COUNCIL WORKSHOP ITEM

ITEM: 1. Agreement with Gas Technology Institute and City of Chicago for construction of Compressed Natural Gas (CNG) Fueling Facility.
2. Agreement with City of Chicago for CMAQ Grant Funds
3. CNG Vehicle Purchases

DATE: March 20, 2001

PREPARED BY: Jerry Sprecher, Deputy Village Manager

PURPOSE: Authorize Agreements and Vehicle Purchases

DISCUSSION:

In January, 2000 the Village received notification from the Chicago Department of Environment that the Village had been selected to receive CMAQ funding for the installation of a CNG fueling station at the Village's Public Works Facility. The Chicago DOE has acted as the grant administrator in this process. The Village was selected along with Chicago, Evanston, Oak Park, Hodgkins, Lake Zurich, and Homewood to receive these funds. Acting as a partner in the application process was the Gas Technology Institute (GTI), who offered to install the fueling stations and absorb a substantial part of the local cost share. The CMAQ funds awarded to Downers Grove for this project total $246,212. GTI's commitment is approximately $56,250.

Council is all too well aware that we have been frustrated by months of delay as the necessary agreements have been under construction in Chicago's Legal Department, and in negotiation between Chicago and GTI. It appears GTI and Chicago have finally come to terms on an agreement incorporating all the aforementioned communities' projects into a single document. This agreement calls for Chicago to be invoiced directly by the contractor for the facilities' costs. We also must execute an agreement directly with the City of Chicago for the receipt of the CMAQ funds.

Several weeks ago Council was requested to authorize the purchase of several flexible fuel vehicles, and it is hoped that an opportunity might still present itself in the future to allow the Village to use both ethanol and natural gas as alternative fuels. The CNG vehicles proposed for purchase will introduce the Village's first ultra low-emission (ULV) vehicles into our fleet. The regulatory and cost concerns outlined in the purchase of the flex fuel vehicles is applicable to the requested CNG purchase, and they are reviewed below:

Regulatory Considerations

The *Clean Air Act (*CAA) requires that 70% of the model year 2001 vehicles purchased by the Village, with a gross vehicle weight rating (GVWR) less than 8,500 lbs., meet EPA emission requirements of a clean fuel vehicle(CFV). For vehicles with a GVWR of less than 26,000 lbs., 50% of the new vehicles must be clean fuel vehicles.

The *Energy Policy Act* (EPACT) requires that beginning with the 2002 model year, 20% of our new vehicle purchases must be alternative-fuel vehicles. The funding of the CNG station will

provide a tremendous convenience to the Village in the future as we meet the alternative-fuel vehicle purchase requirements and serve as a regional fueling center at the same time.

The Village is required to comply with both of the above regulations, although the purchase of any CNG vehicle will generally surpass the emissions ratings required by the Clean Air Act. Vehicles meeting Clean Air Act standards must be designated *Low Emission Vehicle* (LEV). However, there are levels of LEV vehicles that meet increasingly more stringent emission standards: *Inherently Low Emission Vehicle* (ILEV), *Ultra Low Emission Vehicle* (ULEV), and *Zero Emission Vehicle* (ZEV). These designations are based primarily on the level of emission of two pollutants: nitrogen oxides and hydrocarbons. Only electric vehicles meet the most stringent, ZEV designation. CNG vehicles generally fall into the ULEV category.

Cost Considerations/Incentives

As a general statement, light-duty CNG vehicles cost $1,000 to $6,000 more than conventional fuel vehicles. Fuel costs, however, range from 15%-40% cheaper for CNG vehicles. An EPA comparison of Ford F-150 pick-ups, for example, shows an annual fuel cost differential of $459 in favor of the CNG vehicle. On a six-eight year life cycle, that reduces the overall cost of the vehicle by $2,754-$3,672. The same kind of comparison with the Ford E-250 Van results in a $480 per year fuel savings for the CNG model. Vehicle rebates for CNG vehicles are offered up to 80% of the cost differential between CNG and non-CNG new vehicle costs, up to a maximum of $4,000 per vehicle. This rebate, combined with better fuel economy, makes the initial cost premium of the CNG vehicle more palatable. As the attached summary of the proposed CNG vehicle purchases shows, we project rebates of $2,250 to $2,500 per vehicle for these purchases.

The Illinois Clean Fuel Program also provides credits associated with fleet compliance of clean fuel vehicle purchases. For example, 70% of model year 2001 light-weight vehicles must be LEVs. If ten vehicles are purchased, and all are LEVs, the three additional vehicles result in a credit. The amount of credit varies according to the type of vehicle. Similarly, additional credits are gained from purchasing vehicles that exceed the LEV designation, e.g., ULEV. The value of these credits is that they may be used in future years to compensate for vehicle purchase(s) that do not meet clean fuel requirements, or they may even be marketed to other fleets that do not comply. The proposed purchase of six CNG vehicles generates additional credit value, since these vehicles carry a ULEV designation.

Legal staff have been working closely with GTI for the past few months, and we have been assured by both GTI and Chicago officials that we can now move forward with the agreement to complete the fueling station. This was the document that we have awaited for the past months. The agreement with Chicago for the CMAQ funding has been reviewed by the Legal Department and we anticipate a final document for approval in the next few days.

ATTACHMENTS:

Agreement Excerpts-City of Chicago, GTI, VDG (Fuel Station Construction)
Agreement- City of Chicago (CMAQ Funding)
Recommended Purchase- cost summary

CNG Fuel/Vehicle Information

RECOMMENDATION:
It is recommended that Council approve the following actions:

1) An agreement between the Village of Downers Grove, the City of Chicago, and the Gas Technology Institute for the construction of a CNG fuel facility at the Public Works Facility.
2) An agreement between the Village and the City of Chicago for the receipt of CMAQ funding for the fueling facility.
3) The purchase of six CNG vehicles from Northwest Ford, Franklin Park, at a total cost of $126,430. These vehicles are part of the current year's budget, and we have delayed their purchase pending completion of the necessary fuel station agreement. The vehicles will be used by several divisions within the Public Works Department, and PSRT. It is requested that this purchase be placed on the April 3rd Consent Agenda.

It is anticipated that with these agreements in place, the Village will be the first of the grantees to have a CNG fueling facility.

2000/01 CNG Vehicle Purchases

Vehicle	Department	Cost	Quantity	Total	Trade-in	Net Price	Budget	Over(-) Under	Estm Rebate	Net	Vendor
Ford F-150	PW- Inspections	$23,000	1	$23,000	$0	$23,000	$15,453	-$7,547	$2,259		NW Ford
Ford F-150	PW- Engineering	$23,000	2	$46,000	$1,800	$44,200	$33,454	-$10,746	$4,518		"
Ford F-150	CIP- Streets	$23,000	1	$23,000	$0	$23,000	$15,454	-$7,546	$2,259		"
Ford F-250 Van	PW- Traffic	$22,250	1	$22,250	$3,500	$18,750	$22,076	$3,326	$2,548		"
Ford F-250 Van	PSRT	$22,480	1	$22,480	$5,000	$17,480	$23,153	$5,673	$2,548		"
						$126,430	**$109,590**	**-$16,840**	**$14,132**	**-$2,708**	

Notes:

* CNG Pickup (4) Recommended-

Northwest Ford	$90,200
Other quotes- Al Piemonte	$90,254
Willowbrook Ford	$91,460
Freeway Ford	$91,820

* CNG Van (2) Recommended-

Northwest Ford	$36,230
Other quotes- Al Piemonte	$36,486
Willowbrook Ford	$39,268
Freeway Ford	$43,395
DG Dodge	$42,134

* Madden Ford declined to quote on these vehicles.

* The previous vehicle purchases approved on 3/6/01 resulted in a budget surplus of $17,108.

City of Chicago
Richard M. Daley, Mayor

Department of Environment

William F. Abolt
Commissioner

Twenty-fifth Floor
30 North LaSalle Street
Chicago, Illinois 60602-2575
(312) 744-7606 (Voice)
(312) 744-6451 (FAX)
(312) 744-3586 (TTY)

http://www.ci.chi.il.us

February 22, 2001

Mr. Gerald Sprecher
Deputy Village Manager
Village of Downers Grove
801 Burlington Avenue
Downers Grove, Illinois 60515

Dear Mr. Sprecher:

The City of Chicago and the Gas Technology Institute have completed negotiation of the agreement to implement the Regional Alternative Fuel Infrastructure Grant Program. The agreement covers all aspects of GTI's involvement in the project, including the work that will be performed in your municipality.

Two (2) copies of the agreement are enclosed for your review and signature. In reviewing the agreement, please keep the following in mind:

-Certain terms of the agreement are required by the federal Congestion Mitigation and Air Quality Program (the funding source for this project) and cannot be revised.

-Certain terms of the agreement are required by the City of Chicago. Some of these terms are required by the City in its capacity as administrator of the CMAQ grant. Others are standard requirements for construction projects performed in the City of Chicago.

-GTI and the City of Chicago have negotiated various issues of liability and indemnity. With respect to municipalities other than Chicago, GTI has requested a specific indemnity which is set forth on the first page of Exhibit 4.

