CITY OF PEORIA, ARIZONA **RPT #:** 883
STAFF REPORT

Date Prepared: August 23, 2007 Council Meeting Date: September 4, 2007

TO: Terry L. Ellis, City Manager

THROUGH: David Moody, P.E., Engineering Director

FROM: Jamal Rahimi, P.E., City Traffic Engineer JR

SUBJECT: Congestion Management Strategy

BACKGROUND:

Congestion is a significant and growing problem in many parts of the region. Moreover, as traffic continues to increase, the conventional approach of building more road does not always work for a variety of political, financial and environmental reasons. The causes of congestion can be categorized as either recurring or nonrecurring. Recurring congestion is the predictable delay caused by high volumes of vehicles using the roadway during the same periods (e.g., peak commute periods, holiday periods or special events) and at critical locations (intersections, interchanges and major long-term construction areas). Nonrecurring congestion is unpredictable delay generally caused by spontaneous, unplanned occurrences such as traffic accidents and incidents, emergency maintenance or weather conditions.

Traffic congestion problems cannot be solved solely by expanding the road infrastructure. Therefore, many agencies are working to manage their existing transportation systems to improve mobility, safety, and traffic flows and to reduce demand for vehicle use. Experience and technical research have demonstrated that, when properly applied, measures taken to manage the existing transportation system can have a significant impact on trip-making behavior and traffic congestion.

A wide array of technologies for motorized and non-motorized transport as well as economic and administrative policies have been used successfully around the country to manage congestion and influence travel demand. All these measures, which are referred to collectively as congestion management, are designed to improve the operating efficiency of the existing transportation system – its infrastructure, modes, and services – in three ways:

- By increasing the use of alternative transportation modes including public transport, carpooling, and bicycling/walking.

- By altering trip patterns through the application of measures such as land-use policies, alternative work-schedule arrangements, telecommuting and pricing.
- By improving traffic flow through measures such as traveler information systems, traffic signal system improvements and incident management.

DISCUSSION:

Rapid growth in the northwest valley, including Peoria, has led to increased travel demand and a need for improved transportation facilities and services. In order to address this issue the City of Peoria, with the help of a consulting team, conducted a Transportation Needs Study to guide development of the city's transportation system over the next 20 years (long term). Also, the City recently completed a Circulation System Assessment (CSA) document which contains the most recent information on the City's traffic conditions. This document also serves as a model to forecast short term traffic projections into the future and to evaluate the levels of service on the City's circulation system.

City recently retained Wilson & Company to update the Transportation Needs Study. This document will be developed based on the City's CSA data and Maricopa Association of Government (MAG) year 2020 Regional Transportation Model. The results from this study will be used to set priorities for the city's Capital Improvement Program (CIP). This program, in part, funds and implements improvements to the city's transportation infrastructure. In addition to this program the City employs several other programs and projects to address and manage traffic congestion. The following is a summary of these programs:

- **Traffic Signal Program:** This program provides for studies, design and construction of new traffic signals and modifications to the existing signals. This is a city-funded program with an annual budget of $800,000.
- **Traffic Signal Interconnect Program:** This program provides for extension of the traffic signal interconnect system by installing conduits and fiber optic cable. This program also funds the installation of Intelligent Transportation System (ITS) equipment such as CCTV cameras and dynamic message signs. This is a city-funded program with a bi-annual budget of $202,000.
- **Traffic Signal System Project:** This project entails installation of a Traffic Signal system and connection of existing signals to the system. The Traffic Signal System hardware and software have already been installed and operational. Fifteen signals are currently connected to the central system via fiber optic cable. Thirty one (31) additional signals are planned to be connected to the system via fiber optic cable and wireless communication network in the near future. This is a federally-funded project with a budget of $1,002,500.
- **ITS Workstations at Peoria Sports Complex:** ITS workstations will include personal computers and monitors which will be connected to the city's Traffic Management System. City staff will be able to improve traffic safety and operation at and near the Sports Complex by using these workstations. This is a city-funded project. The total project budget is $575,700.

