Pima Association of Governments

Intermodal Management System Plan

Update

Tucson, Arizona

Adopted by PAG Regional Council on April 27, 2005
PIMA ASSOCIATION OF GOVERNMENTS

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Chapter 1 - Introduction

A. Overview

This update of the PAG Intermodal System Plan was begun in house in mid-2002, and advanced off and on, as staff resources allowed, through mid 2004. Due to internal staff and organizational changes it was paused and resumed again in mid-fall of 2004.

Much progress has been made since the first PAG Intermodal System Plan was developed and adopted in 1995:

- A private truck-rail intermodal facility has been developed and is on-line for the region, and southern Arizona.
- The City of Tucson has mounted a significant effort to grow trade with Mexico, and has developed and is pursuing a plan for an international trade processing center as a part of the bold Puerto Nuevo initiative.
- Significant improvements have been made to the Nogales border crossings, and the I-10 / I-19 Interchange has been completely rebuilt.

Other, similarly valuable improvements are planned, and are detailed in Chapters 4 and 5.

B. What is an Intermodal Management System?

The Intermodal Management System (IMS) is a systematic process that identifies key linkages between one or more modes of transportation. The performance or use of one mode will tend to affect another, therefore, defining strategies for improving the effectiveness of these modal interactions through evaluation, planning and implementation should efficiently strengthen the overall performance of the transportation system.

The elements that accommodate and interconnect different modes of transportation are called intermodal facilities. These features serve intrastate, interstate, and international movements of people and goods. They include, but are not limited to:

| • Airports                  | • Marine terminals |
| • Canals                   | • Park ‘n ride facilities |
| • Coastal, inland, & Great Lakes ports | • Pipeline farms |
| • Hwy elements providing terminal access | • Rail terminals |
| • Intercity bus terminals  | • Transit terminals |
| • Major truck terminals    |                   |

In the PAG region, there are many, but not all of the intermodal elements shown above. For example, there are no water-related facilities.
C. The Importance of Intermodal Planning

1. Efficiency

The objective of the Intermodal System Study Update is to develop sound policy and recommendations, both near and longer term, for the efficient movement of people and goods by eliminating barriers and inefficiencies between transportation modes. This update of the Intermodal Management System Plan presents a framework for cost-effective decision making that emphasizes superior service at reduced public and private life-cycle cost. The key outcomes are improved system performance and safety, hence, commuter and freight travel times are expedited, infrastructure is rebuilt, jobs are created, and congestion is reduced.

2. Choices

Intermodal planning characteristically involves assessment & evaluation, funding and implementation in the context of a larger network of interdependent transportation elements. When combined, the various elements help increase the widest possible range of transportation options for all citizens by providing more transfer opportunities and convenient access to differing modes. Tables 1-1 and 1-2 summarize the predominant passenger and freight intermodal connections that are currently available in the PAG region.

Table 1-1: Intermodal Passenger Connections

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<th>To Air</th>
<th>Auto Drive Alone</th>
<th>Auto Carpool</th>
<th>To Bike</th>
<th>To Pedestrian</th>
<th>To Rail</th>
<th>To Transit Intracity</th>
<th>To Transit Intracity</th>
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</thead>
<tbody>
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<td>Air</td>
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<td>X</td>
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<td>Auto</td>
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Table 1-2: Intermodal Freight Connections

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<th>to Air</th>
<th>To Pipeline</th>
<th>to Rail</th>
<th>to Truck</th>
</tr>
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<tbody>
<tr>
<td>Air</td>
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<td>X</td>
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<tr>
<td>Pipeline</td>
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<tr>
<td>Rail</td>
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<td>X</td>
<td></td>
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<tr>
<td>Truck</td>
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<td>X</td>
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</tbody>
</table>
Principal street network and the eastern Pima County units of local government are shown in Figure 1-1;

1.1
1.2 Figure 1-1
1.3 Eastern Pima County Roadway network

This map is for illustrative purposes only.

3. Vision

Tables 1-1 and 1-2 (above) also reveal the various linkages not present within the region, particularly in the movement of goods. With the trade opportunities offered by
the CANAMEX Corridor, the North American Free Trade Agreement (NAFTA), and Puerto Nuevo, the movement of commodities through and within the region will be an important aspect of the area’s economy, today and increasingly so in the future. In an era of increased competition and escalating economic development, particularly in international border areas, freight companies will be looking for the most cost-effective means of moving their goods. An efficient, timely, and economical intermodal management system can help improve and maintain that competitive edge.

The Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) strongly encourage implementation of intermodal management systems consistent with state, metropolitan planning organization, transit operator, or local government needs. (23 CFR Sect. 500.102) Conformity will ultimately result in a fully connected and seamless transportation system, enhancing the quality of life for all residents of Pima County and southern Arizona.

D. Intermodalism

1. The Regulatory Framework

a. Intermodal Surface Transportation Efficiency Act of 1991

On Dec 18, 1991, George H Bush signed into law Public Law (PL) 102-240, the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA). The landmark bill established a new vision for surface transportation in America. The primary goal of the Act is clearly enunciated in its intermodal transportation statement of policy:

“…to encourage and promote development of a national intermodal transportation system in the United States to move people and goods in an energy-efficient manner, provide the foundation for improved productivity growth, strengthen the Nation’s ability to compete in the global economy, and obtain the optimum yield from the Nation’s transportation resources.” (PL 102-240, Title V, Sect. 5001)

The IMS is one of six transportation-related management systems required under ISTEA Surface Transportation Programs:

1. Pavement management system (PMS)
2. Bridge management system (BMS)
3. Highway safety management system (SMS)
4. Congestion management system (CMS)
5. Public transportation management system (PTMS)
6. Intermodal Management System (IMS)

The Intermodal Management System mandated under the Act shall offer for enhancement the integration and connectivity of all transportation facilities and
systems that will provide an efficient, safe and convenient movement of people and goods. It shall also include methods of achieving the most favorable return from such systems, methods for increasing production in the state, methods for increasing use of advanced technologies, and methods to encourage the use of innovative marketing techniques. (PL 102-240, Title I, Sect. 1034)

Hence, the Code of Federal Regulations, Title 23, Section 500.111 (23 CFR 500.111), requires that an IMSP should include, at a minimum:

- Establishment of **performance measures**
- Identification of **key linkages** between one or more modes of transportation, where the performance or use of one mode will affect another
- Definition of **strategies** for improving the effectiveness of these modal interactions, and
- **Evaluation and implementation** of these strategies to enhance the overall performance of the transportation system.

**b. Transportation Equity Act for the 21st Century**

The Transportation Equity Act for the 21st Century (PL 105-178), or TEA-21, was signed into law by President Clinton on June 9, 1998. TEA-21 builds on the initiatives established in ISTEA, combining the continuation and improvement of current programs with new initiatives. The Act authorized the federal surface transportation programs for highways, highway safety and transit for the 6-year period of 1998 to 2003. More specifically, **transportation management systems mandated under ISTEA were continued under TEA-21.**

**c. Surface Transportation Extension Act of 2003**

On Sept 30, 2003, the Surface Transportation Extension Act of 2003 (PL 108-88) provided an extension of appropriations for highway, highway safety, motor carrier safety, transit, and other programs funded out of the Highway Trust Fund for five months through Feb 29, 2004. The extension was in place due to the pending enactment of a law reauthorizing TEA-21 known as the Safe, Accountable, Flexible, and Efficient Transportation Equity Act of 2004 (SAFETEA). As of Nov 15, 2004, SAFETEA was still pending Congressional action, and continued extension of TEA-21 was in effect.

**2. The Transportation Planning Framework**

**a. Overview**

The intent of the IMSP update is to implement U.S. Code, Title 23, Section 134 (23 U.S.C. 134), which requires Pima Association of Governments (PAG) to have a continuing, cooperative, and comprehensive transportation planning process that results in plans and programs that consider all modes of transportation. Accordingly, these plans and programs will lead to the development and operation of an
integrated, intermodal transportation system that facilitates the efficient and economic movement of people and goods. (23 CFR 450.300) Conformity to the general requirements laid out by ISTEA and TEA-21 will boost Tucson’s regional economic vitality and worldwide competitiveness through an increase in available accessibility and itinerant alternatives.

In relation to management systems, the IMS shall be part of the transportation planning process as required under 23 U.S.C. 134 and 49 U.S.C. 5303-5305 (23 CFR 450.320). Subsection (f) of 23 U.S.C. 134 identifies several factors that must be considered as part of the MPO planning process. Within those factors, several intermodal elements are highlighted:

- Support the **economic vitality of the metropolitan area**, especially by enabling **global competitiveness**, productivity and efficiency
- Increase the **safety and security** of the transportation system for motorized and non-motorized users
- Increase the **accessibility and mobility options** available to people and **for freight**
- Protect and enhance the **environment**, promote **energy conservation**, and improve **quality of life**
- Enhance the **integration and connectivity of the transportation system, across and between modes, for people and freight**
- Promote **efficient** system management and operation
- Emphasize the **preservation** of the existing transportation system

Federal regulations list additional factors that must be analyzed during the transportation planning process. One factor with particular intermodal interest is "**the analysis of international border crossings and access to ports, airports, intermodal transportation facilities, and major freight distribution routes**" (23 CFR 450.316)

**b. Regional Transportation Plan**

Strategies and projects identified in the IMSP update will be analyzed during the development of PAG’s 2030 Regional Transportation Plan, or RTP, and subsequent long range planning efforts. (23 CFR 450.336) The long-range plan provides a 20-year vision for a balanced, multi-modal, sustainable transportation system for eastern Pima County. A primary purpose of the RTP is to provide a fresh vision of how existing and future demands for transportation can be accommodated while meeting community-wide economic, social, and environmental goals. (23 U.S.C. 134 (f))
The 2030 RTP will update and replace the previous Metropolitan Transportation Plan for 2000-2025 that was adopted by Regional Council in January of 2001, and later amended in January of 2004. Federal transportation law mandates the minimum 20-year planning horizon and the Plan shall include both long- and short-range policies and actions that endorse an integrated intermodal transportation system. (23 CFR 450.322) Management systems, such as the IMSP update, must be fully incorporated into the 2030 Plan, for they provide the framework to a fundamentally coordinated and executed planning process. (23 U.S.C. 134 (g))

c. Project Programming
Projects identified through the planning process and listed in the 2030 RTP are programmed for implementation through the Transportation Improvement Program (TIP). The TIP coordinates improvements to all elements of the regional system, including federal, state, and local roadways, transit, aviation, ridesharing, intermodal facilities, bikeways, and pedestrian facilities. It is also the mechanism through which the air quality impacts of regionally significant transportation projects can be evaluated and addressed. The TIP has a five-year time horizon and is currently updated every year. (23 U.S.C. 134(h))

Both the Statewide Transportation Improvement Program (STIP) and the TIP are financially constrained and include only those projects for which funding has been determined to be available. In addition to available Federal funding sources, projects using State and regional funding are also included. Projects shown in the TIP are incorporated into the STIP by reference.

d. State Plan Coordination
PAG and the Arizona Department of Transportation (ADOT) consult, coordinate, and cooperate to ensure that development or updates of regional plans and State plans are compatible. (23 U.S.C 134(a); 23 CFR 450.312) The 1995 Intermodal Management System for the state of Arizona corresponded with PAG’s 1995 IMSP Study and incorporated regional strategies into the statewide report. Likewise, an update to the State’s IMSP report would consider the enhancements reflected in PAG’s IMSP Study Update. (PL 102-240, Title I, Sect. 1034 (d).

ADOT recently completed a long-range transportation plan known as MoveAZ. Federal regulations require the states to prepare a comprehensive, intermodal statewide transportation plan similar to the 2030 RTP. The plan has evaluated specific programs and projects that the State considered funding over the next 20 years. MoveAZ will continue to consider the results of both the IMSP Update and 2030 RTP as they become available. (23 CFR 500.105)

e. Civil Rights Conformity

Title VI of the 1964 Civil Rights Act is a federal mandate requiring that any programs using federal dollars be non-discriminating. Persons may not be excluded from participating, obtaining benefits, or in any other way discriminated against on the basis of their race, color, national origin, gender, age, or disability.
The Title VI regulations were strengthened when the Americans with Disability Act (ADA) was passed in 1990 and Environmental Justice became Federal policy in 1994 with the signing of Executive Order 12898. Guidance for incorporating ADA regulations and Environmental Justice into regional transportation plans was developed by FHWA and FTA, and was incorporated into the TEA-21 regulations. TEA-21 calls for Title VI, ADA and Environmental Justice to be applied to the planning and public participation processes, as well as to the project implementation phase. The planning and programming process must collect and analyze relevant data such as the distribution and effects of the transportation investments in the region on different socio-economic groups. The public participation process must ensure that minority, disabled and low-income population groups are engaged in the transportation decision-making process in a meaningful way.

As indicated, all recommendations and projects highlighted in the IMSP Study Update will be analyzed and considered for inclusion in PAG’s 2030 Regional Transportation Plan. Work on the public participation outreach for the major 2030 update will be ongoing through 2005. The RTP will be analyzed and developed to provide an appropriate balance of transportation improvements with significant investment in transit, bicycle, and pedestrian projects that benefit low income individuals and others who may not own or operate a motor vehicle. IMSP projects and roadway components of the RTP will be distributed throughout the region so as to not place disproportionate impacts on any one area or population group.

Individually, each project sponsor is responsible for ADA, Environmental Justice, and Title VI compliance for the planning and construction of the projects identified within the TIP and RTP. Thus, specific projects can be expected to have appropriate public involvement and mitigation techniques applied during their design and development process.

Detailed analysis of ADA, Title VI and Environmental Justice conformity will be available for examination once the 2030 RTP is complete

E. Updating the IMSP

1. 1995 IMSP Summary

Under the supervision of PAG and two citizen advisory committees, the development of PAG’s first Intermodal Management System Plan (IMSP) was carried out by the consultant team of Parsons Brinckerhoff, in association with Curtis Lueck and Associates, and Kaneen Advertising and Public Relations. The PAG Regional Council adopted the first IMSP in September 1995.

The key objective of the PAG IMSP Study was to map a path to the regional goal of a seamless transportation system. The Study is summarized by Figure 1-2, and the major tasks described below:
• **Identification of goals and objectives:** The goals were utilized in the development of the performance measures and evaluation of strategies for improving intermodal connections in the study area. The ten goals listed were:

1) Promote a better understanding of intermodal issues as they relate to the movement of people and goods.

2) Develop and maintain a database of the region's intermodal transportation facilities.

3) Develop strategies that improve the transfer of people and goods between modes, private facilities and publicly owned systems by reducing delay and minimizing inconvenience, thus providing a more "seamless" transportation system.

4) Identify opportunities for intermodal linkages.

5) Identify transportation projects that improve connections between intermodal facilities through improved access, convenient facilities, and advanced technologies.

6) Provide a means of technical analysis to support project selection.

7) Monitor and evaluate projects after their implementation to measure their effectiveness.

8) Interface effectively with other management systems being conducted on Regional and State levels to avoid overlap and duplication of efforts.
9) Integrate the IMSP into the overall PAG transportation planning and programming process.

10) Support the Regional Transportation Plan goals of providing a balanced system integrating all forms of transportation.

- **Identification of intermodal facilities/Inventory and evaluation of the facilities:** The locations of transportation intermodal facilities and major system connections in Pima County were identified and inventoried to describe the type of services provided by each transportation mode and their physical characteristics. This information provided the basis for recommendations for improvements to the transportation system. The detailed inventory of the intermodal facilities involved site visits and discussions with management.

- **Development of performance measures:** The strengths and limitations of PAG’s intermodal facilities were evaluated against performance measures and standards established in the Study. These measures were used to determine what kinds of data to collect for the facilities and to assess the adequacy of the connections. Seven assessment criteria were identified to help measure the effectiveness of IMS facilities and services:

  1) **Accessibility:** Pedestrian and roadway access to and from the facility.
  2) **Connectivity:** Types of modes using the facility.
  3) **Limitations of Usage:** Regulations/restrictions that limit or restrict usage of the facility.
  4) **Physical Limitations:** Physical restrictions, such as insufficient curb radii, that limit usage.
  5) **Facility Operation:** Operational impacts on the roadway system.
  6) **Facility Condition:** Maintenance of the facility and adjacent roadway(s).
  7) **Amenities:** Features of passenger facilities to attract users.

- **Identification of issues, opportunities and constraints:** These were used to define the future intermodal system. Evaluation of the intermodal facilities indicated that the facilities were in good condition overall. However, pedestrian and roadway access problems, as well as lack of connections, contributed to low scores for both the passenger and freight facilities. The recognized deficiencies laid the foundation to what the region ought to plan for in forthcoming endeavors. Needs such as a new truck-rail freight transfer facility (now realized in the last two years), pavement enhancements, adequate roadway alignments, and pavement restoration were a few opportunities presented.
• **Development of implementation strategies.** These were used to implement the IMSP. Highlighted strategies include integration of intermodal projects into the regional framework, designation of an Intermodal System Manager, and cooperation between public agencies and private companies for improved funding.

• **Conclusions and Recommendations of the IMSP:** The evaluation of existing intermodal facilities identified deficiencies. The needed physical improvements fell into four groups:

  1) Geometric/signal improvements  
  2) Roadway drainage  
  3) Pedestrian/ADA improvements  
  4) Pavement/overlay

These specific improvement projects ranged in cost from $2,000 to $217,000. Future projects, including planning and engineering studies for a new intermodal facility, were estimated at $1.4 million. The conclusion of the Study developed a process (Figure 1-2, page 9) for continuation of the IMSP in the future. The process would ensure that planning activities reflect awareness of the importance of intermodal connections, the PAG IMSP would be maintained, and that intermodal projects would be implemented. Recommended activities include:

  **Review performance measures.** Criteria should be reviewed biannually to determine if goals and/or objectives need to be modified.

  **Update data.** The inventory of intermodal facilities and PAG’s database should be updated biannually.

  **Evaluate system performance.** The information generated by the review of the performance goals and objectives, and updated inventories, will contribute to the evaluation of the intermodal system. Deficiencies that exist should be documented.

  **Review status of projects.** Review of the status of implemented and non-implemented projects should be undertaken annually.

  **Develop current IMSP project list.** An annual listing of projects should be developed from 2 sources: 1) projects that are recommended in the IMSP that have not been programmed, and 2) new deficiencies that are identified in the biannual system review.

  **Address intermodal projects in the TIP process.** Projects should be submitted to PAG for inclusion in the annual process for updating the regional Transportation Improvement Program.
Implement projects. When funding is made available through the PAG TIP process, intermodal projects may be implemented. The TIP process allocates available funding for projects, and intermodal projects will compete with other projects for funding.

Designate an Intermodal System Manager. The PAG staff member so designated must facilitate the consideration of intermodal projects through PAG’s planning and programming processes. The manager should strive to provide training to staff of local jurisdictions, and as a key advocate of intermodalism, the IMS Manager should work with local jurisdictions and government agencies to eliminate regulatory barriers and seek funding opportunities.

Intermodal Interest Group. During the development of the first IMSP, the separate Freight and Passenger Advisory Committees expressed a desire to continue to meet to assist and help guide improvements to the intermodal system. All members were invited to participate in a PAG-sponsored Intermodal Interest Group. The group has met periodically whenever there are developments affecting intermodal linkages, such as the proposal to close the Pacific Fruit Express Intermodal facility by the SPL. Meetings have been conducted as needed, quarterly to annually. In 2002, the Intermodal Interest Group, which had come to be almost totally freight oriented, voted to rename themselves the “Freight Advisory Task Force”.

Champions. Advocates are expected to emerge from the Intermodal Interest Group to take leadership roles in the acceptance and programming of projects. Only with the involvement of Champions will projects actually be funded and implemented.

2. Update Guidelines

The 1995 PAG Intermodal Management Study recommended that the IMSP be maintained and updated according to the requirements of ISTEA and TEA-21. The effectiveness of the IMSP in enhancing transportation investment decisions and improving the overall efficiency of PAG’s transportation systems and facilities shall be evaluated periodically, preferably as part of the metropolitan planning process. (23 CFR 450.320) Accordingly, reviews of and/or updates to the IMSP should occur at least every two years. (23 U.S.C. 134h)

While TEA-21’s replacement is being refined, it is still pending approval by Congress, therefore, these requirements may change in the coming months. Regardless of the changes, the monitoring suggested above is likely to meet or exceed federal expectations and should, therefore, be sufficient.
Critical components of the IMSP such as the Regional Aviation Plan, Regional Bicycle Plan, Regional Pedestrian Plan, and the Regional Transit Plan have been updated in recent years. Additionally, the Tucson Metropolitan area has expanded both in size and population, and intermodal freight yards have opened and closed. A successful update will recognize these changes and provide current and reliable data.

The IMSP Study Update will not be concerned with the internal operations of the intermodal facilities themselves. For example, the movement of airline passengers from planes to curbside transportation is not a system focus. The IMSP focuses on the links that connect intermodal facilities with the roadway network and with the users of those links.

3. **Update Process**

This Update is being conducted by PAG with guidance from the Freight Advisory Task Force (FATF). Membership on the Task Force is “continuously open” meaning that no one who expresses a desire and a commitment to participate will be turned away, even after the Study is under way.

Eleven major tasks were involved in the IMSP Update process

1. Collect and integrate any related intermodal plans, e.g. RASP, rail studies, State Rail Plan, Bike and Pedestrian Plan, Transit Study, TIA Master Plan
2. Inventory and evaluate existing intermodal system components
3. Update PAG region demographics
4. Revise/re-create desired maps
5. Collect and analyze available freight data
6. Update deficiencies noted in previous plan and status of recommendations
7. Identify opportunities and constraints
8. Develop updated recommendations
9. Compile final draft Plan
10. Process final draft Plan through adoption process
11. Finalize Plan document and arrange printing and distribution

Careful examination of the state level intermodal management system will be conducted to coordinate and avoid overlap and duplication of efforts.

The IMSP Update will also serve as an information supplement to the educational outreach that is already under way for the RTP 2030 update effort. Work on the public participation outreach for the major RTP 2030 update has begun and will be continued in 2005.
4. Status of Projects From Prior Intermodal System Planning

These section lists the progress made since September 1995 toward implementation of specific projects identified in the 1995 IMSP. As is shown, all projects have been completed, thus enhancing intermodal capability in the region. The intermodal improvement projects shown below, and their estimated construction costs, are listed in Table 6-2 of the original 1995 IMSP report.

**Geometric/Signal Improvements**

- Driveway Radii at Congress Street/Fourth Avenue: **Completed**
- Country Club Rd extension/realignment at Tucson International Airport: **Completed**
- Ajo Way/Dodge Boulevard Left Turn Lane: **Completed**
- Refinery Way/Dodge Boulevard pavement improvements: **Completed**
- Fairland/Campbell pavement improvements: **Completed**
- Technical Drive/Alvernon Way pavement improvements: **Completed**
- Signal Warrant Studies at Grant/Dragoon: **Completed**

**Roadway Drainage Improvements**

- State Highway 286: **Completed**
- Toole Avenue by Amtrak Terminal: **Completed**

**Pedestrian/ADA Improvements**

- Greyhound Terminal Along Congress Street: **Completed**
- Amtrak Terminal: **Completed**
- TIA – Eastbound Sidewalk to Tucson Boulevard: **Completed**
- TIA – Additional Parking Stall for Side Loading Vans: **Completed**

**Pavement/Overlay**

- Dodge Boulevard/47th Street: **Completed**
- State Highway 286: **Completed**

**F. Goals**

Identification of specific goals is essential in planning for a successful intermodal management system. Adequacies and deficiencies of the IMS are recognized through the evaluation of goals. Goals for the PAG IMS are as follows:
• **Accessibility:** Provide an intermodal management system that is accessible for freight and passengers, strategically integrating facilities with the transportation system.