Exhibit 4 of the agreement, titled "Scope of Services, Schedules of Work and Project Terms and Conditions", includes the scope and schedule for GTI's work in your municipality. To the extent that your municipality will impose terms, conditions or insurance requirements on GTI that are different from or in addition to the terms required by the agreement, such changes or additions must be incorporated into Exhibit 4. Please forward any such changes or additions to the City as soon as possible so that we can incorporate them.

For execution purposes, since the Agreement can be executed in counterparts, we would request that you execute two (2) original signature pages and return the signature pages alone to us for inclusion in our copies of the fully executed agreement. We will make copies of all execution pages and provide them to GTI and every municipality.

In addition to executing the signature pages and sending them back to us, we also need to finalize the Intergovernmental Agreement between the City of Chicago and your municipality which addresses the responsibilities of the City and your municipality regarding this project. A copy of the Intergovernmental Agreement was mailed to you in November. As soon as possible, please forward a description of the property on which the fueling infrastructure will be installed so that we can incorporate it into the Intergovernmental Agreement. We will then send you a copy for execution.

Thank you for your patience during the past several months as we worked to finalize the agreement with GTI. We look forward to starting construction of the projects shortly.

Should you have any questions, please contact Carol Brown at (312) 744-7200.

Sincerely,

William F. Abolt
Commissioner

enclosures

EXHIBIT A

The Institute of Gas Technology (IGT/GTI), Gas Research Institute (GRI), and Clean Fuel Services (CFS) shall provide modular, skid mounted Natural Gas Vehicle (NGV) fueling stations to the City of Chicago and the surrounding municipalities. GTI shall provide the necessary management services to ensure timely and cost-effective project performance and state-of-the-art fueling station equipment installation. GTI's scope of work will include integrated project management, fuel station design optimization, contract reviews and purchase specification and test program review.

It is understood that the role of "management services" is an administrative role, and not one of "construction, assembly, building, installation or equipment operation. CFS shall perform all "construction, assembly, building, installation and equipment operation" related functions, as more clearly stated in Exhibit B.

Scope of Work

The GTI management services, as described above, shall include the following specific tasks:

Integrated Project Management

- Project Coordination – GTI will manage all project activities related to planning meetings, contract negotiations, vendor visits, and project progress meetings. These activities will include all necessary personnel from Clean Fuel Services, the City of Chicago and the applicable municipalities.
- Scheduling – GTI shall oversee scheduling of fueling station manufacturing and ensure deliveries are coordinated with the respective host locations.
- Procurement – GTI will review subcontractor procurement documents for technical accuracy.
- Reporting – Project status reporting will be completed on a monthly basis. A project summary report will be generated upon completion of the project. This report will be provided to the industry per the requirements of the co-funding.
- Invoicing – GTI shall facilitate invoicing of all municipalities.

Contract Reviews

GTI shall facilitate all contract negotiations and reviews with the City of Chicago and individual municipalities as necessary for timely project completion.

Fuel Station Design and Optimization

GTI will review the design and configuration of the proposed fuel stations. The goal of this review is to ensure that the fuel station design is common to all sites and incorporates current state-of-the-art features. This includes the of the following:

- Design Review – GTI will perform a detailed technical design review, based on our technical expertise and industry lessons learned, to ensure the fuel stations meet and exceed the expectations of the end users. A third party independent design review will be completed by an industry expert with knowledge specific to NGV fueling stations worldwide.
- Dispenser capabilities and selection – GTI shall ensure that the station dispenser is a low cost design and is compatible with current end-user card reader software. The station design will incorporate an improved dispensing technology capable of 99% fill, compared to older technologies that achieve an approximate 90% fill.
- Storage tank sequencing program software – Include advanced gas storage sequencing technology which reduces storage requirements and extends compressor life.

- Incorporating features that simplify future capacity expansion – Include requirements in the purchase specification that the fueling station design allows for future expansion of on-board storage and the ability to add compression

Purchase Specification and Test Program Review

GTI shall review the CFS equipment purchase specification to ensure overall station design and equipment. A review of the vendor's shop test program shall be conducted to ensure the equipment meets the requirements of the purchase specification. GTI may witness various fueling station testing conducted at the vendor to ensure operating parameters are met. GTI will also provide input to the site post-installation start-up test program to be completed by CFS.

EXHIBIT B

As part of the NGV Regional Cooperative, Clean Fuel Services (CFS), will provide the engineering and construction services necessary to support the installation of the fueling stations for the City of Chicago. CFS, a partnership of Peoples NGV Corp. and Nicor NGV Corp., was established to promote the use of natural gas as a vehicular fuel. Peoples NGV Corp. and Nicor NGV Corp. are unregulated affiliates of The Peoples Gas Light and Coke Company and Nicor Gas, respectively.

It is understood that CFS shall perform all "construction, assembly, building, installation and equipment operation" related functions, as defined below. GTI shall perform the role of "management services" which understood to be an administrative role, and not one of "construction, assembly, building, installation or equipment operation, as is more clearly stated in Exhibit A.

CFS shall be responsible for the activities related to the design, installation and start-up of the NGV fueling stations, as follows:

Fuel Station Design and Optimization
Review existing NGV fueling station designs throughout the industry and provide input to ensure optimization of an economical modular fuel station designs. This includes the following:

- Dispenser capabilities and selection
- End-user profiles
- Siting recommendations
- Natural gas storage and equipment sizing
- Storage tank sequencing
- Incorporating features that simplify future capacity expansion

Site Design and Engineering Services
CFS will prepare all necessary drawings and specifications to obtain required permits and facilitate the installation of the fueling stations on each site. Code compliance and local issues will be incorporated into each design for a safe and reliable installation.

Procurement, Testing, and Delivery
CFS will supervise the manufacturing and testing of the fuel stations to ensure trouble-free performance. A comprehensive shop-testing program will be performed and witnessed on each unit, prior to delivery to the field. CFS will use manufacturers and a packager with a proven record in the industry.

Fuel Station Location and Installation
CFS will coordinate with the site host, the location and orientation of the fuel station equipment. Specific site requirements will be incorporated into the applicable station design in a effort to minimize the cost associated with installation and start-up. Complete turnkey services to facilitate the installation of the equipment and coordinate installation components being provided by others will be provided.

Start-up and Training
Start-up will consist of a post-installation performance test to ensure the equipment meets the site design specifications. Baseline operating parameters and equipment performance data will be collected and documentation provided. This data will be used to initiate the required vendor recommended maintenance program. Log sheets for use in continued collection of useful trending data will be provided with recommendations for routine maintenance.

Operator Training - CFS will provide training to the operators on the theory of operation and the proper care and maintenance of the facility. This training will be conducted on-site at a mutually agreed upon time and date. Training will consist of one (1) hour to review the equipment owner's manuals followed by three (3) hours of orientation at the station equipment. This training is intended for the on-site personnel responsible for daily checks on the station and those needing to be familiar with the start/stop and reset procedures.

User Training - CFS will assist in developing a host facility personnel-training program on the use of the NGV facility, including safety education. This training is intended for the vehicle operators and users of the fueling station. CFS will provide three (3) on-site group training sessions to users at mutually agreed upon times. These sessions will address the safety characteristics of NGVs, the safety characteristics of the fuel, the proper fueling procedure, and the station's emergency shut-down system. In addition, CFS will provide assistance, in the form of a training outline and safety documentation, for the owner's use with future user training needs.

Coordination of Service, Maintenance, and Emergency Backup Supply
CFS will establish qualified local service providers for 24-hour response for Maintenance and repair work activities. A list of "key contact" personnel and service providers names and numbers will be supplied to the owner upon start-up. Service providers listed will have received technical training from CFS and the equipment supplier's representatives prior to start-up.

Exhibit 4

Downers Grove

Scope of Work

The scope of work will include the following specific tasks:

Project Management

IGT will provide monthly status reports and any required reporting to the City of Chicago per the CMAQ grant requirements.

Procurement, Testing, and Delivery

IGT will provide the following equipment, referred to in this Agreement as "Fueling Station Equipment". IGT will supervise the manufacturing and testing of the fueling station equipment to ensure trouble-free performance. A comprehensive shop-testing program will be performed and witnessed on each unit, prior to delivery to the field. IGT will use manufacturers and packagers with a proven record in the industry.

Fueling Station Equipment, Location and Installation

Equipment
Exhibit B, Equipment Specifications, describes the fueling equipment being provided by IGT and its performance specifications. IGT will provide a natural gas fueling station that will include one (1) compressor unit capable of delivering 5,000 pounds per square inch gauge (psig) natural gas that requires a suction pressure of 5 to 20 psig. The unit operates with one (1) 40 horsepower electric motor. The fueling capacity of the station will be designed to provide 32 standard cubic feet per minute (scfm) at 5 psig inlet pressure and up to 50 scfm at 20 psig inlet pressure, this equates to approximately 500 equivalent gallons over 20 hours of operation per day.

The facility will be equipped with a three-bank cascade storage system with the capacity to store approximately 15,000 scf of CNG. One (1) CNG dispenser, complete with one (1) fill-hose and an NGV-1 fill nozzle, will be available to fast fill vehicles with a 3000 psig operating pressure. A gas dryer will also be included to insure high quality gas is delivered to storage and vehicles. All compressors and controls will be self-contained in a secure weatherproof enclosure, with access panels and a man-door. This equipment will be designed in accordance with the latest edition of NFPA 52 Standard for Compressed Natural Gas Vehicular Fuel Systems.