- **Joint City/PUSD Fiber Optic Project:** This project will allow the Peoria Unified School District (PUSD) to install fiber optic cable within city-owned conduit for their use in exchange for providing the City with new conduit and/or fiber optic cable to expand service area and to close gaps in the City's interconnect system for the City use. This project will be at no cost to the City.
- **Joint City/ADOT Freeway Management System Project:** The City, working in conjunction with Arizona Department of Transportation, is installing interconnect conduit and fiber optic cable along Loop 101 from Northern Avenue to Union Hills Drive. This would serve as a redundant loop to the City's signal communication system. City contributed $303,000 to this project.
- **Joint City/MCDOT Fiber Optic Exchange Project:** Maricopa Department of Transportation and City of Peoria have reached a tentative agreement for future sharing of fiber optic communication infrastructure along 99th Avenue corridor from Olive Avenue to Beardsley Road, and along Olive Avenue from Loop 101 to 115th Avenue. This will provide the City with a redundant signal communication loop to the northern area of the City. There will be no cost to the City.
- **Permanent Traffic Counters:** This project installs permanent traffic counters on key arterial streets within the City to measure average daily traffic volumes year-round. Staff will be able to use this information to manage traffic flow by making changes to traffic control devices based on traffic fluctuations. This is a city-funded program with a bi-annual budget of $60,600.
- **Traffic Management Center (TMC):** The City will be constructing a TMC in the new Development and Community Services Building. This will allow traffic engineering staff to control traffic signals throughout the city from a central location in order to improve transportation safety and efficiency. In addition, staff will be able to provide travelers information via dynamic message signs and to observe traffic and City facilities via CCTV cameras. This is a federally-funded project with some City matching fund. The total project budget is $1,522,950.
- **Bell Road ITS Project:** This was a federally-funded project which installed ITS equipment, communication infrastructure and signal coordination timing plans along Bell Road corridor from Loop 101 to Grand Avenue. This project is notable for its Concept of Operations which allows the City of Peoria, City of Surprise and Maricopa County the joint usage of fiber optic communication, CCTV cameras and dynamic message signs along this corridor for congestion and incident management. This is the first project of its kind in the State of Arizona.
- **Signal Optimization Program:** The City of Peoria is currently engaged in two signal optimization projects. The two corridors under study are Thunderbird Road and Olive Avenue. These projects are funded through grants from Maricopa Association Of Governments.
- **Regional Community Network (RCN):** The RCN is a project that will be connecting jurisdictions in the valley for uninterrupted information sharing. This system will be providing communication among Traffic Management Centers and Emergency Operation Centers under normal operation and during events and major incidents. This is a federally-funded project administered by Arizona Department of Transportation.

- **Intelligent Transportation Infrastructure Program (ITIP):** This is a federally-funded private/public partnership program for providing traveler information. In Peoria, this program has installed traffic monitoring equipment along two corridors, two stations on Bell Road and four stations on Olive Avenue. The City would be able to obtain traffic data from these count stations at no cost to the City. The private companies will be maintaining these systems for a period of ten years.

Alternative Modes of Transportation: Among the goals of the City of Peoria General Plan's Circulation Element is to "Provide for a multi-modal transportation system that will serve the community and the region in a safe, efficient, cost effective and aesthetic manner while minimizing adverse impact to neighborhoods, businesses and the natural environment."

With the passage of the Peoria transportation sales tax in 2005 funds became available to increase the number of Valley Metro fixed route bus lines that serve Peoria and to improve and maintain the City's Dial-a-Ride service.

In June 2007, a new Bicycle Development Plan was completed. This plan provides policy recommendations for inclusion in the Circulation Element of the General Plan such as requiring bike lanes or paved shoulders on all new, resurfaced, or re-constructed collector and arterial roadways, where feasible, parking requirements, and submittal of multi-modal plans for all new developments.

The City of Peoria is a member of the Commuter Rail Stakeholder Group. The role of this group is to identify key issues, purpose and needs, along with goals and objectives for commuter rail. The overall goal of this project is to prepare a Commuter Rail Strategic Plan for adoption by the MAG Regional Council. The City is also a member of the Valley Metro Rail Group which will be evaluating the expansion of the light rail service to the west valley.

ATTACHMENT: