# Agenda Report

January 28, 2013

**TO:** Honorable Mayor and City Council

**FROM:** Department of Transportation

**SUBJECT:** ISSUANCE OF A PURCHASE ORDER TO PTV AMERICA INC. FOR $122,650 FOR THE PURCHASE OF A VALIDATED DYNAMIC TRAFFIC ASSIGNMENT MODEL

## RECOMMENDATION:

It is recommended that the City Council:

1. Find that the following proposed actions are exempt from review pursuant to the California Environmental Quality Act ("CEQA") pursuant to State CEQA Guidelines Section 15061 (b) (3); and

2. Authorize the issuance of a purchase order to PTV America Inc. for the purchase of software, training and data to populate a dynamic traffic assignment model in the amount not to exceed $122,650. Competitive Bidding is not required pursuant to City Charter Section 1002(H), contracts with other governmental entities or their contractors for labor, materials, supplies or services. Grant the proposed contract an exemption from the competitive selection process of the Competitive Bidding and Purchasing Ordinance pursuant to Pasadena Municipal Code Section 4.08.049 (B), contracts for which the City's best interest are served.

## BACKGROUND:

The process for updating the General Plan Land Use and Mobility Elements has required the development of sophisticated travel demand forecasting capabilities for Pasadena. To accomplish this, starting in FY 2009, the Department of Transportation retained consultant services to build and validate a focused four-step travel demand forecast model for Pasadena that is derived from and consistent with SCAG's regional travel demand forecasting model. This model has been used during the alternatives development process to evaluate changes in vehicle miles of travel (VMT), non-auto (transit/auto/walk) mode use and traffic volumes on street segments. The model will continue to be used to evaluate the travel demand of the General Plan Land Use and Mobility Elements updates for the Environmental Impact Report that is scheduled to

begin later this year. While the scope of the EIR for the General Plan update has not yet been determined via the required public process, staff anticipates that a detailed analysis of transportation impacts at intersections, on freeway ramps and on streets and freeways in Pasadena and surrounding areas will be required.

As sophisticated as the travel demand forecasting model is, it is subject to the constraints of that category of models with regard to its limited ability to make detailed traffic assignment to turning movements at intersections and to effectively replicate traffic operations on and near freeway interchange ramps. Consequently, additional analytical capabilities will be required to complete the EIR analysis.

The detailed analysis requirements are being shaped by State mandates to address climate change and Complete Streets. As the State aligns their requirements, Caltrans is responding by revising the metrics to be used to analyze transportation impacts in urbanized areas like Pasadena. On the basis of discussions with Caltrans and Caltrans consultants, staff anticipates several substantial changes as follow:
- Expanded analysis of ramp queues and mainline freeway operations
- Delay-based Level of Service calculations will be required
- Introduction of new metrics consistent with MAP-21 (travel time reliability)
- Analysis of impacts to non-auto modes

Evaluating the operation of Pasadena's transportation network under the metrics noted above requires more advanced and sophisticated data and tools that are responsive to the dynamic nature of vehicle travel throughout the day and that can accurately capture the effects of congestion such as queuing and traffic diversion. These tools need to be able to simulate real-world conditions such that potential changes from increased trips or modification of traffic signals or lane patterns can be accurately evaluated. The required tools are found in transportation models that employ simulation techniques. Staff has begun using one of these models to assist with the deployment of the adaptive traffic signal control system on Fair Oaks Avenue. However, that model, while capable of detailed analysis of traffic flows and intersection operations, does not have the traffic assignment capabilities necessary for the EIR transportation analysis.

In researching the modeling requirements, staff has determined that the category of model necessary for the EIR work to proceed is one with a dynamic traffic assignment process. Such models are available from several different software providers, one of which provides the four-step model software used by the City and another of which provides the simulation model in use by the City. Either software platform could meet the needs of the analysis, but both will require extensive data collection, network coding, calibration and validation before being able to support the EIR analysis.

In 2011, Pasadena contributed to a USDOT program to develop a test data set to support dynamic mobility applications development. Through this project, using data supplied by the City, LA County and Caltrans, the consultant (Mygistics, Inc.) developed and validated a dynamic traffic assignment model for the western portion of the San

Gabriel Valley.  The model developed for this USDOT project is proprietary and uses a proprietary data set to deliver a highly accurate platform for near-term travel time and route diversion prediction over the street and freeway system.  The model includes all signalized intersections and freeway ramps in Pasadena and the street and freeway segments that connect those locations.  It does not include all of the streets in the City, but does include streets of a minor arterial/major collector status and above.