Location

The fuel station will be installed at the Village of Downers Grove Public Works Department, 5101 Walnut Avenue, Downers Grove, Illinois. The attached drawings detail the location of the equipment skid and dispenser.

Installation

IGT will provide material and labor for the installation of the CNG station as detailed below:

1. Excavate, form and pour concrete pad to support the fuel station skid.
2. Provide and install guard posts around the compressor skid.
3. Installation of buried gas and electric lines from the existing fuel island to the compressor (trench and pavement repairs by Village of Downers Grove).
4. Removal of concrete on existing fuel island and installation of dispenser and pit.
5. Extension of natural gas service from the Nicor Gas main in the road right-of-way to the fuel station.
6. All natural gas and electric piping, fittings and other components necessary for the installation of the CNG equipment, except as noted under the Village of Downers Grove Responsibilities.
7. Communication wiring and connections from the proposed CNG dispenser to the existing Petrovend card reader to allow authorization of the dispenser through the existing card access system.
8. Delivery, offloading and set-up of the equipment.

Village of Downers Grove Responsibilities

The Village of Downers Grove will provide the following materials, utilities and/or services that are necessary to the installation of the facility, prior to the start of the facility construction by IGT:

1. One (1) 460 Volt AC, 3 Phase, 60 Amp circuit from the existing building supply to the equipment skid. IGT recommends the extension of a second 460 Volt AC, 3 Phase, 60 Amp circuit for future use.
2. Cutting, trenching, and repairing pavement from the fuel island (around the existing gasoline tanks) to the compressor for the installation of buried gas and electric lines by IGT.
3. All required permits to construct, install and operate the Fueling Station at the site. IGT will supply the necessary drawings and equipment specifications for the permitting process.
4. Access to the site for installation of the compressor unit, gas piping, electrical improvements, and dispenser as described herein.
5. Space to install the fuel station equipment as shown on the attached drawings.
6. All paving and other repairs to bring the site back to its original condition excepting the actual improvements made during the construction process.

Start-up and Training

Start-up will consist of a post-installation performance test to ensure the equipment meets the design specifications listed in Exhibit B, Equipment Specifications. Data of baseline operating parameters and equipment performance will be collected and documentation provided. Log sheets for use in continued collection of useful comparison data will be provided at start-up.

Operator Training – IGT will provide training to the operators on the theory of operation and the proper care and maintenance of the facility. This training will be conducted on-site at a mutually agreed upon time and date. Training will consist of one (1) hour to review the equipment owner's manuals followed by three (3) hours of orientation at the station equipment. This training is intended for the on-site personnel responsible for daily checks on the station and those needing to be familiar with the start/stop and reset procedures.

User Training - IGT will assist in developing a host facility personnel-training program on the use of the NGV facility, including safety education. This training is intended for the vehicle operators and users of the fueling station. IGT will provide three (3) on-site group training sessions to users at mutually agreed upon times. These sessions will address the safety characteristics of NGVs, the safety characteristics of the fuel, the proper fueling procedure, and the station's emergency shut-down system. In addition, IGT will provide assistance, in the form of a training outline and safety documentation, for the owner's use with future user training needs.

Coordination of Service, Maintenance, and Emergency Backup Supply

IGT will establish qualified local service providers for 24-hour response for maintenance and repair work activities. A list of "key contact" personnel and service providers names and numbers will be supplied to the owner upon start-up. Service providers listed will have received technical training prior to start-up. A monthly routine inspection program along with 24 hour call-out service is recommended. The station design will incorporate provisions for the connection and operation of emergency backup equipment, available from the local gas utilities.

Fueling Station Equipment Specification

Component	Identifier	
Assembly	Suction Pressure	10 – 20 psig
	Discharge Pressure	4500 psig
	Number of Compressors	1
	Individual Capacity	32 – 50 scfm
	Total station capacity	32 – 50 scfm
Compressor	Number of stages	4
	Manufacturer	RIX
	Model	4X
	Type	Electric Motor
	Power Source	460 Volt, 3 phase
	Cylinder Lubrication	Non-lube
	Manufacturer	US Motor or equivalent
	Horsepower	40 HP
	Nominal Speed	1800 rpm
Controls	Type	Amp3
	External Communication	Modem
Skid (with enclosure)	Length	20'
	Width	8'6"
Storage	Banks	3
	Type	ASME
	Maximum Allowable Working Pressure	5,500 psi
	Rated Operating Pressure	5,000 psi
	Capacity-Operating Pressure (scf)	15,000
Dispenser	Number of dispensers	1
	Number of hoses per dispenser	1
	Temperature Compensation	Electronic to 3,000 psig
	Sequencing	Internal, Electronic
Dryer	Type	Single Tower
	Regeneration	Non-Regeneration
	Capacity MMSCF@7#MMSCF	3.3
	Model	STV20 Autodew
Other		
	Manuals	2 included

EXHIBIT FOUR (CON'T) - DOWNERS GROVE

Entire Agreement:

This Agreement supercedes any and all agreements previously entered into between the Village of Downers Grove and the Institute of Gas Technology. Specifically, this Agreement supercedes, abolishes and replaces the agreement between the Village of Downers Grove and the Institute of Gas Technology titled "Agreement for Regional Alternative Fuel Grant Program", dated August 17, 2000.

Indemnification:

GTI shall indemnify the Village of Downers Grove pursuant to GTI's indemnification as stated in Article 6 INDEMNITY AND LIMITATION OF LIABILITY in the Agreement, to wit: GTI agrees to and hereby indemnifies, defends and holds the City of Chicago, and those surrounding municipalities as stated in Exhibit 4, including the Village of Downers Grove, its agents, officials and employees harmless from and against any and all costs losses, expenses, fines, attorneys' fees, settlements, judgments, claims of any kind, including but not limited to liability for injury to persons or damage to property, that is incurred by the Village of Downers Grove in relation to this Agreement and that arose out of the negligence or intentional wrongdoing of GTI or its officers, employees or agents, up to the contract limit not to exceed Two Million Dollars ($2,000,000). Consistent with the Agreement, this limitation of liability shall not extend to Subcontractor.

Insurance:

GTI shall, prior to commencing any work, provide the Village of Downers Grove with a certificate of insurance demonstrating the following coverage:

1. a comprehensive general liability insurance policy providing bodily injury, personal injury and property damage coverage in the amount of $1,000,000.00 per occurrence. Such policy shall be obtained from an insurer acceptable to the Village, shall name the Village of Downers Grove as an additional insured, shall be effective during the entire term of the agreement, and shall not be canceled or altered without giving the Village thirty (30) day prior written notice thereof.

2. workmen's compensation insurance in the statutory amount and employer's liability coverage in the amount of $500,000 per occurrence. Such policy shall be obtained from an insurer acceptable to the Village, shall name the Village of Downers Grove as an additional insured, shall be effective during the entire term of the agreement, and shall not be canceled or altered without giving the Village thirty (30) day prior written notice thereof.

Performance of Work

All work performed under this Agreement shall comply with all provisions of the

Downers Grove Municipal Code, including any and all zoning requirements, building permit requirements, etc.

2\wp8\agrm\altfuel

Payment Schedule

STATION LOCATION	CMAQ FUNDS	AGREEMENT EXECUTED	HARDWARE TO STATION PACKAGER	EQUIPMENT TO SITE	INSTALL COMPLETE	TRAINING COMPLETE
		25%	25%	25%	15%	10%
Evanston	$239,000.00	$59,750.00	$59,750.00	$59,750.00	$35,850.00	$23,900.00
Oak Park	$239,000.00	$59,750.00	$59,750.00	$59,750.00	$35,850.00	$23,900.00
Hodgkins	$241,000.00	$60,250.00	$60,250.00	$60,250.00	$36,150.00	$24,100.00
Downers Grove	$246,212.00	$61,553.00	$61,553.00	$61,553.00	$36,931.80	$24,621.20
Lake Zurich	$99,520.00	$24,880.00	$24,880.00	$24,880.00	$14,928.00	$9,952.00
Homewood	$59,040.00	$14,760.00	$14,760.00	$14,760.00	$8,856.00	$5,904.00
101st & Stony Island*	$225,000.00	$56,250.00	$56,250.00	$56,250.00	$33,750.00	$22,500.00
Sunnyside*	$225,000.00	$56,250.00	$56,250.00	$56,250.00	$33,750.00	$22,500.00
Ferdinand & Tripp*	$225,000.00	$56,250.00	$56,250.00	$56,250.00	$33,750.00	$22,500.00

TOTAL **$1,798,772.00** **449,693.00**

* engine drive option not included

Major Components (Compressors, Storage Tanks, and Dispenser) Delivered to Station Packager

DRAFT
November 1, 2000

Intergovernmental Grant Agreement Between the City of Chicago, By and Through its Department of Environment, and the City of _____

This intergovernmental grant agreement (the "Agreement"), made and entered into this __ __ day of _____, 2000 by and between the City of Chicago, a municipal corporation and home rule unit of local government under Article VII, Section 6(a) of the 1970 Constitution of the State of Illinois (the "City"), by and through its Department of Environment (the "Department"), and the City of _____, a municipal corporation (the "Sub-Grantee").