• **Efficiency:** Foster the efficient movement of people and goods by eliminating barriers and inefficiencies between transportation modes.

• **Connectivity:** Offer the widest range of transportation options by delivering more transfer opportunities and convenient access to differing modes.

• **Safety:** Give priority to projects that enhance and improve the safety of users of intermodal facilities while facilitating higher usage.

• **Economically Viable:** Advance an intermodal management system that supports economic growth and diversification, collaborating with regional, state, and national tourism, trade, and industry concepts.

### G. Performance Measures

Performance measures were developed to help determine how well the PAG Intermodal Management System is currently operating in relation to each of the goals noted above. Through this process, shortfalls in the IMS can be identified (Chapter 4), and the results of this evaluation used to formulate system recommendations (Chapter 5).

#### 1. Pedestrian & ADA Access (Passenger)

Addresses the presence and continuity of sidewalks between the facility and the transfer point, in addition to other facilities in the area. The facilities should also meet the requirements of the Americans with Disability Act (ADA) by providing access to the facility for disabled persons. Examples include wheelchair ramps or depressed curbs.

**Data Collection:** Field visits.

**Standards:**
- **Good:** Provisions have been made for a continuous, ADA accessible sidewalk from the passenger facility to the transfer point. Sidewalk is in good repair, providing complete access and meets safety requirements.
- **Fair:** Sidewalk is present, but not continuous and/or needs some repair. ADA provisions have been made for only a portion of the sidewalk between the facility and the transfer point.
- **Poor:** No sidewalk present and/or no provisions have been made for ADA access.

**Goals addressed:** All
2. **Roadway Access (Freight)**

This measure identifies problems on the access road that might discourage or limit use of the facility.

*Data Collection:* Field visits, reports, surveys and consultation with facility management

- **Congestion (LOS)**

  *Standards:*
  - Good: LOS A – LOS C
  - Fair: LOS D – LOS E
  - Poor: LOS F

- **Pavement Condition**

  *Standards:*
  - Good: Little to no alligator cracks, rutting, or potholes.
  - Fair: Some alligator cracks and/or rutting less than ½ inch. Pot holes are present, but are superficial.
  - Poor: Lots of deep cracks and/or rutting equal to or more than ½ inch, and/or potholes.

- **Striping/Signing**

  *Standards:*
  - Good: Clearly visible for most of the roadway.
  - Fair: Not clearly visible or missing for some of the roadway.
  - Poor: Missing for most of the roadway.

- **Drainage**

  *Standards:*
  - Good: Drainage facilities (gutter, curb and gutter, catch basins, etc.) are present and clean.
  - Fair: Drainage facilities are mostly present and some debris is present.
  - Poor: Little to no drainage provisions and/or full of debris.

3. **Highway Network Access (Freight and Passenger)**

Evaluation of the nearest arterial street (major/minor) to the intermodal facility. Distance and travel time between the facility and the arterial street are addressed. For trucking facilities, the distance and time between the terminals and the Interstate is documented.

*Data Collection:* Field investigations and maps.

*Standards:*
- Good: Distance is less than or equal to ¼ mile and the average travel time is less than or equal to 5 minutes.
Fair: Distance is greater than ¼ mile, but average travel time is less than or equal to 5 minutes; or distance is less than or equal to ¼ mile, but average travel time is greater than 5 minutes.
Poor: Distance is greater than ¼ mile and the average travel time is greater than 5 minutes.

4. **Mode Type (Passenger)**

Availability of different modes at an intermodal facility is identified in this criteria. The ratings are based on a facility’s ability to accommodate more than one mode of transportation. For example, a facility that has automobile parking and bike lockers for passengers using the fixed-route bus system would receive a higher rating than a facility that accommodates only automobiles.

*Data Collection:* Field visits and consultation with public and private officials.

*Standards:* Good: Accommodates 3 or more modes at its fullest ability.
Fair: Accommodates 2 modes at its fullest ability.
Poor: Accommodates cars only.

5. **Frequency of Connection (Passenger)**

Evaluates a facility by the number of trips per hour for passenger facilities. A variety and assortment of connection times tend to increase facility usage. Although taxi and shuttle services are provided at most of the passenger facilities, these services (demand-response services) are not included in the Study.

*Data Collection:* Review of schedules and consultation with operators.

*Standards:* Good: 15 trips/hour or more
Fair: From 8 to 14 trips/hour
Poor: Less than 8 trips/hour

6. **Reliability of Connection (Passenger)**

This measure analyzes how reliable various modes are in meeting scheduled times. The reliability of a connection is another factor in determining the responsiveness of a user to a mode type.

*Data Collection:* Field investigations and consultations with operators.

*Standard:* Good: Connection meets schedule 90% or more of the time.
Fair: Connection meets scheduled times 60% to 90% of the time.
Poor: Connection meets schedule less than 50% of the time.
7. **Difficulty of Transfer (Passenger)**

Evaluates the distance between the intermodal facility and the transfer point. For example, the distance between a train station and a transit center.

Data Collection: Field visits and maps.

Standard:  
Good: Less than ⅛ mile  
Fair: From ⅛ mile to ¼ mile  
Poor: More than ¼ mile

8. **ADA Accessible Vehicles (Passenger)**

Measures how well modes used for passenger travel meet the requirement of ADA.

Data Collection: Field visits and consultation.

Standard:  
Good: All vehicles are equipped and maintained in compliance with ADA requirements, per the operator.  
Fair: Most vehicles are equipped and maintained in compliance with ADA requirements, per the operator.  
Poor: Vehicles are not equipped and/or poorly maintained, not in compliance with ADA requirements, per the operator.

9. **Limitations of Usage (Freight and Passenger)**

Regulations and restrictions that impact the operation of an intermodal facility and/or limitations on modes being able to use the facility. Restricted parking at a passenger facility and weight limits on residential or principal streets are a few examples.

Data Collection: Consultation with operators of the intermodal facility.

Standard:  
Good: No regulations or restrictions identified that negatively impact the operation or use of the facility.  
Fair: Regulations and/or restrictions exist, but the negative impacts on operations and use are low.  
Poor: Regulations and/or restrictions exist and negatively impact the operations and use of the facility.

10. **Physical Limitations (Freight)**

Physical Limitations that impact the operation of an intermodal facility and/or limits modes being able to use an intermodal facility. This includes traffic control at the nearest major intersection, curb radii on access roads, and
vertical clearance of structures over access roads serving freight. Physical limitations imposed by ports of entry as a result of the amount of overflow onto local streets and the number of trucks processed at the inspection areas are also evaluated.

Data Collection: Field investigations and consultations with management and officials.

- **Traffic Control**
  
  **Standard:**
  
  **Good:** Traffic control device meets MUTCD standards based on field investigation.
  
  **Poor:** Traffic control device does not meet MUTCD standards or does not exist, based on filed investigation.

- **Curb Radius**
  
  Access roads with a curb radius of 40 feet or more are considered acceptable for truck turning movements.

  **Standard:**
  
  **Good:** Curb radii are 40 feet or more
  
  **Poor:** Curb radii are less than 40 feet

- **Vertical Clearance**
  
  14 feet is the minimum established height requirement for structures over a roadway. Structures over a rail system should be 22 feet or more high.

  **Standard:**
  
  **Good:** Structures located on roadways used by trucks have a vertical clearance of 14 feet or more.

  Structures over the rail system in the study area have a vertical clearance of 22 feet or more.

  **Poor:** Structures located on roadways used by trucks have a vertical clearance less than 14 feet.

  Structures over the rail system in the study area have a vertical clearance less than 22 feet.

