Acronyms used in this disclosure:

BTS	Bureau of Transportation Statistics	POV	personally owned vehicle
CMRS	commercial mobile radio service	SWBN	shared wireless broadband network
CTN	cooperative telematics network	TCU	telematics control unit
CPM	cost per thousand	TSP	telematics service provider
DBL	D-Block Licensee	TTI	Texas Transportation Institute
DSRC	dedicated short-range communications	USCB	U.S. Census Bureau
FHWA	Federal Highway Administration	VMT	vehicle-miles traveled
LBS	location-based services	VTE	vehicle-time exposure
NHTSA	National Highway Traffic Safety Admin.	V2V	vehicle-to-vehicle

A sustainable business model for a SWBN, as exemplified herein, is dependent upon the fundamentals of a free market in which mobile users can choose and readily switch telematics service providers. This means that today's independent TSPs (i.e., having no affiliation with the vehicle maker) would no longer be disadvantaged by retrofitting vehicles in order to supply services at a reasonable price that maintains a revenue base from willing subscribers. Having this open-access platform would also level the playing field for yet-to-be public TSPs (i.e., DBL holders); however, their revenue base would be from willing commercial advertisers. Government participation in developing a public/private partnership that utilizes a nationwide spectrum would lead to a standardized TCU in which any service provider, whether in or outside of the SWBN, can simply have their own proprietary modem plugged into any vehicle for equal and low cost access.

Offering a public telematics network to motorists would resolve the difficulties in sharing a network by two operators with opposing motives for service. The FCC's requirement for public safety personnel to pre-empt commercial services, which would be disruptive to a DBL's financial stability, has proven to be an unmarketable venture to ordinary CMRS providers. However, further congressional interest in the matter would create an extraordinary venture for the private sector while satisfying the needs of public safety personnel <u>and</u> ordinary citizens. With legislative cooperation, a self-sustaining public telematics network with gross revenues roughly 20% of Tier 1 cellular carriers would need to be highly safeguarded. For this economic discussion, the roles of State and Federal regulators are implied herein.

Aside from the objectives of the Automotive Multimedia Interface Consortium, the cooperation of motor vehicle manufacturers to offer its customers the option of selecting a telematics provider is yet-to-be publicly discussed. With that said, SWBN cooperative TSPs may or may not be present day TSPs that are currently delivering wireless services to cars and trucks. Nevertheless, the network cooperative TSPs will offer connectivity and superior services to private citizens and fleets of government and commercial businesses while ensuring priority communications amongst public safety users in any and all circumstances that would otherwise cause network overload.

The success of public TSPs will further depend upon a mass volume of users from the general public that are marketable to advertising - specifically, sponsor recognition displayed on either a retrofit or factory-installed navigation viewscreen. Today there are over 200 million cars and trucks in the U.S. that travel 3.5 trillion miles yearly on 4 million miles of road. More importantly, over 100 million vehicles are owned by private citizens who collectively travel in time for 112 billion hours[1]. Of the approximately 16 million new cars and light trucks sold in the U.S. annually, a majority of new owners may likely prefer free public telematics services if it were made available.

It should be noted that the sample calculations stated herein are with yesteryear's statistics. Collectively, advertisers will continue to spend hundreds of billions of dollars for exposure to the

public every year. As such, public telematics services would become a new ad-medium for brand recognition that will account for revenue in the billions of dollars allocated to the network of public TSPs before its peak market share.

For this discussion, a telematics market share of 50% private patronage will be used to illustrate its potential annual ad-revenue. Further, the time estimate per ad-exposure is 13 seconds[2] per half hour of travel per person. The models discussed reflect nationwide coverage as if from a single public TSP - State by State estimates are listed in the Appendices. It should be understood that a multitude of connected datacenters are needed and that realistically each public TSP's datacenter will be a capital investment from DBL holders in the private sector marketplace - creating the backbone of an interoperable information network to be shared equitably for voice communications and navigational guidance of private, commercial and government vehicles without any roaming difficulties.

The DBLs shall be required by transparency obligations to document and publicly disclose data aggregates of privately owned vehicles used in creating its core product of neartime traffic status-maps. In this manner of verification, one of its uses would be for advertisers to have direct insight as to effective exposure to SWBN patrons for their sponsored blocks of minutes, which would have varying costs depending upon the hour (see Table 1). Therefore in this application, transparency is provided to justify the cost to sponsors during the weekday 7:30 am hour as being more expensive than time slots in the Sunday morning hours based upon the CTN's minimum set impression fee.

Table 1. Time Leaving Home to Go to Work for the U.S.: 2000 Census QT-P23

Time Leaving Home	Census number ×	90.8466% POVs[3] ×	50% patronage
Did not work at home	124,095,005	112,736,101	**56,368,051**
5:00 am to 5:59 am	9,440,321	8,576,211	4,288,106
6:00 am to 6:29 am	10,809,700	9,820,245	4,910,123
6:30 am to 6:59 am	13,386,429	12,161,116	6,080,558
7:00 am to 7:29 am	18,640,062	16,933,863	8,466,932
7:30 am to 7:59 am	19,665,861	17,865,766	8,932,883
8:00 am to 8:29 am	13,409,536	12,181,835	6,090,918
8:30 am to 8:59 am	6,528,339	5,930,774	2,965,387
9:00 am to 11:59am	11,036,103	10,025,924	5,012,962
12:00 pm to 3:59 pm	8,522,829	7,742,700	3,871,350
4:00 pm to 4:59 am	12,655,825	11,497,387	5,748,694