RECITALS

WHEREAS, the City has been awarded up to $2,000,000 of Congestion Mitigation and Air Quality federal funds (the "CMAQ Funds") by the Illinois Department of Transportation ("IDOT") to coordinate a Regional Alternative Fuel Infrastructure Grant Program (the "Program") in an effort to install 10 alternative fueling stations within the City's metropolitan area; and

WHEREAS, the Sub-Grantee is a municipality located within the metropolitan area and has made an application to the City for a grant under the Program; and

WHEREAS, the Sub-Grantee acknowledges that it has received and reviewed all information available to the City concerning the CMAQ Funds, the Clean Fuel Fleet Program and the Energy Policy Act and the Sub-Grantee is willing and able to comply with all the requirements of the federal and state governments in connection with the CMAQ Funds; and

WHEREAS, the Sub-Grantee and the City (the "Parties") have initiated a joint effort to install a compressed natural gas fueling station (the "Project") on land owned by the Sub-Grantee and located at 5101 Walnut, Downers Grove, IL 60515, as more fully described in Exhibit A attached hereto and incorporated herein by reference (the "Property"); and

WHEREAS, the Sub-Grantee acknowledges that the City will contract with the Gas Technology Institute ("GTI") to complete the Project; and

WHEREAS, the City and the Sub-Grantee are separate and independent municipal corporations authorized to enter into this Agreement under the Constitution and the laws of the State of Illinois in accordance with the provisions of the Intergovernmental Cooperation Act, 5 ILCS 220/1, et seq., as amended;

NOW, THEREFORE, for and in consideration of the covenants and mutual agreements set forth herein, the Parties hereto agree as follows:

ARTICLE ONE: INCORPORATION OF RECITALS

1.1 The recitals set forth above are incorporated herein by reference and made a part hereof.

ARTICLE TWO: WORK

2.1 Subject to the terms and conditions of this Agreement, the City shall enter into a contract with GTI for the Project (the "GTI Agreement") as more fully detailed in Exhibit B ("Work" or "Scope of Work") attached hereto and incorporated herein by reference. Sub-Grantee shall be a third party beneficiary and signatory to the GTI Agreement. **[The Scope of Work shall be attached to and made a part of the GTI Agreement. Additional terms and conditions required by the Sub-Grantee for incorporation into the GTI Agreement are summarized herein in Exhibit C] [The GTI Agreement is attached hereto as Exhibit C.] [Note: if the intergovernmental agreement and the GTI Agreement are to be executed concurrently, it may be simpler to attach the GTI Agreement to this document as an exhibit and delete the various provisions in this document specifying provisions that the GTI Agreement must contain]**

2.2 The Sub-Grantee shall have no recourse against the City for any or all GTI's failure(s) to perform the Work or for deficiencies in the Work. The Sub-Grantee's sole remedy for failure to perform the Work or for deficiencies in the Work shall be against GTI and/or its subcontractor(s), if any. Every contract awarded for the Work shall provide that title to any materials installed on the Property that legally belongs to the Sub-Grantee shall pass from GTI to the Sub-Grantee upon its acceptance of the Work, and that risk of loss of such materials shall pass from GTI to the Sub-Grantee at the time of the Sub-Grantee's acceptance of the Work.

2.3 GTI's plans for the Project, as set forth in Exhibit D attached hereto and incorporated herein by reference (the "Plans"), have been approved by the Sub-Grantee. Any changes to the Plans must be agreed upon in writing by the Sub-Grantee and GTI, subject to approval by the City.

2.4 The GTI Agreement shall provide that GTI shall notify the authorized representative of the Sub-Grantee when it is ready to begin the Work. GTI shall comply with the Sub-Grantee's recommendations regarding requirements for general safety and/or work procedure regulations, if any.

2.5 The GTI Agreement shall provide that from the time GTI commences the Work until such time as the Sub-Grantee shall accept the Work, GTI shall be required to maintain insurance in the amounts set forth in Exhibit E (Sub-Grantee's Insurance Requirements), attached hereto and incorporated herein by reference.

2.6 The City, GTI and their duly authorized representatives, agents and contractors, shall have the right to access the Property for purposes of performing the Work or inspection in connection with the Work.

ARTICLE THREE: FUNDING AND PAYMENT

3.1 The total cost of the Project has been estimated at _____. The detailed budget, showing the City contribution of CMAQ Funds (the "CMAQ Contribution"), the GTI contribution partially matching the CMAQ Funds (the "GTI Match") and the contribution, if any, by the Sub-Grantee (the "Sub-Grantee Contribution"), is set forth in Exhibit F (Project Budget), attached hereto and incorporated herein by reference. The Sub-Grantee shall pay their Sub-Grantee Contribution, if any, to GTI upon Sub-Grantee's acceptance of the Work, and evidence of such Sub-Grantee payment, if any, shall be provided to the City prior to release of the CMAQ Contribution and the GTI Match.

The Sub-Grantee is solely responsible for the cost of any repairs or improvements of the Property which are outside the Scope of Work as set forth in Exhibit B.

3.2 If the cost of the Project exceeds the sum of (i) the CMAQ Contribution, plus (ii) the GTI Match, plus (iii) the Sub-Grantee Contribution, if any, the Sub-Grantee shall be solely responsible for any such costs in excess of said sum. The City shall have no obligation to pay any amounts in excess of those agreed to herein.

If the CMAQ Funds are not made available to the City, the Sub-Grantee acknowledges that the City shall have no obligations under this Agreement.

3.3 The GTI Agreement shall provide that upon completion of Work, GTI shall submit a request for payment to the City together with supportive documentation evidencing receipt of the Sub-Grantee's Contribution, if any, the deduction of the GTI Match and the Sub-Grantee's approval of such request for payment. The GTI Agreement shall provide that GTI shall also submit sufficient documentation evidencing completion of the Project and comply with any other reasonable requests for documentation or site visits that the City requires before releasing payment.

ARTICLE FOUR: TERM

The term of the Agreement shall commence on the date of its execution and shall expire upon completion of the Work or on _____, whichever occurs first.

ARTICLE FIVE: SUB-GRANTEE'S WARRANTIES AND REPRESENTATIONS

5.1 Sub-Grantee represents:

(a) Sub-Grantee will comply with all applicable laws, rules, regulations and executive orders that are in effect from time to time that pertain to or affect the CMAQ Funds or funding, including those concerning the City and/or IDOT; these include all the terms and conditions of the CMAQ grant, which are incorporated into and made a part of this Agreement by reference. Upon the City's request, Sub-Grantee will provide evidence of such compliance satisfactory to the City.

(b) Sub-Grantee has carefully examined and analyzed the provisions and requirements of this Agreement and is satisfied as to the nature of all things needed for the performance of this Agreement in accordance with its terms; Sub-Grantee will make available the Property and all other things required for the completion of the Project.

(c) Sub-Grantee agrees that provisions required to be inserted in this Agreement by laws, ordinances, rules, regulations or executive orders are deemed inserted whether or not they appear in this Agreement and that in no event will the failure to insert such provisions prevent the enforcement of this Agreement.

5.2 Sub-Grantee warrants:

(a) Sub-Grantee has full power and authority to enter into and perform its obligations under this Agreement, and the signing and delivery of this Agreement and the performance of its obligations under this Agreement have been duly authorized by all requisite corporate action.

(b) The execution, delivery and performance by Sub-Grantee of this Agreement does not violate its laws, ordinances, rules, resolutions or any applicable provision of law, or constitute a material breach of, default under or require any consent under, any agreement, instrument or document to which Sub-Grantee is party or by which it is bound.

(c) There are no current or threatened actions or proceedings by or before any court, governmental commission, board, bureau or any other administrative agency affecting Sub-Grantee that would materially impair its ability to perform under this Agreement.

(d) Sub-Grantee has available funds which, together with the amount received from the City and GTI as set forth in Section 3.1 hereof, are sufficient to complete the Project; and

(e) Sub-Grantee is not in default on any loan or borrowing that may materially affect its ability to perform under this Agreement.

ARTICLE SIX: CONSENT

Whenever the consent or approval of a Party to this Agreement is required hereunder, such consent or approval shall not be unreasonably withheld.

ARTICLE SEVEN: NOTICE OF CLAIM OR SUIT

Upon receipt of a notice of claim or suit which in any manner results from, arises out of, or is connected with performance by the City pursuant to this Agreement, the Sub-Grantee shall use its best efforts to provide timely notice of same to the City and shall fully cooperate in the investigation of said claim or suit. Likewise, the City agrees that upon receipt of notice of claim or suit which in any manner results from, arises out of, or is connected with performance by the City pursuant to this Agreement, the City shall use its best efforts to provide timely notice of same to the Sub-Grantee and shall fully cooperate in the investigation of said claim or suit.

ARTICLE EIGHT: NOTICE

Notice to the Sub-Grantee shall be addressed to:

Jerry Sprecher, Deputy Village Manager
Village of Downers Grove
801 Burlington Ave
Downers Grove, IL 60515

With a copy to: Law Department

Notice to the City shall be addressed to:

Department of Environment
30 North LaSalle Street, 25th Floor
Chicago, Illinois 60602-2570
Attention: Commissioner

With a copy to: Corporation Counsel
City Hall, Room 600
121 North LaSalle Street
Chicago, Illinois 60602
Attention: Deputy, Finance and Economic Development Division

Unless otherwise specified, any notice, demand or request required hereunder shall be given in writing at the addresses set forth above, by any of the following means: (a) personal service; (b) electronic communications, whether by telex, telegram, telecopy or facsimile (FAX) machine; (c) overnight courier; (d) registered or certified mail, return receipt requested.