- **POE Overflow**

  Performance of a port of entry (POE) is a function of the number of vehicles that can be processed through with only “normal” processing delay. Overflow indicates the processing capacity has been exceeded. Overflow causes delays that are excessive.
Standard: Good: Overflow less than 10% of the time.
Fair: Overflow 10% to 40% of the time.
Poor: Overflow more than 40% of the time.

• Number of Trucks Processed per Hour

Measures the efficiency of the POE’s system for processing trucks. The POE is governed first by the availability of employees to staff an additional lane. If staff is available, an additional lane is opened if the queue of trucks is ¼ mile or more in length.

Standard: Good: Queue is less than ¼ mile in length 90% of the time.
Fair: Queue is less than ¼ mile in length 60% to 90% of the time.
Poor: Queue is less than ¼ mile less than 60% of the time.

11. Space Availability (Freight and Passenger)

Addresses the availability of space for accommodating traffic entering and exiting the facility. A facility that does not have adequate space to handle the amount of traffic using their facility may be affecting traffic operations on the access road and around the facility.

Data Collection: Field visit and consultation with management.

Standard: Good: Space available 90% of the time.
Fair: Space is available 65% to 90% of the time.
Poor: Space is available less than 65% of the time. Overflow of vehicles is on the access road.

12. Number of Access Points (Freight and Passenger)

Inventory of the number of driveways into the facility.

Data Collection: Field visit.

Standard: Good: Two or more access points.
Fair: One access point.

13. Facility Condition (Passenger)

The cleanliness and appearance of the facility is evaluated. The condition and maintenance of an intermodal facility may influence a user’s decision to use a facility for an alternative mode of travel. A well-maintained facility is more likely to attract users and give the perception that the facility is relatively safe.
Data Collection: Field visit.

Standard:  
**Good:** Little to no trash or graffiti, smooth facility pavement conditions and striped to delineate parking.
**Fair:** Moderate amount of trash and/or graffiti, and facility pavement conditions and striping are adequate.
**Poor:** Very trashy and/or a lot of graffiti, and/or facility pavement conditions and striping are poor.

14. **Amenities (Passenger)**

Identifies and rates the features of a facility that might be effective in attracting users. Amenities that are present for the necessity and safety of passengers will be rated higher than those provided solely for the convenience of passengers.

Data Collection: Field visit.

<table>
<thead>
<tr>
<th>Standard</th>
<th>High</th>
<th>Moderate</th>
<th>Low</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lighting</td>
<td>Lighting</td>
<td>Shelter w/bench</td>
<td>Vending Machine</td>
</tr>
<tr>
<td>Security</td>
<td>Security</td>
<td>Bike Racks/lockers</td>
<td>Stores</td>
</tr>
<tr>
<td>Personnel</td>
<td>Personnel</td>
<td>Bench</td>
<td>Food Service</td>
</tr>
<tr>
<td>Phone</td>
<td>Phone</td>
<td>Restrooms</td>
<td>Ticket booth</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Schedule info</td>
<td>Newsstands</td>
</tr>
</tbody>
</table>
Chapter 2 - Inventory

A. Study Area

The study area for the IMS Plan Update is shown in Figure 2-1. The area encompasses all of Pima County, with the majority of the facilities inventoried for this Update located in the Tucson Metropolitan Area. The Nogales-DeConcini (formerly Nogales-Downtown) and Nogales-Mariposa Ports of Entry (POE) in Santa Cruz County are included because of their very direct impact on the transportation facilities in Pima County.
c. **Inventory of Existing Facilities**

The location of transportation intermodal facilities (motorized/non-motorized) and major system connections in Pima County were identified and inventoried to describe the type of services provided by each transportation mode and the physical characteristics of the facilities. This information will be used to develop recommendations for improvements to the transportation system for more efficient transfers of passengers and goods.

1. **Passenger Facilities**
   a. **Air**

   The PAG Regional Aviation System Plan (RASP) assessed intermodal opportunities and capabilities of the region's airports, with emphasis on Tucson International Airport. The system of airports covered by the PAG RASP is shown below:

   **Figure 2-2**
   
   **PAG RASP Airports**

   **Tucson International Airport (TIA):** TIA is owned by the City of Tucson and operated by the Tucson Airport Authority (TAA). Tucson International is located on Tucson Boulevard, approximately 1/2 mile south of Valencia Road and approximately 10 miles from the City’s center. It ranked as the 63rd most active commercial airport in the nation by the Federal Aviation Administration (FAA), operating with two primary runways and one crosswind runway. TIA covers 7,930 acres with 26 terminal aircraft gates, and an additional 2 gates at the International Building. Privately owned hangars house 240 aircraft, and TAA and its tenants offer tie down positions for another 350 general aviation aircraft.
The airport's primary operation is commercial passenger service. Statistics for passenger service are provided below for 2003:

- Passenger Arrivals/Departures: 3,508,868
- Aircraft Operations: 246,682
- Daily Departures: 69 avg.
- Daily Seats Used: 6,571
- Seats Available: 7,400

### Airlines Serving Tucson International Airport 2003

| • AeroCalifornia | • Frontier |
| • Aerolitoral | • Horizon |
| • Alaska | • Northwest |
| • American | • SkyWest |
| • America West | • Southwest |
| • Continental | • United |
| • Delta |

### Nonstop Destinations (Connections to more than 121 destinations.)

| • Albuquerque | • Minneapolis |
| • Atlanta | • Phoenix |
| • Chicago | • Portland |
| • Cincinnati | • Salt Lake City |
| • Dallas | • San Diego |
| • Denver | • San Jose |
| • Houston | • Seattle |
| • Las Vegas | • Hermosillo, Mexico |
| • Los Angeles |

### Top 10 Origination/Destination Markets

| • Los Angeles | • Seattle |
| • Las Vegas | • Denver |
| • San Diego | • San Jose |
| • New York/Newark | • Oakland |
| • Chicago | • Washington D.C. |
Parking

TIA offers short- and long-term terminal parking. The airport also offers a Park ‘N Save lot located on Corona Drive between South Tucson Boulevard and South Country Club. Park ‘n Save is securely fenced, lighted, and patrolled by the TAA Police Department. Shuttles operate continuously, 24 hours a day and have wheelchair lifts.

Persons meeting arriving passengers have been observed frequently circling the roadway in front of the terminal at Tucson International Airport, talking on their cell phones. To alleviate congestion and maintain safety, the Tucson Airport Authority opened a special parking lot in November 2004, where people picking up visitors can wait – for up to 30 minutes - for free.

Dubbed **Phone & GO**, the parking lot can accommodate about 40 cars at once and is located just west of the terminal on Airport Drive – between S. Plumer Avenue and S. Tucson Blvd., the roadway that circles around in front of the terminal complex.

**Figure 2-3**

Phone & Go Lot
Ground Transportation

Transportation options include rental cars, hotel shuttles, shared ride vans, City bus and taxis. Rental car counters and a three-level rental car parking garage are located immediately adjacent to the main terminal. Seven rental car agencies are located at TIA. They include:

| • Alamo       | • Enterprise |
| • Avis        | • Hertz      |
| • Budget      | • National   |
| • Dollar      |              |

All departing shuttles, vans, buses and taxis are located on the commercial roadway on the lower level in front of the terminal. Many hotels offer customer shuttles in providing complimentary transportation to/from TIA for their guests. Arizona Stagecoach operates shared-ride service for each arriving flight. Service includes transportation to hotels, resorts, the University of Arizona, and business or residence locations. In addition, Sun Tran, Tucson’s public bus system, provides service to and from TIA every hour, and taxi service is provided by three companies under contract with TAA:

| • AAA Airport Taxi | • Yellow Cab |
| • Allstate Cab     |              |

Light Rail Access Reserved

To assure recommended development options do not preclude the potential for a regional light rail system, the TIA Master Plan identified an access corridor. The existing roadway access corridor along Tucson Blvd and into the existing terminal complex is the preferred location for a connection to a citywide light rail system, which, if developed, will best serve the needs of the traveling public.
TIA Performance Evaluation