Table 2. Travel Time to Work for the U.S.: 2000 Census QT-P23

Travel Time to Work	commuters ×	.908466 POVs ×	50%share ×	g/t[4] =	impressions
Did not work at home	124,095,005	112,736,101	56,368,051	2-way}	**1,045,484,842**
Less than 10 minutes.....	17,868,011	16,232,480	8,116,240	3	24,348,720
10 to 14 minutes.....	18,618,305	16,914,097	8,457,049	5	42,285,243
15 to 19 minutes.....	19,634,328	17,837,119	8,918,560	6	53,511,357
20 to 24 minutes.....	17,981,756	16,335,814	8,167,907	7	57,175,349
25 to 29 minutes.....	7,190,540	6,532,361	3,266,181	9	29,395,625
30 to 34 minutes.....	16,369,097	14,870,768	7,435,384	10	74,353,840
35 to 44 minutes.....	7,334,806	6,663,422	3,331,711	13	43,312,243
45 to 59 minutes.....	9,200,414	8,358,263	4,179,132	18	75,224,367

60 to 89 minutes.....	6,461,905	5,870,421	2,935,211	26	76,315,473
90 or more minutes.....	3,435,843	3,121,347	1,560,674	30	46,820,205
approx. impressions to work.....					522,742,421

In exploring the potential ad-revenue from telematics relative to the TV medium, a cost per thousand viewers per time exposure will be used. Given the cost per commercial spot during Super Bowl XLIII was $3 million, an equivalent ratio of time and cost of exposure to viewers can be applied for determining a CPM ad-rate for telematics viewers. Since time exposure for telematics viewing is in short bursts rather than a straight uninterrupted 30 seconds to convey the sponsor, a conversion ratio will be used based upon a 1.5 second glance at a navigation screen. In this aspect, a 1.5 second impression compared to 30 seconds for an impression would be 1/20th the cost to advertisers, or $1.50 CPM. In Table 2, a 50% telematics market of 56 million patrons implies much more than 1 billion[5] impressions per weekday. For a Super Bowl advertiser to make 1 billion impressions on its 100 million market viewers, it would've had to air 10 commercials - or the equivalent of $300 CPM for a single commercial that could reach 1 billion viewers. When setting time exposure and costs comparisons as ratios, a $15 CPM was determined as follows:

$$\frac{1.5\ \cancel{\text{seconds}}}{30\ \cancel{\text{seconds}}} = \frac{\$X\ \cancel{\text{CPM}}}{\$300\ \cancel{\text{CPM}}}$$

$$\$30X = \$450$$

$$X = 15$$

Being that there's no data as to the frequency drivers look at their dashboards, the frequency of data viewing in Table 2 (g/t) was associated to the frequency drivers check their speedometers for estimating driver impressions - once every 2 to 5 minutes for average. Using that comparative, frequency of viewing graphic data for 1.5 seconds every 3.5 minutes means that a sponsor's exposure would be 26 seconds per hour per motorist. Once the network is in operation, the actual patronage and other statistical aggregates can be documented in neartime and made available for public view on a statistical webpage from the DBLs' additional ad-sponsored website service.

Highway VMT and automobile registrations will form the basis in estimating annual ad-revenue associated to traffic-map services by DBLs. Estimating time on the road will determine VTE and a user's glance at the traffic-map every 3.5 minutes will make 1 impression. Other factors will be combined to create two constant multipliers (K' and K'') for VMT and automobiles in determining free-moving travel and travel delays for a total VTE. Although significant traffic delays will be avoided by CTN patrons, thus reducing overall hours-delay per person per year, it will be included in this discussion with a 50% telematics patronage.

Given that time and distance is relative, a telematics VMT can be converted to time by using the *2001 National Household Travel Survey* BTS Table A-17 for all persons "29.1 *miles driven per day*" divided by Table A-16 for all persons "55.1 *minutes spent driving per day*".

$$\frac{29.1\ \text{miles}}{55.1\ \cancel{\text{minutes}}} \times \frac{60\ \cancel{\text{minutes}}}{1\ \text{hour}} = 31.69\ \text{miles per hour}$$

In discussing free-moving miles for CTN patrons, the rate of speed shall be 50 mph as an average for overall traffic flow rates between 30 and 70 mph, thereby negating very short trips when CTN services may be less likely.

Before converting miles to time spent traveling, a ratio is needed to factor-out all VMT but for miles traveled by POVs. Using the FHWA Table VM-1: *Highway Statistics 2006* for passenger cars (col. 1) and dividing by total VMT for all motor vehicles (col. 9) yields a percentage allowing for BTS Table 5-3: *State Transportation Statistics 2007* as a reference for determining revenues on both a national and state scale.

$$\frac{1{,}682{,}671{,}000{,}000 \text{ vehicle miles}}{3{,}014{,}116{,}000{,}000 \text{ all vehicles miles}} = 55.82\% \text{ of total VMT is by passenger cars}$$

A further factor in VMT by passenger vehicles is that it doesn't distinguish miles traveled in a POV from miles traveled in a company owned vehicle. Although BTS Table A-8 indicates 87% of trips were by personal vehicle, it more importantly indicates 88.5% of the mileage was in POVs.

$$\frac{3{,}552 \text{ billion miles}}{4{,}012 \text{ billion miles}} = 88.53\% \text{ person-miles is by POV}$$

Person-miles are not the same as vehicle-miles in so far as a single vehicle may carry more than one occupant for each highway mile traveled. Having more than just a driver in a single car would certainly increase the amount of impressions for advertisers, considering that passengers can spend even more time looking at a navigation screen. To allot for this factor, BTS Table A-14 recognizes vehicle occupancy relative to vehicle-miles traveled as 1.63 for all personal vehicle trips and shall be factored into both K formulas.