Such addresses may be changed when notice is given to the other party in the name manner as provided above. Provided, any notice, demand or request sent pursuant to either clause (a) or (b) hereof shall be deemed received upon such personal service or upon dispatch by electronic means. Any notice, demand or request sent pursuant to clause (c) shall be deemed received on the day immediately following deposit with the overnight courier and, if sent pursuant to clause (d) shall be deemed received forty-eight (48) hours following deposit in the mail.

ARTICLE NINE: ASSIGNMENT; BINDING EFFECT

9.1 This Agreement, or any portion thereof, shall not be assigned by either party without the prior written consent of the other.

9.2 This Agreement shall inure to the benefit of and shall be binding upon the City, the Sub-Grantee, and their respective successors and assigns. This Agreement is intended to be and is for the sole and exclusive benefit of the parties hereto and such successors and assigns.

ARTICLE TEN: INDEMNIFICATION

The Sub-Grantee agrees to defend, indemnify and hold the City, its officers, agents and employees completely harmless from and against any and all suits, claims, grievances, damages, costs, expenses, judgments and/or liabilities, including costs of defense and reasonable attorneys' fees, arising from the City or GTI's performance or non-performance under this Agreement or the GTI Agreement except to the extent caused by the negligence or willful misconduct of the City, its agents and employees. Upon notice from the City of any claim which the City believes to be covered hereunder, the Sub-Grantee shall timely appear in and defend all suits brought upon such claim and shall pay all costs and expenses incidental thereto, but the City shall have the right, at its option and at its own expense, to participate in the defense of any suit, without relieving the Sub-Grantee of any of its obligations hereunder. This Article shall survive the expiration of this Agreement and the GTI Agreement and the expiration of any obligation owing to any party under this Agreement and the GTI Agreement.

ARTICLE ELEVEN: MODIFICATION

This Agreement may not be altered, modified or amended except by written instrument signed by all of the parties hereto.

ARTICLE TWELVE: COMPLIANCE WITH LAWS

10.1 The parties hereto shall comply with all federal, state and municipal laws, ordinances, rules and regulations relating to this Agreement.

ARTICLE THIRTEEN: GOVERNING LAW AND SEVERABILITY

This Agreement shall be governed by the laws of the State of Illinois, without giving effect to its conflict of law principles. If any provisions of this Agreement shall be held or deemed to be or shall in fact be inoperative or unenforceable as applied in any particular case in any jurisdiction or jurisdictions or in all cases because it conflicts with any other provision or provisions hereof or any constitution, statute, ordinance, rule of law or public policy, or for any reason, such circumstance shall not have the effect of rendering any other provision or provisions contained herein invalid, inoperative or unenforceable to any extent whatsoever. The invalidity of any one or more phrases, sentences, clauses or sections contained in this Agreement shall not affect the remaining portions of this Agreement or any part hereof.

ARTICLE FOURTEEN: COUNTERPARTS

This Agreement may be executed in two (2) counterparts, each of which shall be deemed an original.

ARTICLE FIFTEEN: ENTIRE AGREEMENT

This Agreement constitutes the entire agreement between the Parties and cannot be modified or amended except by mutual written agreement of the Parties.

ARTICLE SIXTEEN: AUTHORITY

13.1 Execution of this agreement by the City is authorized by an ordinance passed by the City Council of the City on _____, 2000.

13.2 Execution of this Agreement by the Sub-Grantee is authorized by _____ _____ on _____, 2000.

13.3 The parties represent and warrant to each other that they have the authority to enter into this Agreement and perform their obligations hereunder.

ARTICLE SEVENTEEN: HEADINGS

The headings and titles of this Agreement are for convenience only and shall not influence the construction or interpretation of this Agreement.

ARTICLE EIGHTEEN: DISCLAIMER OF RELATIONSHIP

Except as provided in Section 2.1 hereof, nothing contained in this Agreement nor any act of the Sub-Grantee, shall be deemed or construed by any of the parties hereto or by third persons, to create any relationship of third party beneficiary, principal, agent, limited or general partnership, joint venture, or any association or relationship involving the Sub-Grantee.

ARTICLE NINETEEN: CONSTRUCTION OF WORDS

The use of the singular form of any word herein shall also include the plural, and vice versa. The use of the neuter form of any word herein shall also include the masculine and feminine forms, the masculine form shall include feminine and neuter, and the feminine form shall include masculine and neuter.

ARTICLE TWENTY: NO PERSONAL LIABILITY

No member, official, employee or agent of the City or the Sub-Grantee shall be individually or personally liable in connection with this Agreement.

ARTICLE TWENTY-ONE: REPRESENTATIVES

Immediately upon execution of this Agreement, the following individuals will represent the parties as a primary contact in all matters under this Agreement:

For the Sub-Grantee: Jerry Sprecher, Deputy Village Manager

For the City: Carol Brown
Department of Environment
30 North LaSalle Street, Suite 2500
Chicago, Illinois 60602
(312) 744-7200

Each party agrees to promptly notify the other party of any change in its designated representative, which notice shall include the name, address, telephone number and fax number of the representative for such party for the purpose hereof.

[THE REMAINDER OF THIS PAGE IS INTENTIONALLY LEFT BLANK AND THE SIGNATURE PAGE FOLLOWS]

IN WITNESS WHEREOF, the Parties have caused this Agreement to be executed and delivered as of the date first above written.

City of Chicago, by and through the Department of Environment

By: _____
Commissioner

_____

By: _____

_____
(Title)

Natural Gas Vehicles

Fuel Description

Extracted from underground reserves, composed primarily of methane. For compressed natural gas (CNG), gas is compressed to 2,400-3,600 pounds per square inch in specially designed and constructed cylinders. For liquefied vehicle fuel (LNG), gas is cooled to minus 259°F and stored in insulated tanks. For more information about natural gas, go to the Natural Gas Fuel Page.

Domestic Content of Fuel

- Consumption is about 90% from domestic sources.

Fueling

- "Slow" fill (up to 8 hours) and "quick" fill (3 to 5 minutes) are available for CNG. LNG fueling times are comparable with those for gasoline or diesel fuels.

Fuel Availability

- CNG fueling stations are located in most major cities and in many rural areas.
- Public LNG stations are limited.
- LNG is available through suppliers of cryogenic liquids.
- Search for a CNG or LNG refueling station near you!

Vehicle Availability

Click here to view information and specifications for available Natural Gas Vehicles.

Vehicle Experience

- More than 75,000 in the United States and nearly 1 million worldwide.
- Auto manufacturers offer many different types and styles of CNG vehicles.
- Heavy vehicle manufacturers can install one of several available CNG or LNG engines in products they offer.
- One out of every five new transit buses in the United States is powered by natural gas.

Operational Performance

- Vehicle range for CNG and LNG depends on fuel storage capacity, but generally it is less than that of comparable gasoline-fueled

vehicles.
- Power, acceleration, and cruise speed are comparable with those of an equivalent internal-combustion engine.
- Cylinder location and number may displace some payload capacity.

Maintenance and Reliability

- High-pressure tanks require periodic inspection and certification.
- Some fleets report two to three years longer service life and extended time between required maintenance. However, manufacturers and converters recommend conventional maintenance intervals.

Safety

- Pressurized tanks have been designed to withstand severe impact, high external temperatures, and automotive environmental exposure; they are as safe as gasoline tanks. Design changes have resolved problems responsible for earlier in-service failures.
- Adequate training is required to operate and maintain vehicles; training and certification of service technicians is required.

Costs

- Fuel cost is less than that of gasoline, per gasoline gallon equivalent; local utility rates vary.
- Conversion costs about $2,000 to $3,000 per vehicle. The auto manufacturer's price premium can be $1500 to $6,000.
- Incremental cost premiums for CNG heavy-duty trucks and transit buses is in the range of $30,000 to $50,000.
- Federal and other incentives can help defray some of the increase in vehicle acquisition costs.
- Fleets may need to purchase service and diagnostic equipment if access to commercial CNG/LNG vehicle maintenance facilities is not available.

For More Information, Contact:

- Natural Gas Vehicle Coalition, 703-527-3022
- American Gas Association, 703-841-8000
- Gas Research Institute, 773-399-8100
- Your local gas utility
- National Alternative Fuels Hotline, 800-423-1DOE

Natural Gas Industry Contacts

[DOE] [OTT] [Webmaster] [AFDC Home]

The Energy Policy Act

What is EPAct? - The *Energy Policy Act* (EPAct) was passed in 1992 to accelerate the use of alternative fuels in the transportation sector. The U.S. Department of Energy's primary goals are to decrease the nation's dependence on foreign oil and increase energy security through the use of domestically produced alternative fuels. DOE's mission is to replace 10% of petroleum based motor fuels by the year 2000, and 30% by 2010.

What fleets are covered? - Federal, state and alternative fuel provider fleets are currently mandated by EPAct. Fleets that own, operate, lease or control at least 50 light-duty vehicles (8,500 lbs. or less) in the United States are covered. Of the fleet vehicles, 20 or more must be operating primarily within any affected area (see below). The vehicles must also be centrally fueled or capable of being centrally fueled. A fleet must meet all three requirements to be "covered" by EPAct. Municipal and private fleets are currently being considered for mandates and an advance notice of proposed rulemaking (ANOPR) was issued in April of 1998. DOE must finalize this rulemaking by January 1, 2000.