<table>
<thead>
<tr>
<th>Ped/ADA Access</th>
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<tbody>
<tr>
<td>Hwy Network Access</td>
<td>5</td>
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<tr>
<td>Signage</td>
<td>5</td>
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<tr>
<td>Mode Type</td>
<td>5</td>
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<td>Frequency</td>
<td>5</td>
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<tr>
<td>Reliability</td>
<td>5</td>
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<tr>
<td>Difficulty</td>
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<tr>
<td>ADA Veh.</td>
<td>5</td>
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<tr>
<td>Limitations</td>
<td>5</td>
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<tr>
<td># Access Pt.s</td>
<td>5</td>
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<tr>
<td>Space Availability</td>
<td>5</td>
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<tr>
<td>Condition</td>
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</tr>
<tr>
<td>Amenities</td>
<td>5</td>
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<tr>
<td>Total</td>
<td>63/65</td>
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<td>%</td>
<td>97%</td>
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</table>

Comments: Tucson International Airport is in the midst of a multi-year expansion project— to be completed in 2005 — that will add the capacity needed to serve southern Arizona's growing economy. The current project, in conjunction with future plans to expand the concourses, will take care of the community's aviation needs for the next 20-30 years. Completed projects such as enhanced architecture, updated technology, improved access, and overall terminal expansion have enhanced the overall operation of the facility.

One minor issue regarding pedestrian/ADA access was detected in the field survey. The west side of the access road (Tucson Blvd.) leading to the facility did not provide a fully accessible sidewalk to the airport’s passenger facility.

Key Notes: The Tucson International Airport Master Plan Update has been approved by the Authority Board and put in place to guide the fulfillment of present and future needs of TIA’s facilities. Therefore, this report focuses on issues outside of the airport, in particular, intermodal access.

PAG staff and other key members of the transportation community were key participants in the Project Advisory Committee overseeing the progress of the TIA Master Plan Update. Comments and recommendations related to the passenger facility were delivered through this channel.

IMS Recommendation

- Provide a crosswalk and an ADA accessible ramp that allows a person to safely cross the access road and utilize the ADA-accessible sidewalk (The east side of the access road currently offers a fully accessible sidewalk to the passenger facility).

b. Park-and-Ride Lots

Together, the region’s public transportation providers serve 23 park-and-ride lots that are distributed along bus routes throughout the region. Sun Tran serves 20 lots while the University of Arizona's CatTran shuttle routes serve the other three. Most of these facilities are privately owned lots, where the owner provides free parking for transit patrons. Figure 2-4 shows the location of each lot:
The List of Lots, with their location is shown below, in Table 2-1.
Use of the park-and-ride lots varies substantially by location based on a one-day survey of capacity and demand undertaken in January 2003. For example, there was no use of the lots at La Cholla/San Marcos and 22nd Street/Randolph; however, full use of capacity was occurring at the Greasewood/Anklam and Drexel/Calle Santa Cruz lots. The lack of available capacity at these lots indicates that some patrons may be discouraged from using the facility.

As noted above, three park-and-ride lots are available to those using the University of Arizona’s CatTran service. However, those parking at these lots are required to have parking permits issued by the University. Most of the Park n Ride lots (16 of 23) have less than 50 spaces. In addition, there is no express bus connection at most of the park-and-ride lots. Sun Tran Express Routes 102, 105, 162, 180, and 186 serve park-and-ride lots; however, none of the lots served have capacity greater than 50 spaces. Only 2 of the 23 total lots have more than 100 parking spaces.
Park N’ Ride Performance Evaluation

<table>
<thead>
<tr>
<th>Ped/ADA Access</th>
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<tbody>
<tr>
<td>Hwy Network Access</td>
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<td>Signage</td>
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<td>Mode Type</td>
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<td>Frequency</td>
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<tr>
<td>Reliability</td>
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<tr>
<td>Difficulty</td>
<td>5</td>
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<tr>
<td>ADA Veh.</td>
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<td>Limitations</td>
<td>3</td>
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<tr>
<td># Access Pt.s</td>
<td>5</td>
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<tr>
<td>Space Availability</td>
<td>3</td>
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<tr>
<td>Condition</td>
<td>3</td>
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<tr>
<td>Amenities</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>46/65</td>
</tr>
<tr>
<td>%</td>
<td>72%</td>
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</tbody>
</table>

**Comments:** In general, park-and-ride lots are relatively informal, in that they are in an established parking lot of an entity such as Pima College. All that is located there are parking spaces. There are a few lots, such as the City-owned lot at Golf Links and Kolb, that have bike lockers, a shade ramada, water, and other amenities.

**IMS Recommendations**
- Improved maintenance
- Improved signage
- Improved site access
- Improved site security
- Improved amenities (shade, lights, phones)

**c. Amtrak/Union Pacific Downtown Depot**

The National Railroad Passenger Corp, or Amtrak, is the nation’s primary provider for interstate and commuter rail travel service. Amtrak serves more than 500 stations in 46 states and operates over 22,000 route miles. In fiscal year 2003, Amtrak transported more than 24 million passengers, an all-time record.

The Tucson Amtrak station recorded a ridership of 25,128 intercity passengers in 2001. The “Sunset Limited” train runs through Tucson, trekking coast-to-coast from Los Angeles to Orlando, Fla. Amtrak provides three trains per week in each direction. On Tuesdays, Thursdays and Saturdays westbound service is scheduled to leave Tucson at 9:57 p.m. The westbound trains serve Maricopa (near Phoenix), Yuma, Palm Springs, Ontario, Pomona, and Los Angeles (Union Station). On Mondays, Thursdays, and Saturdays, eastbound service leaves Tucson at 9:40 am. Major cities served by eastbound trains include El Paso, San Antonio, Houston, and other major destinations east of Texas.

The Tucson station is located at 400 E. Toole Ave. inside the Historic Union Pacific Downtown Depot. The facility is situated east of the Ronstadt (Sun Tran Bus) Transit Center and north of the current Greyhound Bus terminal. The Historic Downtown Depot’s renovation to its original 1941 appearance is complete, and the facility is now fully ADA accessible. The arcades of the main Depot have been reopened and mark the primary pedestrian route along the facade. Vans, taxis, buses and private vehicles also have improved accessibility.

Depot restoration and enhancements, in addition to land use improvements in the eastern downtown area, are all part of an intermodal center concept called the Depot Plaza. The Depot Plaza will complement the Amtrak and Sun Tran transit terminals by
featuring a new and relocated Greyhound Bus station, a new 4th Avenue pedestrian underpass, a trolley stop, transportation museum, parking, and commercial/housing/retail space. In addition to Amtrak, the Depot building is programmed to house Arizona Shuttle, Old Pueblo Trolley, and possible future high-speed rail. Shared facilities would include the ticket counter, baggage storage, public areas, and a restaurant. The Historic Fourth Avenue Underpass will be converted to pedestrian access to and from Downtown Tucson while a new underpass will be built for motor vehicles, bicycles, and the trolley.

**UP Depot Performance Evaluation**

<table>
<thead>
<tr>
<th>Ped/ADA Access</th>
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<tr>
<td>Difficulty</td>
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<td>ADA Veh.</td>
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<td>5</td>
</tr>
<tr>
<td>Amenities</td>
<td>5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>59/65</td>
</tr>
<tr>
<td><strong>%</strong></td>
<td>91%</td>
</tr>
</tbody>
</table>

**Comments:** The renovation of the historic depot has made the Amtrak terminal a more desirable and safe location to access alternative transportation.

Due to low figures in nationwide ridership, the frequency of trains stopping at the Tucson terminal is relatively low, as it is with the majority of the nation.

**Key Notes:** The Downtown Tucson Intermodal Center Master Plan was adopted by Mayor and Council in 1999. The Plan is currently being updated, and is expected to confirm virtually all the elements of the existing Plan.

PAG staff and other key members of the transportation community are participants in the development and updates of the Plan. Comments and recommendations related to the Depot are delivered through this channel.

d. Transit Facilities

- **Greyhound:**
  Greyhound Lines serves Tucson with a bus terminal located between Broadway and Congress streets at the eastern edge of the downtown. Direct service is provided to Phoenix, El Paso, and Nogales with nationwide connections from those locations. About 36 buses per day serve the Tucson area. Current ridership figures are unknown, although it is estimated there are approximately 300,000 boardings per year at the Tucson downtown terminal.

The Tucson Region has a broad network of public transit services and facilities that operate on a regular basis. While Sun Tran is Pima County’s largest service provider, several other jurisdictions also provide transit services to either special populations, and/or the general public. Together, they transport nearly 16 million riders per year. There are also many private for-profit operators that provide transit service to and through the Tucson Region.
Sun Tran

Sun Tran is the largest public transit system in the Tucson Region, and one of the top 100 fixed-route systems in the United States. There are 37 local and express bus routes covering 505 miles of roadway. The fleet consists of 189 full-size buses, which are all equipped with wheelchair lifts and bike racks that hold two bikes for intermodal connections. Newer buses have automatic stop annunciation systems to serve the visually impaired.

### Table 2-2

<table>
<thead>
<tr>
<th>Summary Information for Local Public Transportation Services (2001-2002)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Sun Tran</strong></td>
</tr>
<tr>
<td>----------------</td>
</tr>
<tr>
<td>Annual Revenue Hours*</td>
</tr>
<tr>
<td>Annual Revenue Miles*</td>
</tr>
<tr>
<td>Annual Boarding Passengers*</td>
</tr>
<tr>
<td>Farebox Revenues*</td>
</tr>
<tr>
<td>Operating Expenses</td>
</tr>
<tr>
<td>Fleet</td>
</tr>
<tr>
<td>Peak Vehicles</td>
</tr>
<tr>
<td>Passengers per Hour</td>
</tr>
<tr>
<td>Passengers per Mile</td>
</tr>
<tr>
<td>Cost per Passenger</td>
</tr>
<tr>
<td>Farebox Ratio</td>
</tr>
</tbody>
</table>

1. From Sun Tran FY 2002 financial summary. Data differs from information presented in the National Transit Database.
2. From Van Tran internal reports. Because of differences in sampling methodology, these differ from the National Transit Database.
3. Provided by University of Arizona staff.
4. From Pima County Operational Reports.
5. Based upon data provided by Pima County staff. Reported ridership varies slightly from annual totals reported Table 3-3. Handi-Car, the contractor for the service, has a pool of 15 vehicles available for para-transit service. Cost per passenger includes capital; other systems such as Van Tran do not include capital costs in this measure.
6. Provided by City of Tucson staff for calendar year 2002. Ridership levels are estimated at 4.6 million (per City of Tucson staff).
7. Provided by Oro Valley staff.
8. In thousands.

Sun Tran service operates seven days a week, with service throughout the City of Tucson, South Tucson, and some major corridors into Marana and unincorporated Pima County. Limited weekday service is provided to Oro Valley along Oracle Road. In 2003, Sun Tran served over 15 million passenger trips throughout the Tucson metro area. Approximately 1.83 million of those trips were transfers. Passenger boarding activity is dispersed throughout the Sun Tran system with the highest levels focused on the region’s urbanized core.

The Sun Tran system is owned by the City of Tucson, including all the equipment and facilities, while day-to-day operations are conducted by a private management firm. All services operating outside the City limits are provided through intergovernmental agreements (IGAs) with the affected jurisdictions.
Sun Tran operations are funded through a combination of farebox revenues, state lottery funds, federal capital grants, and city-general fund revenues. Tucson does not have a dedicated funding source for transit.

Transit Centers

The Sun Tran route system is built around three major transit centers. The downtown Ronstadt Transit Center is the busiest, serving 14 major Sun Tran routes, plus 3 TICET routes (which stop on the west edge of the property). It handles about 8,500 boardings each day. The three-acre facility is located just across the street from the recently renovated Intermodal Depot Center where the Amtrak station is located. The Greyhound terminal is located just one block southeast.

The Roy Laos Transit Center, located near South 6th Avenue and Irvington, is the second largest, serving 12 Sun Tran routes, plus three Pima Rural Transit routes. It handles just over 3,700 boardings each day. The Center has many passenger amenities and is fully ADA accessible. It is located next to a busy neighborhood recreation center and health clinic.

Tohono Tadai Transit Center is located on Stone Avenue next to the Rillito River, serves nine Sun Tran routes and has about 1,600 passenger boardings each day. It is located next to the Tucson Mall and is surrounded by many large retailers. Both the Laos and Tohono Tadai transit centers operate a modified timed transfer with many routes arriving and departing within a common transfer window.

While Sun Tran staff believes that more transit centers are needed to facilitate the expansion of fixed route services into new neighborhoods, they only plan to move forward with a small facility at Udall Park until finances allow service levels to increase. None of the region’s other transit providers operates transit centers.

<table>
<thead>
<tr>
<th></th>
<th>Ronstadt</th>
<th>Laos</th>
<th>Tohono</th>
<th>Bus Stops</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ped/ADA Access</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Hwy Network Access</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>N/A</td>
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<tr>
<td>Signage</td>
<td>3</td>
<td>3</td>
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<td>N/A</td>
</tr>
<tr>
<td>Mode Type</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Frequency</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>N/A</td>
</tr>
<tr>
<td>Reliability</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>N/A</td>
</tr>
<tr>
<td>Difficulty</td>
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<td>N/A</td>
</tr>
<tr>
<td>ADA Veh. Access</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Limitations</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>N/A</td>
</tr>
<tr>
<td># Access Pts.</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>N/A</td>
</tr>
<tr>
<td>Space Availability</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>N/A</td>
</tr>
<tr>
<td>Condition</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Amenities</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>63/65</td>
<td>63/65</td>
<td>63/65</td>
<td>19/25</td>
</tr>
<tr>
<td>%</td>
<td>97%</td>
<td>97%</td>
<td>97%</td>
<td>76%</td>
</tr>
</tbody>
</table>
Bus Stops
Apart from the three major transit centers, the University of Arizona Mall records the largest number of average weekday boardings of any Sun Tran stop. The Speedway and Broadway corridors experience strong passenger activity. Other corridors, most notably Campbell, Oracle, 6th Avenue, and Alvernon, have multiple stops with strong passenger activity. Transit stops with significant ridership include: the Cherrybell center located on the UA campus; the Pima College East Campus located near Camino Seco and Irvington; and the Pima College West Campus located at Anklam and Greasewood roads. These stops attract significant student ridership Monday thru Saturday and in the evenings.

The top 200 Sun Tran boarding locations are shown in Figure 2-5 (next page). As can be seen, concentrations occur especially along Speedway, and in the University of Arizona area.

- Pima Rural Transit
  This service provides fixed-route transit service to residents living in rural areas of Pima County. The system is designed to transport residents to jobs, major shopping centers, and medical facilities within the Tucson metro area by connecting with Sun Tran at major transfer centers.

  There are a total of four routes serving northwest Marana; the Tucson Estates senior community; the San Xavier area; and the towns of Sells and Ajo along State Route 86 (far west of Tucson). Service is limited to regular business hours Monday thru Friday. The San Xavier Route also runs on Saturday. In 2003, Pima Rural Transit served almost 69,000 passenger trips.

  Pima Rural Transit has its own designated bus stops along the four routes. All routes connect to the Roy Laos Transit Center, except for the Marana route which has a connection to a Sun Tran stop near the Ina/Thornydale intersection.