By combining the percentages of passenger cars with personally owned cars with occupants in cars, a constant multiplier for determining POV free-moving VMT (K') from total highway vehicle-miles traveled statistics was used for the following nationwide estimate as well as the State estimates listed in Appendix A (col. 2).

$$K' = \frac{55.8 \cancel{\text{VMT}}}{100 \cancel{\text{VMT}}} \times \frac{88.5 \cancel{\text{POV miles}}}{100 \cancel{\text{person miles}}} \times \frac{1.63 \cancel{\text{person}}}{1 \cancel{\text{POV}}} = 0.805$$

Applying the K' constant to 50% of the total United States VMT in BTS Table 5-3 (col. 4), converting distance to time at a 50 mph rate, and converting hours to minutes reveals the amount of annual vehicle-time exposure for sponsors without traffic delays.

$$0.805 \times \frac{3{,}014{,}116 \text{ million } \cancel{\text{miles}}}{2} \times \frac{1 \cancel{\text{hour}}}{50 \cancel{\text{miles}}} \times \frac{60 \text{ minutes}}{1 \cancel{\text{hour}}} \approx 1{,}455{,}818 \text{ million minutes}$$

[free-moving VTE]

As mentioned previously, travel delays are a factor in determining VTE and will be added to free-moving VTE even though the minutes used for this discussion will be greatly overstated when a 50% CTN patronage is actually achieved. For today's traffic delay model, a distinction between the probability of occurrences in rural and urban settings are given by the TTI as hours added annually per person and will be used in determining the delayed VTE K" constant. Since the CTN serves all geographies, the averages given amongst different population areas shall in itself be averaged to encompass all areas - a mean of 21.15 hours annually per person. And since the probability of delays is greater in higher density populations than rural areas, determining vehicle-time delays shall be estimated by the percentage of *"Urban vs. Rural"* statistics reported in the 2000 Decennial Census as being 79.219% vs. 20.781%. Given that passenger registrations will form the basis for determining delayed VTE, factoring out the percentage of fleet use autos using data from Automotive-Fleet Magazine 2003 registration statistics (14.5%) is needed for estimating only the 50% POV patronage to sponsor. Finally when accounting for vehicle occupancy (1.63 person per

vehicle) and converting hours to minutes, a constant multiplier for delayed VTE can be applied towards a nationwide estimate as well as the State estimates listed in Appendix A (col. 2).

$$K'' = \frac{21.15\ \cancel{\text{hours}}}{1\ \cancel{\text{person}}} \times \frac{79.219\ \cancel{\text{delays}}}{100\ \cancel{\text{delays}}} \times \frac{85.5\ \cancel{\text{cars}}}{100\ \cancel{\text{cars}}} \times \frac{1.63\ \cancel{\text{person}}}{1\ \text{POV}} \times \frac{60\ \text{minutes}}{1\ \cancel{\text{hour}}} = 1{,}401\ \text{minutes per POV}$$

Applying the K'' constant to 50% of the total United States automobile registrations from the FHWA 2006 Table 1058 (134,012,000) reveals the amount of annual vehicle-time exposure added for sponsors due to traffic delays.

$$\frac{1{,}401\ \text{minutes}}{1\ \cancel{\text{car}}} \times \frac{134{,}012{,}000\ \cancel{\text{cars}}}{2} = 93{,}875\ \text{million minutes [delayed VTE]}$$

By adding the free-moving and delayed VTEs together, a new unit of measurement is created specific for public telematics. By and by, the BTS could now adapt a unit of daily vehicle-traffic minutes for analytical use by state and local government planners, university studies, and private researchers.

$$\frac{1{,}455{,}818\ \text{million minutes}}{1\ \text{year}} + \frac{93{,}875\ \text{million minutes}}{1\ \text{year}} \approx 1{,}549{,}693\ \text{million minutes per year}$$

Finally, an annual dollar amount with an ad-rate of $15 CPM is realized by multiplying the time for exposure with an estimated impression of once every 3.5 minutes in a personal vehicle.

$$\frac{1{,}549{,}693\ \text{million}\ \cancel{\text{minutes}}}{1\ \text{year}} \times \frac{1\ \cancel{\text{impression}}}{3.5\ \cancel{\text{minutes}}} \times \frac{\$15}{1000\ \cancel{\text{impressions}}} \approx \$6{,}642\ \text{million per year}$$

Target mediums for advertisers, such as Yellow-Page listings, have proven effective for business exposure. Similarly, the public TSP can offer businesses public recognition whenever a viewer requests the location of a sponsor's classification or the guided route to a named sponsor. The promotional fee for listing the location of a commercial entity may be as little as $200 per year per state, with an added $20 for each additional address for companies with multiple locations. Even though a single franchise company may have 5,000 locations nationwide, an independent competitor with a single location can be equally recognized due to its proximity to the requestor's use of CTN location-based services. For example, a motorist may request in generalization for "lunch" and the telematics provider will respond with graphic location-specific icons in their viewrange of restaurants, burger joints, pizza parlors, delicatessens, quick-marts, etc., of all sponsors that chose to be listed as an afternoon food establishment. Optionally, a motorist may choose a specific establishment by name in which the location icon or icons depict the relative position of only that specifically named business. Promotional fees may further be imposed for sponsors to list additional location-specific data such as business hours, retail sales, vacancies, discounts, etc. for further public solicitations. This "listing fee" model, if just one half of the 6 million[6] U.S. firms disclosed in the USCB 2006 "*Data by enterprise size, U.S. and all States, totals*" wish to be publicly recognized by name and classification inquiries, would exceed an additional $618 million annually.

$$\frac{6{,}022{,}127\ \text{firms} \times \$200}{2} + \frac{7{,}601{,}160\ \text{establishments} - 6{,}022{,}127\ \text{firms} \times \$20}{2} = \$618{,}003{,}040\ /\text{yr}$$

Apart from named-place recognition, yet another set of advertisers may be promoted during times when CTN patrons request navigational guidance to a non-sponsored address. Location services of public TSPs would be supported by a database that contains all postal delivery addresses within its jurisdiction. Therefore, any motorist may request route guidance to any

address and be sponsored by an advertiser that paid a "display fee" for nameless addresses. Also, it would be possible for the sponsor to be depicted when a requestor selects a sponsored "listed" location by only its classification. "Display" sponsors could also encompass motorists that select graphic weather or vehicle-to-vehicle data. A daily flat fee of $10,000 (i.e., $200 daily average for 50 states) may be imposed to sponsor the percentage of drivers in need of guidance, V2V between or amongst patrons, or utilize neartime weather and other graphic status-maps to forecast their travel would yield $3.6 million annually.

Another means for sponsors to reach the public would come from the public TSP's website. Aforementioned, each DBL would be required by law to maintain a website in which network utilization data would be transparent to public view whether or not the visitor is a CTN patron - for privacy reasons, certain pages can only be opened by the vehicle's webspace owner or identified persons with verified authorization. Further, three social networking forums may be selected by patron account holders for discussions and authorizations with specific individuals, other webspace holders in general, and/or in an open forum with any website visitor. Visits by non-account holders would be restricted to network data aggregates, open forum discussions, and to specific homepages of webspace accounts upon permission of the data owner. With regards to private viewing, valid webpage users would be viewing local sponsors from the area of a referenced mobile unit. An estimate as to the value of exposure for Internet advertisers to just webspace holders is $10 million. Given that not all webspace account holders will visit their homepages daily, Internet activity was estimated by:

25% of 56,368,051 accounts would visit once a month [14,092,013],
50% of 56,368,051 accounts would visit 4 times a month [112,736,102],
25% of 56,368,051 accounts would visit 21 times a month [295,932,268], and
no estimate as to the amount of visits by non-CTN patrons.

Using a $2 CPM for just visits by webspace owners, then:

$$\frac{14{,}092{,}013 + 112{,}736{,}102 + 295{,}932{,}268 \text{ visits}}{\text{month}} \times \frac{\$2}{1000 \text{ visits}} \times \frac{12 \text{ months}}{1 \text{ year}} = \$10{,}146{,}249 \text{ /yr}$$

In a related matter, the potential of a public TSP's website to become a focal point for the traffic community in communicating amongst itself through the Internet would also favor it as a social-networking site. Apart from drawing viewers for monitoring their property and interacting with the community, a particular public survey webpage may draw marketers that would pay a fee to have a targeted question posed within daily/weekly polling. An estimate as to a "polling fee" is yet undetermined and therefore is not included in gross revenue estimates.

Yet another possible opportunity for a public TSP to collect revenue from sponsors can be provided as a result of interfacing the in-dash stereo. As described above, the public TSP can only estimate the amount of visual impressions per trip per vehicle in use. However, a selected AM/FM/HD/SB station may be identified and transmitted to the TSP via the telematics modem such that a "ratings monitor service" may be established and sold to interested radio station managers in neartime. Given that the TSP would be able to document each time a radio station is selected, it could also monitor the duration of interest and can make available the collective volume of listeners to programs and commercials. The aggregate data (on a subscription only webpage) may be expressed in units of measurement unique in verifying public response to specific commercial radio content. The data may be expressed on a minute-by-minute timeline graph for each station such that program content can be compared to realtime fluctuations of listeners. A market-share graph could also be overlaid on each station's timeline indicating total listeners for all stations. The success of this revenue stream is contingent upon the amount of

vehicle owners that opt-in from their webspace account for this benefit of "patronage feedback" - it should be noted that webspace owners can only view their own vehicle's patronage and popularity of a station verses total SWBN listeners as a historic profile.

In exploring the potential for this subscription-based model in the CTN, aggregating data based upon public response to radio programming can be of even greater value than just realtime market share for broadcasters. Since a public TSP's data warehousing would have storage limitations, daily profiles for each subscribing station would be ongoing and made accessible to clients for downloading for their own evaluations. For example, a mean bar-graph may be used to illustrate the client's station share along with the total mobile listening market on a minute-to-minute basis. A client may use a mouse-click on any minute segment to reveal a pie chart depicting market share of all jurisdictional broadcasters along with the numerical high and low used for averaging the market share for that given minute. A mouse-click on the client's own slice of the pie would then change to a spreadsheet-type profile that would further disclose how many listeners;

started their travel tuned to the station,
were retained from the previous minute,
came from a previous station,
switched to another station,
came and went during the minute, and
ended their travel tuned to the station.