What areas are affected? - Metropolitan Statistical Areas (MSA) and Consolidated Metropolitan Statistical Areas (CMSA) are cities or areas that had a population of at least 250,000 at the time of the 1980 US census. The Fleet Buyer's Guide website searches the MSAs and CMSAs using zip codes to determine if a fleet is in an affected area.

What fuels and vehicles can be used to satisfy the mandate? - EPAct defines an alternative fuel as any fuel that is substantially non-petroleum and yields energy security and environmental benefits. EPAct currently recognizes the following fuels: methanol and denatured ethanol as alcohol fuels (alcohol mixtures that contain no less then 70% of the alcohol fuel), natural gas (compressed or liquefied), liquefied petroleum gas, hydrogen, coal-derived liquid fuels, fuels derived from biological materials and electricity (including solar energy). DOE can expand this list when new fuels are developed and approved as meeting this definition. Vehicles designed to run on any of the above alternative fuels may be dedicated or dual-fuel, including bi-fuel and flexible fuel.

What vehicles are exempt? - Vehicles that are exempt from the mandate include law enforcement vehicles, emergency vehicles, non-road vehicles and vehicles used for product evaluations and testing.

How are credits earned? - Credits for light duty vehicles are earned at a rate of one credit per vehicle in excess of the minimum acquisition requirement. One credit may also be allocated for each year the alternative fuel vehicle (AFV) is acquired before the requirement date. Once the fleet's light-duty AFV purchases have been fulfilled, credits may be earned for medium-duty AFVs and heavy-duty AFVs. These credits can be used to satisfy acquisition requirements in subsequent years or sold and traded between fleets.

Purchasing Requirements - The requirements listed below apply to the percentage of new vehicle acquisitions that must be AFVs. Dates for the federal requirements are based on the federal fiscal year, while all other dates are based on the vehicle model year.

Year	Federal	State	Alternative Fuel Provider	Municipal and Private *
1997	33%	10%	30%	
1998	50%	15%	50%	
1999	75%	25%	70%	
2000	75%	50%	90%	
2001	75%	75%	90%	
2002	75%	75%	90%	20%
2003	75%	75%	90%	40%
2004	75%	75%	90%	60%
2005	75%	75%	90%	70%
2006	75%	75%	90%	70%

*Percentages listed for municipal and private fleets are tentative; there are currently no mandates under EPAct.

Need More information about EPAct?

Websites: The Alternative Fuels Data Center http://www.afdc.doe.gov
Fleet Buyer's Guide (MSA/CMSA, incentives and laws, vehicle information) http://www.fleets.doe.gov
State and Fuel Provider Acquisition and Credits Reporting Database http://www.ott.doe.gov/credits
Federal Fleet Reporting Form http://www.whitehouse.gov/WH/EOP/OMB/html/mheda/afvguide.html

US Department of Energy Contacts:

National Alternative Fuels Hotline	800-423-1363	hotline@afdc.nrel.gov
Ken Katz (state and fuel providers)	202-586-6116	kenneth.katz@hq.doe.gov
Lee Slezak (federal fleets)	202-586-2335	lee.slezak@hq.doe.gov

The Clean Fuel Fleet Program

as part of the *Clean Air Act Amendments* (CAAA)

What is CFFP? - The *Clean Air Act* (CAA) was passed in 1970 to improve air quality nationwide. Congress amended the law in 1990, creating several initiatives to reinforce one of the original goals of the CAA to reduce mobile source pollutants. Implemented by the U.S. Environmental Protection Agency (EPA), the Clean Fuel Fleet Program (CFFP) is one such initiative. The CFFP requires fleets in cities with significant air quality problems to incorporate vehicles that will meet clean-fuel emissions standards.

What fleets are covered? - Federal, state, municipal, fuel provider and private fleets are currently mandated by CAAA. Fleets that own, operate, lease or control at least 10 light-duty vehicles, trucks (8,500 lbs. or less) or heavy-duty vehicles (8,500 – 26,000 lbs.) are covered. Of the fleet vehicles, 10 or more must be operating in an affected area (see below) and be centrally fueled or capable of being centrally fueled 100% of the time at a station that is owned, operated or controlled by the affected fleet operator.

What areas are affected? - Consolidated Metropolitan Statistical Areas (CMSA) are cities or areas that had a population of at least 250,000 at the time of the 1980 US census and have been classified as extreme, severe or serious non-attainment for ozone or carbon monoxide (CO). Under the CAAA, states were given the option to adopt the CFFP or a substitute program that achieves equivalent or better emissions reductions. The following CMSAs have opted to participate in CFFP:

Atlanta, GA
Chicago-Gary-Lake County, IL/IN
Denver-Boulder, CO
Milwaukee-Racine, WI

What fuels and vehicles can be used to satisfy the mandate? - The CAAA defines a clean fuel as any power source on which a vehicle is certified to meet federal Clean Fuel Vehicle (CFV) emissions standards. Clean fuels include alternative fuels, oxygenated fuels, reformulated gasoline (RFG) and conventional gasoline. A CFV is a vehicle that is certified to Low Emission Vehicle (LEV) standards or better, and operates on the fuel to which the vehicle was certified as a LEV. The fleet operator must always use the clean fuel in the affected area.

What vehicles are exempt? - Vehicles that are exempt from the mandate include law enforcement and emergency vehicles, non-road vehicles, vehicles held for lease or rental to the general public, vehicles held for sale by dealers and military vehicles (classified as necessary for national security).

How are credits earned? - Any CFV purchased before September 1, 1998 can be counted as a purchase credit. Vehicles that have cleaner emissions ratings than the required LEV rating are worth additional credits.

LEV = 1 credit Low Emission Vehicle
ULEV = 2 credits Ultra Low Emission Vehicle
ZEV = 3 credits Zero Emission Vehicle

Purchasing Requirements - The requirements listed below apply to the percentage of new vehicle acquisitions that must be CFVs. Dates for categories are based on vehicle model year. GVWR = gross vehicle weight rated.

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
GVWR less than 8,500 lb (% of CFVs)	N/A	N/A	30%	50%	70%	70%	70%	70%	70%	70%
GVWR less than 26,000 lb (%of CFVs)	N/A	N/A	50%	50%	50%	50%	50%	50%	50%	50%

Need More Information about CAAA?
EPA Websites:

Office of Mobile Sources — http://www.epa.gov/OMSWWW
Clean Fuel Fleets — http://www.epa.gov/oms/cff.htm

EPA State Contacts: States are responsible for implementation, reporting and support. Fleet reports are due to the state no later than August 31, 1999.

Colorado	**Georgia**	**Illinois**	**Indiana**	**Wisconsin**
Michael O'Toole	Marlin Gottschalk	Darwin Burkhart	Janet McCabe	Muhammad Islam
303-692-3139	404-363-7024	217-524-4343	317-233-5694	608-264-9219

U.S. EPA, Office of Mobile Sources Contacts:

Jim Lindner	734-214-4558	lindner.jim@epa.gov
Sally Newstead	734-214-4474	newstead.sally@epa.gov

Customize
Switch to Metric units

2001 Natural Gas Vehicles

Sorted by MPG (city)
Click on column headings to resort

Model	MPG (city)	MPG (hwy)	Annual Fuel Cost*	GHG Emissions (tons/yr)*
Toyota Camry Cng 4 cyl, 2.2 L, Auto(4), Natural Gas	22	30	$531	6.7
Ford Crown Victoria (cng) 8 cyl, 4.6 L, Auto(4), RNG140/220, Natural Gas	15	23	$797	9.7
Ford F150 CNG 8 cyl, 5.4 L, Auto(4), RNG250, Natural Gas	12	16	$981	12.1
Dodge Ram Wagon 2500 2WD (cng) 8 cyl, 5.2 L, Auto(4), CNG RNG180, Natural Gas	12	16	$981	12.2
Dodge Ram Van 2500 2WD (cng) 8 cyl, 5.2 L, Auto(4), CNG RNG180, Natural Gas	12	15	$981	12.0
Ford E250 CNG 8 cyl, 5.4 L, Auto(4), RNG200/300, Natural Gas	12	15	$1063	12.7

Other CNG Vehicles include:
Honda Civic GX 1.7L, 4 cylinders
(Fuel economy information is not available for this vehicle at this time)

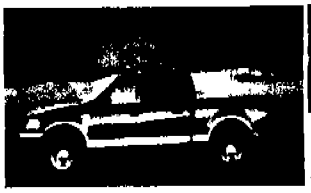
* Based on 20% highway driving, 80% city driving, 15000 annual miles and the price of fuel used by the vehicle. You may customize these values to reflect the price of fuel in your area and your own driving patterns.

Compressed Natural Gas (CNG) is normally dispensed in "equivalent gallons" where one "equivalent gallon" is equals to 121.5 cubic feet of CNG. The fuel economy for natural gas vehicles is shown in miles per gallon-equivalent.

GHG-Greenhouse gas emissions expressed in CO_2 equivalents. Estimates include the full fuel cycle and exclude vehicle manufacture. (U.S. Department of Energy, GREET Model, Argonne National Laboratory)

Switch to Metric units

Side-by-Side

	2001 Ford F150 CNG	2001 Ford F150 Pickup 2WD
		
	Natural Gas Vehicle	
EPA Size Class	Standard Pickup Trucks 2WD	Standard Pickup Trucks 2WD
Fuel Type	CNG	Regular
MPG (city)	**12**	**15**
MPG (hwy)	**16**	**19**
MPG (comb)	**13**	**15**
Annual Fuel Cost	**$981**	**$1440**
Annual GHG Emissions* (tons)	**12.1** 30% worse than average	**12.3** 32% worse than average
Engine Size (liters)	5.4	5.4
Cylinders	8	8
Transmission	Automatic (4 speed)	Automatic (4 speed)
Drive	Rear-wheel drive	Rear-wheel drive
Gas Guzzler	no	no
Turbocharger	no	no
Supercharger	no	no
Passenger Volume	NA	NA
Luggage Volume	NA	NA
Additional Engine Characteristics	RNG250	NA

Compare side-by-side

---

* Based on 20% highway driving, 80% city driving, 15000 annual miles and the following fuel prices:

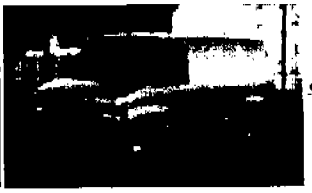
Regular Gasoline: $1.44 per gallon
CNG: $0.85 per gallon equivalent*

You may customize these values to reflect the price of fuel in your area and your own driving patterns.

Compressed Natural Gas (CNG) is normally dispensed in "equivalent gallons" where one "equivalent gallon" is equals to 121.5 cubic feet of CNG. The fuel economy for natural gas vehicles is shown in miles per gallon-equivalent.

GHG-Greenhouse gas emissions expressed in CO2 equivalents. Estimates include the full fuel cycle and exclude vehicle manufacture. (U.S. Department of Energy, GREET Model, Argonne National Laboratory)

Switch to Metric units

Side-by-Side	2001 Ford E250 CNG	2001 Ford E250 Econoline 2WD
	PHOTO NOT AVAILABLE 	
	Natural Gas Vehicle	
EPA Size Class	Vans, Cargo Type	Vans, Cargo Type
Fuel Type	CNG	Regular
MPG (city)	**12**	**13**
MPG (hwy)	**15**	**18**
MPG (comb)	**12**	**14**
Annual Fuel Cost	**$1063**	**$1543**
Annual GHG Emissions* (tons)	**12.7** 36% worse than average	**13.8** 49% worse than average
Engine Size (liters)	5.4	5.4
Cylinders	8	8
Transmission	Automatic (4 speed)	Automatic (4 speed)
Drive	Rear-wheel drive	Rear-wheel drive
Gas Guzzler	no	no
Turbocharger	no	no
Supercharger	no	no
Passenger Volume	NA	NA
Luggage Volume	NA	NA
Additional Engine Characteristics	RNG200/300	NA

Compare side-by-side

---

* Based on 20% highway driving, 80% city driving, 15000 annual miles and the following fuel prices:

Regular Gasoline: $1.44 per gallon
CNG: $0.85 per gallon equivalent*

You may customize these values to reflect the price of fuel in your area and your own driving patterns.

Compressed Natural Gas (CNG) is normally dispensed in "equivalent gallons" where one "equivalent gallon" is equals to 121.5 cubic feet of CNG. The fuel economy for natural gas vehicles is shown in miles per gallon-equivalent.

GHG-Greenhouse gas emissions expressed in CO2 equivalents. Estimates include the full fuel cycle and exclude vehicle manufacture. (U.S. Department of Energy, GREET Model, Argonne National Laboratory)

Customize*

You may customize the fuel economy information provided in the Find and Compare Cars section by editing the values shown below.

Fuel Price (dollars)						
Per gallon**						Per kw-hr
Regular Gasoline	Premium Gasoline	Diesel Fuel	E85	LPG	CNG	Electricity
1.44	1.63	1.52	1.60	1.20	0.85	0.08

Annual Miles	% of Miles (City)	% of Miles (Highway)
15000	80	20

Customize | Use Default Values

E85 - fuel mixture of 85% Ethanol, 15% Gasoline

LPG - liquified petroleum gas (propane)

CNG - compressed natural gas

* Slight differences between the default and customized values for MPG (combined) and Annual Fuel Cost may result from rounding

** CNG price is reported as the price per gallon of gasoline equivalent

Table 1. Estimated Number of Alternative-Fueled Vehicles in Use in the United States, by Fuel, 1992-2001

Fuel	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Liquefied Petroleum Gases (LPG) [a]	221,000	269,000	264,000	259,000	263,000	263,000	266,000	267,000	268,000	*269,000*
Compressed Natural Gas (CNG)	23,191	32,714	41,227	50,218	60,144	68,571	78,782	89,556	100,530	*109,730*
Liquefied Natural Gas (LNG)	90	299	484	603	663	813	1,172	1,681	1,900	*2,039*
Methanol, 85 Percent (M85) [b]	4,850	10,263	15,484	18,319	20,265	21,040	19,648	18,964	18,365	*16,918*
Methanol, Neat (M100)	404	414	415	386	172	172	200	198	195	*184*
Ethanol, 85 Percent (E85) [b c]	172	441	605	1,527	4,536	9,130	12,788	22,464	34,680	*48,022*
Ethanol, 95 Percent (E95) [b]	38	27	33	136	361	347	14	14	13	*13*
Electricity	1,607	1,690	2,224	2,860	3,280	4,453	5,243	6,964	8,661	*10,400*
Non-LPG Subtotal	**30,352**	**45,848**	**60,472**	**74,049**	**89,421**	**104,526**	**117,847**	**139,841**	**164,344**	***187,306***
Total	**251,352**	**314,848**	**324,472**	**333,049**	**352,421**	**367,526**	**383,847**	**406,841**	**432,344**	***456,306***

[a] Values are rounded to thousands. Accordingly, these estimates are not equal to the sum of Federal fleet data (for which exact counts are available) and non-Federal fleet estimates (rounded to thousands).

[b] The remaining portion of 85-percent methanol and both ethanol fuels is gasoline.

[c] In 1997, some vehicle manufacturers began including E85-fueling capability in certain model lines of vehicles. For 1999, the EIA estimated that the number of E-85 vehicles that are capable of operating on E85, gasoline, or both, is 725,464. Many of these AFVs are sold and used as traditional gasoline-powered vehicles. In this table, alternative fuel vehicles (AFV's) in use include only those E85 vehicles believed to be intended for use as alternative-fuel vehicles (AFV's).

These are primarily fleet-operated vehicles.

Note: Estimates for 1999 are revised. Estimates for 2000 are preliminary and estimates for 2001, in italics, are based on plans or projections. Estimates for historical years may be revised in future reports if new information becomes available.

Sources: 1992-1995: Science Applications International Corporation, "Alternative Transportation Fuels and Vehicles Data Development," unpublished final report prepared for the Energy Information Administration (McLean, VA, July 1996) and U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy. 1996-2001: Energy Information Administration, Office of Coal, Nuclear, Electric, and Alternate Fuels.

- Proceed to Table 2
- Return to the Table of Contents

Table 11. Estimated Share of Alternative Transportation Fuel Consumption, by Region, 1999-2001 (Percent)

Fuel	1999				2000				2001			
	North-east	South	Mid-west	West	North-east	South	Mid-west	West	North-east	South	Mid-west	West
Liquefied Petroleum Gases (LPG)	10	28	37	24	*1*	*28*	*37*	*24*	*11*	*28*	*37*	*24*
Compressed Natural Gas (CNG)	18	12	26	43	*18*	*11*	*27*	*44*	*19*	*11*	*26*	*44*
Liquefied Natural Gas (LNG)	0	1	54	45	*1*	*1*	*49*	*49*	*1*	*1*	*50*	*48*
Methanol, 85 Percent (M85) [a]	6	8	6	81	*5*	*7*	*6*	*82*	*5*	*7*	*6*	*82*
Methanol, Neat (M100)	29	0	6	65	*29*	*0*	*6*	*65*	*29*	*0*	*6*	*65*
Ethanol, 85 Percent (E85) [a]	3	68	19	11	*3*	*62*	*23*	*11*	*3*	*63*	*23*	*11*
Ethanol, 95 Percent (E95) [a]	0	100	0	0	*0*	*100*	*0*	*0*	*0*	*100*	*0*	*0*
Electricity	15	7	20	58	*15*	*7*	*19*	*59*	*15*	*7*	*19*	*59*
Total	**10**	**28**	**21**	**41**	**10**	**27**	**21**	**42**	**10**	**27**	**21**	**42**

[a]The remaining portion of 85-percent methanol and both ethanol fuels is gasoline. Consumption data include the gasoline portion of the fuel.

Note: Estimates for 1999 are revised. Estimates for 2000 are preliminary. Estimates for 2001, in italics are based on plans or projections.

Source: Energy Information Administration, Office of Coal, Nuclear, Electric, and Alternate Fuels.

- Proceed to Table 12
- Back to Table 10
- Return to the Table of Contents

NGV Emission Benefits Under Real-World Driving Conditions

Emissions from natural gas-powered vehicles (NGVs) are much lower than emissions generated by gasoline-powered vehicles, especially under "real-world" driving conditions.

