contacts GCM Gateway regarding available traffic data.
2. The GCM Gateway Manager asks 'What for?' and 'Which Data?'

3. The GCM Gateway Manager provides the 'Menu' of data available, by agency with contact information to negotiate for said data.
4. The private entity negotiates with agencies for monies, equipment, services, etc.
5. Agreement(s) are reached between Private Entity and Public Agency(ies).
6. The agency provides Gateway Manager with subscriber information and notification to allow data access.
7. The Gateway Manager opens up access to datasets via XML or CORBA accounts and provides available documentation to the Private Entity.

Example Scenario

Note that this scenario is for demonstration purposes only and provides an example of how this model might work.

This example provides the menu selections for "Private Traffic R US," which is a private entity that provides data through a PDA application and packages data for radio stations. In this case, the entity is interested in Illinois data as their particular market.

Data Costs are for example purposes only.

IDOT	Cost per Unit	Selected
Travel Times	\$1,000	Yes
Detectors	\$2,000	Yes
Construction	\$200	Yes
Incidents	\$500	Yes
DMS	\$500	No
Camera Snapshots	\$500	Yes
IP-based Streaming Video	\$500	Yes
Roadway Weather	\$100	No
HAR Audio	N/A	-
Total for Selected Services		\$4,700

Illinois Tollway	Cost per Unit	Selected
Travel Times	\$2,000	Yes
Detectors	N/A	-
Construction	\$200	Yes
Incidents	\$500	Yes
DMS	\$500	no
Camera Snapshots	\$500	Yes
IP-based Streaming Video	\$500	Yes
Roadway Weather	\$100	No
HAR Audio	N/A	-
Total for selected services		\$3,700

Once agreements are reached between Data R US with IDOT and/or the Illinois Tollway for access to data, IDOT and the Illinois Tollway will notify the existing Gateway System Manager to confirm allowance data access and the data that shall be available to the entity.

Pros/Cons for Data Menu Model

Pros

- It is simple to quantify data types the entities can select.
- There is flexibility, as agencies are free to negotiate their own terms and conditions.
- Data access will be handled through Gateway security settings.
- It provides a flexible level of control for individual agencies.
- Additional terms and conditions will be definable by the source agencies as addendums to the 'subscription'.
- The Gateway's managing agency will not have a global responsibility for all data and terms of use.
- This approach does not preclude or prohibit agencies from bartering for goods or services in lieu of money.

Cons

- It is unclear how or if revenue will get back to a specific source budget as opposed to an agency's "General Fund".
- The policing of data use and security will become an expectation of the fee-paying entities.
- The impact on the availability of prototype devices and emerging technologies by selling data is unknown.
- The sale of data will increase the expectations that all data is accurate, available and properly configured within their systems. Support for agency's own ITS infrastructures and their reliability must increase.
- If this model fosters inter-agency competition, it will contradict the overall goals of the GCM.
- The private entities will need to negotiate multiple contracts or fees with multiple agencies to allow comprehensive data access.

Terms

Under this model, the source agencies are responsible for 'policing' their own agreements. The data access through Gateway is anticipated to be properly configured by the Gateway managing agency; however, it will be the responsibility of the individual data sources to monitor usage of the data and the specific terms of their agreements.

Gateway Impact

In order to isolate data streams by agency, some additional Gateway development work would be required. On the XML side, these changes are relatively straightforward.

However, additional work would also be required to accommodate the security changes to isolate reports by users. For CORBA data users, other additional changes would be required.

Summary

At this time, the Data Menu model appears to be the most flexible model for accommodating a variety of data sharing and potential revenue generation visions.

Currently, there is no data of specific security interest travelling into or out of the Gateway. It can be anticipated that any future data of this nature will remain specific to the C2C (Agency to Agency) environment and will not be distributed to private sector data users.

Access and control of 'streaming video' and other technologies via the Gateway will be subject to additional policy discussions and approvals by the operating agencies and GCM Corridor.

The possibility to sell advertising space on the GCM Gateway web site should also be examined. Site usage continues to increase the value of the space may be of significance. Whether this is appropriate on a publicly funded web site, similar to advertising on public right-of-way, is yet to be determined.

At this time, private entity data usage is not a great burden on the Gateway system and revenue generation through travel data usage has been an uphill battle for most entities. As the GCM Gateway system grows and data availability (both type and volume) increase, the need to address access issues and potential revenues must be properly addressed. This applies to both the C2C (Agencies) environment and public-private partnerships, with solutions applying to both data sharing groups.

The ability to identify and collect revenues requires both a maturity of the markets and systems providing data. The documents referenced in this report describe the issues involved on a national level.

The further development of a revenue-based model for the GCM and its partner agencies will require efforts both technical and from a policy standpoint. It is recommended that future work to obtain revenue for GCM incorporate the input of legal personnel from the participating agencies.

Bibliography

Battelle and PBS&J. January 2002. Sharing Data for Public Information: Practices and Policies of Public Agencies.

www.ops.fhwa.dot.gov/Travel/DatShare.htm

PBS&J and Battelle. November 2001. ATIS U.S. Business Models Review.

www.ops.fhwa.dot.gov/Travel/Atis-bm.htm

NET Corporation. May 2003. Blue Ribbon Summit – LA/Ventura Advanced Traveler Information System. Prepared for the Los Angeles County Metropolitan Transportation Authority.