This data is valuable to radio stations. Assuming that the price-point for total inclusion within all markets averages to $15/day per client (i.e., major metropolitan stations would be more and rural stations would be less), then the revenue generated from 11,213 [7] non-educational U.S. radio stations could add another $61 million. Going further, providing aggregated data of CD, MP3 and satellite broadcasting preferences by private motorists would also draw additional subscribers.

Under conditions specific to traffic safety, private voice communications would be another revenue means for DBLs. Private citizens may opt-in to this service by agreeing to the terms of electronic payment for minutes used and by setting parameters for accepting incoming calls using their webspace accounts. Each DBL shall be required to charge a minimum cost-per-minute that is double or triple the cost of using a cellphone in order to limit voice communications to just very short conversations. Even if all other handset or/and headset usage is banned by every State in the future, evaluating consumer usage and minimum cost-per-minute is undeterminable as yet and therefore a "calling rate" has not been used in estimating annual revenue for the DBLs. But given the NHTSA statistics for 2005 that at any given moment 6% of traffic is on a cellphone, then billions of dollars are possible on a nationwide scale even when State restrictions or high pricing reduces voice calling to less than 1% of traffic.

As an equal partner, government grants should be included in a SWBN for development and funding a reciprocal data exchange with local weather services and public safety providers. The grants would be used to defer the capital investments of providing validation servers in the TSP’s central datacenter that would be, for example, allocated solely for monitoring the accuracy of mobile meteorological sensors. In turn, the TSP will be required to transmit anonymous raw data back to the weather bureau’s forecast computers upon demand. A cooperative network of bartered data could be established between the weather service and the public TSPs such that the weather service may receive millions of data points from travelers. The public TSPs, in return, may receive weather watch/warnings, computer maps, and radar images from weather servers for distribution specific to each vehicle's location. The weather service may choose to regulate the incoming data to just specific data (i.e., demand only temperature, pressure, or humidity) or request massive data

for areas of immediate concern. Not withstanding network data overload or bandwidth limitations, notifications of driver-specific advisories to vehicles may further include precise forecasts/warnings of tornadic or “black-ice” locations even in areas where roadways lack intelligent infrastructure.

In further pursuit of a 50/50 partnership, winning bids awarded in the D-Block auction should be allocated for reimbursing state and local agencies on half their narrowband relocation costs and for establishing a trust fund. The FCC required default and build-out fees collected as an assurance for network compliance should be returned to the DBLs in increments to aid in relieving the financial burden placed upon them. Even further relief to DBLs would be the requirement that open-source operating programs be used in most of their central data servers (i.e., developed by universities with federal funding), waiver of spectrum use fees, and that DBLs have non-fee access to hardened public safety towers. Annual state licensing fees collected from private telematics users should be first prioritized for public safety agencies in subsidizing their purchase or leasing of data processing hardware/software, high-speed data lines, 700 MHz handsets, mobile truck towers, satellite redundancy, and for modems and TSP-ready TCUs that connect to a vehicle's databus. County and local funds used to operate its emergency and non-emergency fleets in the SWBN would further be subsidized by free wireless transmissions sponsored by the same commercial advertising to the mass market while not in an emergency situation. As a financial safety net for DBLs, each state shall be required to contribute some of its licensing fees toward a pre-emptive insurance fund in which any DBL may be reimbursed for prolonged ad-revenue loss during a long or widespread state of emergency.

The interest in producing after-market TCUs or TSP-ready DSRC units by consumer electronic manufacturers may define the technical/physical designs necessary for interoperability if vehicle manufacturers choose not to collaborate on a standardized telematics portal that universally accepts any service provider’s modem. Even if vehicle manufacturers adapt early to a connection standard, there will still be a high volume of preexisting fleets of varying age, makes and models that asset managers may wish to retrofit in order to efficiently coordinate its vehicle resources. Retrofit TCUs may be completely removed and reinstalled in a future fleet vehicle, or better yet, just the specific modem may be removed and installed in a new vehicle that is TSP-ready. Public resale of a fleet vehicle having a TCU (retrofit or factory-equipped) will always be a better value to the new owner since the purchase price of the vehicle won’t include the original cost of a TSP-ready navigation unit. Furthermore, the new owner may easily install a modem of his/her own choosing that guarantees terminating access of the previous owner. Lastly, installations by private and government fleets will certainly provide a market of mass production that in short-time will reduce the unit cost of electronic modules, viewscreens and transceivers sufficiently for acceptance by the general public to purchase for older model vehicles.

To be sure under valid conditions, specific-data derived from CTN patrons can be distributed and subsequently sold as value-added services by any retail wireless carrier to its subscribers. This would enable universal access by cellphones to dynamic LBS of transportation service vehicles (e.g., trains, buses or taxicabs) and to specifically called emergency responders. More important, DBLs that are also CMRS operators within the same jurisdiction will benefit from minutes used by its cellphone subscribers towards accessing/modifying their webspace account and for remote control of an automated vehicle function. Tier 2/3 DBLs would also be in the position to benefit from connecting customer cellphones and vehicles whenever voice or data communications are chosen amongst/between family and friends within their jurisdiction. It further may be permissible for DBLs to support LBS tracking of an escaped pet and forwarded to an automobile. Furthermore, excess rural capacity in the D-Block could be leased to private companies for realtime data of personal monitoring devices.

The FCC's understanding as to the benefits of sharing timely public information such that communities are stable, predictable and able to respond quickly to incidents would spur the interest of mobile citizens to participate in a network that further brings beneficial uses in their own daily lives. Given the inclusion of the general public in a SWBN, the collection and distribution of realtime and archived information within the CTN, amongst its other interactive benefits, can dramatically improve the accuracy and reduce the cost of compiling federally required statistical data for public and government evaluation as a result of realtime mass user participation.

The general public may, from the onset, be apprehensive to patronize free telematics services due to issues concerning individuality or in its tradeoffs between privacy and security. Nonetheless, having a system of checks and balances that is FCC regulated and monitored by its network participants would ensure that official misuse is transparent to others within the SWBN. Each State government should understand that not enabling a means for itself to exploit the system for the purpose of covert tracking, or as a means for automatically issuing traffic tickets to D-Block patrons, is a tradeoff for law enforcement's ability to contact potential witnesses that were at/around a particular place and time of a serious crime. Understanding another one of the network's interactive byproducts as being a massive and effective *neighborhood watch program* is the realization that there will be a reallocation of profits of billions of dollars annually amongst a myriad of other industry sectors. Therefore since this does not directly generate revenue for DBLs, winners and losers resulting from a 700MHz CTN are reserved for another discussion.

Summary by: National Statistics		State Statistics
$6,641,541,429 /year	from traffic data sponsors	$6,641,453,022 /year
$618,003,040 /year	from business listing fees	$621,785,206 /year
$3,650,000 /year	from display fees	$3,650,000 /year
$10,146,249 /year	from website sponsorship	$10,154,597 /year
$61,391,175 /year	from radio station subscribers	$62,248,125 /year
+ $ unknown /year	from voice calling subscribers	$ unknown /year
$7,334,731,893 /year	gross	$7,339,290,950 /year

Footnotes:
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1. Bureau of Transportation Statistics for all drivers Table A-8, A-16 and A-17
2. equivalent to a 1.5 second glance every 3.5 minutes of travel
3. adjusted percentage of POVs for workers that actually traveled to work (112,736,101 ÷ 124,095,005)
4. estimated number of glances at the viewscreen per trip ; glances/trip
5. approx. number of impressions from Table 2 for round trips (twice 522,742,421 = 1,045,484,842)
6. U.S. Census Bureau, 2006 Statistics of U.S. Business
7. FCC.gov Broadcast Station Totals as of 12/31/08

APPENDIX A
DBL Revenue Fees
(excluding voice charges)