That's the finding of a recently released GRI study including "off-cycle" tests that simulate real-life driving conditions not currently represented in the Federal Test Procedure (FTP). The study was conducted for three fuels--natural gas, gasoline and reformulated gasoline (RFG)--on a single GMC Sierra 1500 truck engine (4.3 liter, V6), equipped with a Mesa Environmental conversion system. Results demonstrate that vehicles operating on natural gas produce far lower polluting emission levels than vehicles fueled with either of the liquid fuels, especially when operating at low ambient temperatures or during rapid acceleration and higher cruising speeds.

Liquid fuels, which must vaporize before combustion, are burned at higher fuel/air ratios during periods of fast acceleration and high speed. This type of fuel-enriched operation, which tends to increase emissions of carbon monoxide and unburned hydrocarbons, is not required for natural gas because the fuel is already in the gaseous state. Since it is more difficult to vaporize liquid fuel under cold-temperature conditions, similar emission increases occur for liquid fuels when ambient temperatures are low.

Air-quality problems vary in different parts of the country and during different seasons. "This study's `cold' cycle data has implications for cities such as Denver, where violation of the carbon monoxide standard is a problem during the winter," explains Rajeana Gable, GRI NGV Group Manager. "The high-acceleration test results of non-methane organic gases and nitrogen oxides emissions are of greater concern in locations such as Los Angeles and the northeast, due to their contribution to ozone formation."

FTP emission tests are typically conducted at 75°F under a standard driving cycle that includes moderate vehicle acceleration and deceleration and cruising speeds below what is common on today's highways. Previous studies have shown that real-world driving involves more "off-cycle" conditions, characterized by rapid acceleration and higher cruising speeds. In addition, vehicles are typically operated where ambient temperatures are lower than those used for the standard test.

"This report further confirms the emissions advantages of natural gas and indicates that putting NGVs on the road can provide significant air-quality improvement," says Gable.

GRI's laboratory study was conducted by Southwest Research Institute, an independent, non-profit engine- and vehicle-emissions testing organization in San Antonio, Texas. It evaluated vehicle emissions using the FTP, as well as real-world and cold-temperature driving conditions. The current FTP was developed before advanced dynamometers became available. Today's equipment can test vehicles at higher accelerations and speeds.

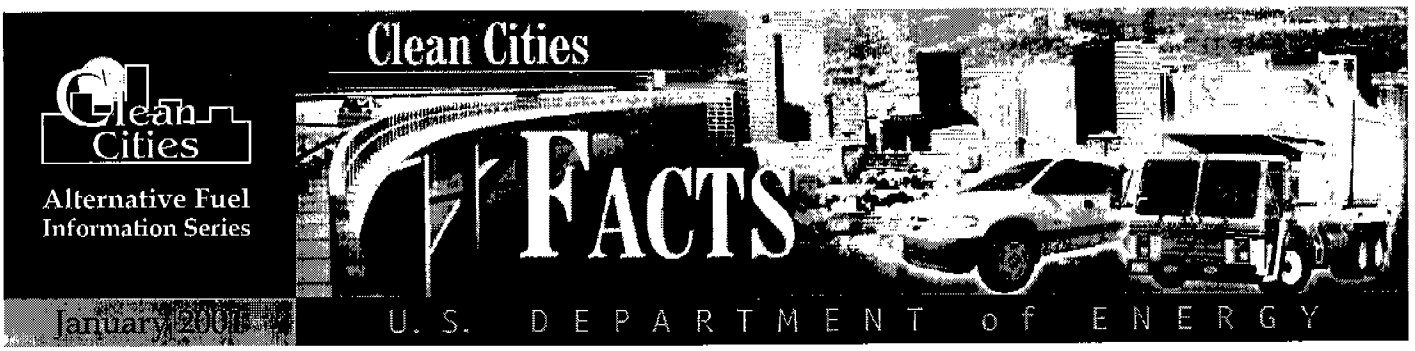
Additional off-cycle emission testing continues this year using dedicated natural gas vehicles and their gasoline counterparts.

Key Findings on Specific Emissions

NON-METHANE ORGANIC GASES	
Natural gas emissions compared with conventional gasoline and RFG in cold temperatures	94-96% LOWER
CARBON MONOXIDE	
Natural gas emissions compared with conventional gasoline and RFG in cold temperatures	84% LOWER
--Under real-world driving conditions	79-84% LOWER
NITROGEN OXIDES	
Natural gas emissions compared with conventional gasoline and RFG under real-world driving conditions	58-63% LOWER
AIR TOXICS EMISSIONS	
Natural gas emissions compared with conventional gasoline and RFG under the following driving conditions:	
--"Standard" test	95% LOWER
--Cold temperature	99% LOWER
--Real-world	97% LOWER

Contact

- For more R&D information, **James McCarthy,** GRI Senior Technology Manager, Environment and Safety (773/399-8174; FAX: 773/399-8170).



PARTNERSHIP TO ADVANCE ALTERNATIVE FUEL VEHICLES

WHAT IS CLEAN CITIES?

The U.S. Department of Energy's (DOE's) Clean Cities Program is a voluntary, *locally based* government/industry partnership to mobilize local stakeholders in the effort to expand the use of alternatives to gasoline and diesel fuel, accelerate the deployment of alternative fuel vehicles (AFVs), and build a local AFV refueling infrastructure. Clean Cities coordinates the activities of both private and public sector proponents of AFVs by providing a forum to discover their commonalities, collaborate on public policy, investigate opportunities for joint projects, avoid unnecessary conflicts, leverage scarce resources, and cooperate on promoting the benefits of AFVs in their communities. Clean Cities is a local plan that reflects a community's choice for alternative fuels and the ongoing commitment to that choice.

HOW DOES CLEAN CITIES WORK?

Clean Cities works directly with local businesses and governments to shepherd them through the goal-setting, coalition-building, and commitments process necessary to establish the foundations for a viable alternative fuels market. In more than 75 communities around the country, Clean Cities has created partnerships of people interested in using alternative fuels. The objective of Clean Cities has been to create local market-places where people can learn what's required to create an alternative fuels community; what's available; how to purchase a vehicle and how to fuel it—all the transactions that need to take place for a market to develop. With Clean Cities, the uncertainty of using alternative fuels is being eliminated.

Then, by sharing local innovation along the Clean Cities network "mayor-to-mayor," by relating local problems to state and federal objectives, and by providing continuous feedback to the 3700+ industry and government stakeholders, Clean Cities can continually pioneer innovations and aspire to effect national as well as local achievements. **DOE is working with Clean Cities coalitions nationwide to:**

CREATE NEW JOBS AND COMMERCIAL OPPORTUNITIES

Alternative fuels and alternative fuel vehicles (AFVs) can benefit the economy in many ways. Converting conventional vehicles to AFVs, developing new technologies and products, utilizing domestically produced alternative fuels, increasing crop (feedstock) production, and expanding alternative fuel infrastructure create commercial opportunities, new jobs, and new businesses nationwide.

PROVIDE GREATER FUEL CHOICES

The variety of fuel choices has enabled Clean Cities to choose the alternative fuels that best serve their local community and economy. This choice gives the community an opportunity to utilize the fuels that provide them with the best fuel performance, reduced emissions, and financial incentives.

FACILITATE ALTERNATIVE FUEL VEHICLE PRODUCTION AND CONVERSION

By pledging AFV acquisitions through the year 2005, the 3,500+ registered Clean Cities stakeholders have shown that significant demand exists for these vehicles. Clean Cities will work to transform these pledges into validated vehicle acquisition and conversion plans useful to manufacturers challenged to develop market-driven production lines.

ADVANCE CLEAN AIR OBJECTIVES.

The Clean Cities Program will advance the objectives of the Clean Air Act and seek to integrate its 1990 Amendments into each participant's decision-making process.

INCREASE PUBLIC AWARENESS

Clean Cities will pursue an active public education campaign to ensure that citizens are aware of the benefits of using alternative fuels over gasoline and diesel.

EXPAND REFUELING INFRASTRUCTURE

Concurrent with Clean Cities expansion of the AFV market, the program will build on fuel supplier commitments to provide the refueling infrastructure critical for service and maintenance of AFVs. In addition, the program will seek to make available existing private refueling stations for wider use.

SUPPORT REGULATED FLEETS

Through the Clean Cities Program, DOE will be able to provide local assistance to federal and state requirements for AFV acquisitions.

Clean Cities

U.S. Department of Energy

PUTTING ALTERNATIVE FUEL VEHICLES ON THE NATION'S STREETS AND HIGHWAYS

Clean Cities Accomplishments

The Clean Cities Program has created more than 75 partnerships in communities throughout the country, and is still gaining momentum. These "pioneer" Clean Cities feature more than 160,000 operational AFVs—reducing oil consumption and tailpipe emissions. The 3,500+ stakeholder organizations are committed to significant increases in vehicle acquisitions and infrastructure investment over the next five years.

DOE helps organize and structure the Clean Cities Program; however, the momentum of the program depends on the motivation of local Clean Cities coalitions. In addition to the program's highlights, it is especially important for local Clean Cities to:

- ✧ **Utilize the skills and resources found in partnerships**
- ✧ **Share success stories with other Clean Cities**
- ✧ **Keep goals current**
- ✧ **Seek funding alternatives**

January 2001