Being aware of this modeling platform, staff sought a technical determination that it would be possible to use the USDOT project model to conduct the EIR analysis for the General Plan update.  Findings by the City's modeling consultants support the ability to link the forecast and the dynamic traffic assignment models such that the USDOT project model would satisfy the detailed analysis requirements for the EIR.

Because the USDOT project model is proprietary along with the data set that makes it useful to the City, it is only available from the model developer, Mygistics, on a sole source basis.  Mygistics, Inc. is a subsidiary of PTV America, which is the software provider that supplied the City's simulation model.  The dynamic traffic assignment model used by Mygistics is one of a family of models supplied by PTV America that link together and allow information to cascade quickly from one model to the next.  One of the model links can be used to optimize traffic signal timing, which facilitates the ability of the Traffic Management Center to develop and implement network signal timing modifications more quickly than is currently possible.

As noted above, the City owns a software license for one of the models provided by PTV America.  Because of this, the acquisition of the necessary license for the dynamic traffic assignment model software can be accomplished by upgrading the City's existing license agreement, thus effectively reducing the overall acquisition cost.

The purchase order has the following three elements:
1.  The model software, license and maintenance agreements from PTV America
2.  Training for staff in the operation of the software by PTV America
3.  The validated data set developed by Mygistics for the USDOT project

The data set includes a fully coded street and freeway network and the operational data (capacities, bottlenecks, link flow dynamics, speed profiles, signal timing, etc.) required to simulate traffic operations over a typical weekday.  Acquiring the data set in this way, while expensive, is less costly than the staff/consultant time that would be required to conduct counts, code networks, and calibrate/validate the traffic assignment model if only the modeling software were being purchased. Because the proprietary data set is already validated, it is ready to use.  Maintenance of the data base is to be accomplished by staff as is the operation of the model once training is complete.

## COUNCIL POLICY CONSIDERATION:

The proposed purchase order agreement supports the General Plan guiding principle, "Pasadena will be a city where people can circulate without a car" and will directly assist the Department of Transportation in implementing the four major objectives of the Mobility Element:
- Promote a livable community
- Encourage non-auto travel
- Protect neighborhoods by discouraging traffic from intruding into neighborhoods
- Manage multimodal corridors to promote and improve citywide transportation services

## ENVIRONMENTAL ANALYSIS:

This purchase order is exempt from CEQA per section 15061 (b) (3), the General Rule. The General Rule can be applied when it can be seen with certainty that the activity will not have a significant effect on the environment. The proposed action will not result in any new development or physical changes.

## FISCAL IMPACT:

The total compensation under this contract will be an amount not to exceed $122,650. Sufficient funding for the dynamic traffic assignment model contract is included in the Department of Transportation's FY 2013 Operating Budget. All of the funds would be expended in FY 2013.

Respectfully submitted,

FREDERICK C. DOCK
Director
Department of Transportation

Prepared by:

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Approved by:

MICHAEL J. BECK
City Manager

# Disclosure Pursuant to the
## City of Pasadena Taxpayer Protection Amendment
## Pasadena City Charter, Article XVII

Contractor/Organization hereby discloses its trustees, directors, partners, officers, and those with more than 10% equity, participation, or revenue interest in Contractor/Organization, as follows:

*(If printing, please print legibly. Use additional sheets as necessary.)*

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**1. Contractor/Organization Name:**

PTV AMERICA, INC

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**2. Type of Entity:**

☑ non-government ☐ nonprofit 501(c)(3), (4), or (6)

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**3. Name(s) of trustees, directors, partners, officers of Contractor/Organization:**

STEVE PERONE  CEO
KIEL OVA  VP
KAREN GIESE  VP

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**4. Names of those with more than a 10% equity, participation or revenue interest in Contractor/Organization:**

PTV AMERICA HOLDING, INC

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Prepared by: T. LARSON

Title: _____

Phone: 503 277 2556

Date: 1/15/2013

Rev.07.10.2007