	VMT* (millions)	VTE (millions)	Impressions (millions)	realtime traffic service	listing services	radio station services	website services	display service	annual gross
AL	60,414	30,426	8,693	130,397,792	8,095,846	1,500,150	162,409	73,000	140,229,197
AK	4,964	2,566	733	10,995,994	1,677,567	552,975	21,436	73,000	13,320,972
AZ	62,468	31,694	9,055	135,829,414	11,081,500	980,025	178,128	73,000	148,142,067
AR	33,007	16,607	4,745	71,173,524	5,369,159	1,281,150	98,176	73,000	77,995,009
CA	327,478	171,924	49,121	736,817,529	72,659,455	3,837,975	1,129,120	73,000	814,517,079
CO	48,641	24,088	6,882	103,235,689	13,034,798	1,270,200	172,316	73,000	117,786,003
CT	31,743	16,724	4,778	71,676,270	7,792,814	438,000	132,039	73,000	80,112,123
DE	9,442	4,859	1,388	20,823,853	2,121,928	136,875	30,456	73,000	23,186,112
FL	203,741	103,530	29,580	443,698,541	43,203,207	2,638,950	570,536	73,000	490,184,234
GA	113,532	57,716	16,490	247,356,051	18,197,988	1,976,475	317,338	73,000	267,920,852
HI	10,182	5,289	1,511	22,667,876	2,682,321	405,150	42,040	73,000	25,870,386
ID	15,198	7,715	2,204	33,066,006	3,981,274	673,425	47,813	73,000	37,841,518
IL	106,869	55,732	15,924	238,853,417	26,385,576	1,910,775	434,948	73,000	267,657,716
IN	71,215	36,267	10,362	155,430,771	11,860,210	1,538,475	243,081	73,000	169,145,537
IA	31,355	16,359	4,674	70,110,566	6,607,586	1,242,825	118,234	73,000	78,152,211
KS	30,215	15,200	4,343	65,141,904	6,213,413	1,001,925	108,706	73,000	72,538,948
KY	47,742	24,420	6,977	104,659,104	7,326,572	1,494,675	148,833	73,000	113,702,184
LA	45,417	23,266	6,647	99,711,257	8,172,633	1,114,275	151,180	73,000	109,222,345
ME	15,044	7,670	2,191	32,870,314	3,582,083	503,700	49,727	73,000	37,078,824
MDC	59,925	30,911	8,832	132,474,767	13,271,382	618,675	212,462	73,000	146,650,286
MA	55,136	28,935	8,267	124,008,570	14,541,647	870,525	231,243	73,000	139,724,985
MI	104,184	53,624	15,321	229,818,986	19,112,504	1,971,000	379,543	73,000	251,355,033
MN	56,518	29,049	8,300	124,497,617	12,470,289	1,450,875	201,272	73,000	138,693,053
MS	41,498	20,820	5,948	89,227,234	4,819,104	1,199,025	99,088	73,000	95,417,451
MO	68,834	35,143	10,041	150,613,181	12,458,545	1,571,325	218,005	73,000	164,934,056
MT	11,265	5,729	1,637	24,552,431	3,237,194	914,325	32,586	73,000	28,809,536
NE	19,415	9,950	2,843	42,644,803	4,280,893	728,175	71,152	73,000	47,798,023
NV	21,824	11,010	3,146	47,187,116	5,084,696	443,475	74,092	73,000	52,862,379
NH	13,614	6,983	1,995	29,925,225	3,335,261	399,675	52,993	73,000	33,786,154
NJ	75,371	38,962	11,132	166,981,796	20,924,674	596,775	291,654	73,000	188,867,899
NM	25,787	12,934	3,696	55,432,556	3,801,302	1,182,600	61,891	73,000	60,551,349
NY	141,348	74,188	21,197	317,949,461	44,639,372	2,398,050	483,699	73,000	365,543,582
NC	101,515	51,573	14,735	221,027,824	17,747,806	1,981,950	332,644	73,000	241,163,224
ND	7,890	4,050	1,157	17,356,031	1,793,902	454,425	25,225	73,000	19,702,583
OH	111,247	58,199	16,628	249,425,955	20,854,713	1,954,575	439,800	73,000	272,748,043
OK	48,689	24,633	7,038	105,568,644	7,313,624	1,045,725	129,164	73,000	114,130,157
OR	35,483	18,118	5,177	77,649,808	9,304,261	1,390,650	123,083	73,000	88,540,802
PA	108,278	56,357	16,102	241,529,876	24,153,839	2,200,950	434,268	73,000	268,391,933
RI	8,300	4,361	1,246	18,691,078	2,679,109	164,250	38,789	73,000	21,646,226
SC	50,199	25,615	7,319	109,778,117	8,425,979	1,100,475	153,288	73,000	119,530,859
SD	9,168	4,689	1,340	20,094,557	2,200,722	520,125	29,433	73,000	22,917,837
TN	70,596	36,097	10,313	154,701,836	10,394,735	1,801,275	222,183	73,000	167,193,029
TX	238,256	121,164	34,618	519,275,539	39,299,523	4,056,975	759,744	73,000	563,464,781
UT	25,964	13,289	3,797	56,951,769	5,868,224	520,125	83,285	73,000	63,496,403
VT	7,832	3,998	1,142	17,133,898	1,963,134	377,775	24,438	73,000	19,572,245
VA	81,095	41,968	11,991	179,863,213	15,682,590	1,554,900	281,431	73,000	197,455,134
WA	56,517	29,445	8,413	126,194,760	15,217,252	1,292,100	215,872	73,000	142,992,984
WV	20,885	10,593	3,026	45,396,495	3,245,525	810,300	60,074	73,000	49,585,394
WI	59,398	30,527	8,722	130,828,481	11,835,919	1,527,525	216,567	73,000	144,481,492
WY	9,415	4,703	1,344	20,155,526	1,781,556	651,525	19,113	73,000	22,680,720
tt	3,014,116	1,549,669	442,763	6,641,453,022	621,785,206	62,248,125	10,154,597	3,650,000	7,339,290,949
units	miles	minutes	impressions	dollars					

* BTS Table 5-3: 2006 total VMT
State Transportation Statistics '07

APPENDIX B
State Revenue Fees

(from passenger registrations)

	total cars \a	85.5% POV\b	private patrons \c	$10 to $25 annual fee	1% preemption fund\d	State revenue net
AL	1,779,000	1,521,045	760,523	7,605,230 - 19,013,075	76,052 - 190,131	7,529,178 - 18,822,944
AK	240,000	205,200	102,600	1,026,000 - 2,565,000	10,260 - 25,650	1,015,740 - 2,539,350
AZ	2,172,000	1,857,060	928,530	9,285,300 - 23,213,250	92,853 - 232,133	9,192,447 - 22,981,118
AR	949,000	811,395	405,698	4,056,980 - 10,142,450	40,570 - 101,425	4,016,410 - 10,041,026
CA	19,632,000	16,785,360	8,392,680	83,926,800 - 209,817,000	839,268 - 2,098,170	83,087,532 - 207,718,830
CO	849,000	725,895	362,948	3,629,480 - 9,073,700	36,295 - 90,737	3,593,185 - 8,982,963
CT	1,988,000	1,699,740	849,870	8,498,700 - 21,246,750	84,987 - 212,468	8,413,713 - 21,034,283
DE	426,000	364,230	182,115	1,821,150 - 4,552,875	18,212 - 45,529	1,802,939 - 4,507,346
FL	7,313,000	6,252,615	3,126,308	31,263,080 - 78,157,700	312,631 - 781,577	30,950,449 - 77,376,123
GA	4,112,000	3,515,760	1,757,880	17,578,800 - 43,947,000	175,788 - 439,470	17,403,012 - 43,507,530
HI	530,000	453,150	226,575	2,265,750 - 5,664,375	22,658 - 56,644	2,243,093 - 5,607,731
ID	535,000	457,425	228,713	2,287,130 - 5,717,825	22,871 - 57,178	2,264,259 - 5,660,647
IL	5,874,000	5,022,270	2,511,135	25,111,350 - 62,778,375	251,114 - 627,784	24,860,237 - 62,150,591
IN	2,670,000	2,282,850	1,141,425	11,414,250 - 28,535,625	114,143 - 285,356	11,300,108 - 28,250,269
IA	1,734,000	1,482,570	741,285	7,412,850 - 18,532,125	74,129 - 185,321	7,338,722 - 18,346,804
KS	865,000	739,575	369,788	3,697,880 - 9,244,700	36,979 - 92,447	3,660,901 - 9,152,253
KY	1,943,000	1,661,265	830,633	8,306,330 - 20,765,825	83,063 - 207,658	8,223,267 - 20,558,167
LA	1,898,000	1,622,790	811,395	8,113,950 - 20,284,875	81,140 - 202,849	8,032,811 - 20,082,026
ME	576,000	492,480	246,240	2,462,400 - 6,156,000	24,624 - 61,560	2,437,776 - 6,094,440
MDC	2,808,000	2,400,840	1,200,420	12,004,200 - 30,010,500	120,042 - 300,105	11,884,158 - 29,710,395
MA	3,290,000	2,812,950	1,406,475	14,064,750 - 35,161,875	140,648 - 351,619	13,924,103 - 34,810,256
MI	4,716,000	4,032,180	2,016,090	20,160,900 - 50,402,250	201,609 - 504,023	19,959,291 - 49,898,228
MN	2,500,000	2,137,500	1,068,750	10,687,500 - 26,718,750	106,875 - 267,188	10,580,625 - 26,451,563
MS	1,108,000	947,340	473,670	4,736,700 - 11,841,750	47,367 - 118,418	4,689,333 - 11,723,333
MO	2,707,000	2,314,485	1,157,243	11,572,430 - 28,931,075	115,724 - 289,311	11,456,706 - 28,641,764
MT	441,000	377,055	188,528	1,885,280 - 4,713,200	18,853 - 47,132	1,866,427 - 4,666,068
NE	818,000	699,390	349,695	3,496,950 - 8,742,375	34,970 - 87,424	3,461,981 - 8,654,951
NV	670,000	572,850	286,425	2,864,250 - 7,160,625	28,643 - 71,606	2,835,608 - 7,089,019
NH	581,000	496,755	248,378	2,483,780 - 6,209,450	24,838 - 62,095	2,458,942 - 6,147,356
NJ	3,652,000	3,122,460	1,561,230	15,612,300 - 39,030,750	156,123 - 390,308	15,456,177 - 38,640,443
NM	684,000	584,820	292,410	2,924,100 - 7,310,250	29,241 - 73,103	2,894,859 - 7,237,148
NY	8,447,000	7,222,185	3,611,093	36,110,930 - 90,277,325	361,109 - 902,773	35,749,821 - 89,374,552
NC	3,628,000	3,101,940	1,550,970	15,509,700 - 38,774,250	155,097 - 387,743	15,354,603 - 38,386,508
ND	341,000	291,555	145,778	1,457,780 - 3,644,450	14,578 - 36,445	1,443,202 - 3,608,006
OH	6,377,000	5,452,335	2,726,168	27,261,680 - 68,154,200	272,617 - 681,542	26,989,063 - 67,472,658
OK	1,593,000	1,362,015	681,008	6,810,080 - 17,025,200	68,101 - 170,252	6,741,979 - 16,854,948
OR	1,399,000	1,196,145	598,073	5,980,730 - 14,951,825	59,807 - 149,518	5,920,923 - 14,802,307
PA	5,794,000	4,953,870	2,476,935	24,769,350 - 61,923,375	247,694 - 619,234	24,521,657 - 61,304,141
RI	503,000	430,065	215,033	2,150,330 - 5,375,825	21,503 - 53,758	2,128,827 - 5,322,067
SC	1,954,000	1,670,670	835,335	8,353,350 - 20,883,375	83,534 - 208,834	8,269,817 - 20,674,541
SD	372,000	318,060	159,030	1,590,300 - 3,975,750	15,903 - 39,758	1,574,397 - 3,935,995
TN	2,854,000	2,440,170	1,220,085	12,200,850 - 30,502,125	122,009 - 305,021	12,078,842 - 30,197,104
TX	8,689,000	7,429,095	3,714,548	37,145,480 - 92,863,700	371,455 - 928,637	36,774,025 - 91,935,063
UT	1,068,000	913,140	456,570	4,565,700 - 11,414,250	45,657 - 114,143	4,520,043 - 11,300,108
VT	307,000	262,485	131,243	1,312,430 - 3,281,075	13,124 - 32,811	1,299,306 - 3,248,264
VA	3,996,000	3,416,580	1,708,290	17,082,900 - 42,707,250	170,829 - 427,073	16,912,071 - 42,280,178
WA	3,066,000	2,621,430	1,310,715	13,107,150 - 32,767,875	131,072 - 327,679	12,976,079 - 32,440,196
WV	721,000	616,455	308,228	3,082,280 - 7,705,700	30,823 - 77,057	3,051,457 - 7,628,643
WI	2,623,000	2,242,665	1,121,333	11,213,330 - 28,033,325	112,133 - 280,333	11,101,197 - 27,752,992
WY	222,000	189,810	94,905	949,050 - 2,372,625	9,491 - 23,726	939,560 - 2,348,899
National Total in dollars					5,739,106 -14,322,756	567,180,858 -1,417,952,135

\a . FHWA Table 1058: 2006 col. 8
\b. % of private non-fleet 2003 sales
\c. 50% telematics registrations
\d . reserves for DBL emerg. relief