  Pima Rural Transit is administered by the Pima County Department of Transportation. Service is provided through multi-year contracts with private operators. The County owns only one of the vehicles used - all other vehicles are owned by private operators.
Cat Tran is the fixed-route circulator shuttle system serving the University of Arizona Main Campus and the University Medical Center. The free *(for U of A parking permit holders)* system is designed to reduce traffic congestion by transporting students, faculty, staff, and visitors to the campus core from nearby parking garages and surface lots. The Cat Tran system has seven fixed routes: two that circulate around the campus core, and five that connect the main campus with remote off-campus parking lots. All routes connect with numerous Sun Tran stops for convenient transfers. The system has a fleet of 16 ADA-accessible shuttle buses running every 15 to 30 minutes Monday thru Friday.
Cat Tran’s ridership has grown rapidly in recent years due to increasing student enrollment and the rising cost of on-campus parking. In 2003, Cat Tran served almost 400,000 passenger trips. The trend will continue as the campus continues to expand, with few new parking facilities. Cat Tran is owned and operated by the U of A Parking and Transportation Services Department, and is funded mostly through parking revenues and fees.

- **TICET (Tucson Inner-City Express Transit)**

  TICET is a downtown circulator shuttle system designed to reduce traffic congestion and parking demand in the core downtown area by offering free transit service to and from peripheral and remote parking facilities. Service is provided on three fixed routes Monday through Saturday, with vehicles running every 15 to 30 minutes.

  The system has a fleet of 13 lift-equipped shuttle vans and its own signed stops, which are separate from Sun Tran bus stops. All routes serve the Ronstadt Transit Center where there is a designated stop along 6th Avenue. In FY 04, TICET served approximately 125,000 passenger trips.

  The City of Tucson’s parking management group, known as TEAM (Transportation Enterprise Area Management) administers the service. The system is funded through a variety of parking revenues including meters, citations, off-street parking charges, and on-street permit sales.

- **Van Tran**

  Van Tran is the City of Tucson’s complementary paratransit service for elderly and disabled persons qualified under the Americans with Disabilities Act (ADA) who cannot use the fixed route Sun Tran system. On average, Van Tran provides approximately 340,000 passenger trips each year with a peak service fleet of 56 lift-equipped vans.

  The Van Tran service area is currently a 3/4 mile buffer around each Sun Tran bus route within the Tucson region. This area includes most of the Cities of Tucson and South Tucson, and parts of unincorporated Pima County along major corridors. There are plans for major service expansion in 2005 to meet the growing demand of seniors and people with disabilities living in the Tucson region.
The City of Tucson owns all Van Tran facilities and equipment, while a private management firm operates the system.

- **Pima Transit/ HandiCar**

Pima Transit is a door-to-door paratransit service provided by Pima County to persons with disabilities living outside the Tucson City limits, but within the Tucson metro area. Eligible riders include people sixty years of age and older who live within the special needs transportation service area and have been certified by the ADA eligibility office.

Pima Transit is provided by HandiCar, which is the private company currently holding the service contract with the County. HandiCar operates a fleet of small cut-away and extended vans, which are equipped to load and unload wheelchair passengers of all ages and abilities. In 2003, Pima Transit provided almost 61,000 passenger trips throughout the Tucson region.

- **Oro Valley Coyote Run**

Coyote Run provides door-to-door paratransit service to elderly and disabled residents of the Town of Oro Valley. In order to use the service, residents must be 62 years of age or older who are transportation dependent, and/or residents who are eligible under ADA.
Coyote Run provides trips to all areas within Oro Valley, parts of unincorporated Pima County, and most of central Tucson using a fleet of 7 vans equipped with wheelchair lifts. The Town of Oro Valley owns and operates Coyote Run, which provides nearly 13,000 passenger trips a year to over 746 eligible riders. The system has grown significantly over the last several years and will continue to do so with the continued influx of senior residents.

- **Old Pueblo Trolley (OPT)**

Old Pueblo Trolley is Tucson’s historic passenger rail line that operates with two classic electric streetcars on a 1.5 mile single track. OPT had an annual ridership of approximately 26,500 passenger trips in 2003. Beginning in the heart of the Fourth Avenue Business District, the trolley runs north on 4th Avenue, passing a variety of shops, bars, and restaurants. Turning east onto University Boulevard the trolley passes beautifully restored homes, boutiques, and cafes, terminating near the University Marriott Hotel and the Main Gate of the University of Arizona, at Park Ave.

Orange traffic cones, placed at various locations on the route, mark the passenger stops. The storage area (the Old Pueblo Trolley Car Barn) is located on East 8th Street at the southwest end of the line. Service is provided on Friday nights, Saturdays and Sundays with trolleys running every 15 to 20 minutes.

The system is operated by Old Pueblo Trolley Inc., an all-volunteer nonprofit organization dedicated to education and the preservation of public transportation history in Tucson and Arizona. OPT Inc. receives local, state, and federal grants for the purchase of historic transit vehicles as well as for rail system extensions and upgrades.
Volunteers provide all repairs and service operations. Future plans call for the extension of the Trolley line into the downtown area.

- Private Operators

*Arizona Shuttle*: Several private for-profit enterprises offer general public transportation to/from Phoenix’s Sky Harbor International Airport. For example, the *Tucson-Phoenix Shuttle* provides several trips a day between Tucson and Sky Harbor Airport. Each operator has their own pick-up points in central Tucson, which are not coordinated with any of the public transit services.

There are also dozens of taxi and shuttle van operators providing transportation within the region and to/from Nogales for a nominal fee. Most of the Nogales shuttle operators park their vehicles along South 6th Avenue between Ajo and Irvington, to pick up or drop off passengers.

2. Freight

a. Air Cargo Facilities

*Tucson International Airport (TIA)*: Air cargo uses two different methods at TIA that are defined by their means of transportation: integrated carrier cargo and belly cargo. Airlines carrying cargo are shown in Table 2-3. Total TIA enplaned and deplaned cargo for 2003 are shown in Table 2-4.

*Integrated Cargo Facilities*

Integrated cargo carriers provide air transportation as part of a single, seamless, door-to-door product that includes pick-up, transportation and delivery, insurance, tracing, customs clearance, and other functions. United Parcel Service (UPS), Federal Express, Airborne Express, Emery Worldwide and DHL are the current integrated cargo carriers at TIA. These carriers operate aircraft that carry only cargo.

The facilities for the integrated cargo carriers are located in one general area at TIA - to the east of the passenger terminal. They are comprised of sorting facilities, aircraft ramps, and land side truck/auto parking areas (except for UPS and DHL). In 2002, 113,200 square feet of truck/auto parking space became available. Other important facts about these carriers’ operations at TIA include:

- Airborne Express – Operates out of the East Air Freight Terminal facility.
- Emery Worldwide – Operates out of its own air freight terminal.
- Federal Express – Operates out of its own air freight terminal.
- DHL – Operates minor air shipments through the General Aviation Center* and does not have dedicated freight facilities.
- UPS – Operates minor air shipments through the General Aviation Center* and does not have dedicated freight facilities.

*‘General Aviation Center’ is the area adjacent to the TIA Tower, and is usually known as the general aviation transient ramp.*
**Belly Cargo Facilities**

Belly cargo is a service of the passenger airlines that have room to carry cargo in the under-side baggage / cargo compartments of their scheduled flights. This type of cargo is typically handled by the airlines themselves, or by a third-party contractor, who may offer a variety of handling services including delivery. The United States Postal Service (USPS) is a primary user of belly cargo capacity.

Belly cargo is processed in two facilities, the West Air Freight Terminal and the East Air Freight Terminal. The combined area of these two facilities is approximately 40,000 square feet, which is used for processing and shipping belly cargo. Truck and auto parking associated with these facilities is a combined total of approximately 135,800 square feet.

The passenger airlines (Table 2-3, below) accommodate airfreight secondary to the primary activity of carrying passengers. This airfreight is carried in the available baggage / cargo space of an aircraft that would otherwise be left empty. The incremental costs of carrying belly cargo in a passenger aircraft are negligible, and include only ground handling expenses and a modest increase in fuel consumption.

The amount of belly cargo at an airport is largely dependent on the available volume and weight lift provided by the aircraft that serve the airport. At high passenger load factors there is less lift to sell for cargo because the passenger’s luggage is occupying space that could be used for cargo. The exception to this is U.S. Mail, which is often transported under contracts with the airlines, displacing other air cargo in favor of their contract commitment.

**Table 2-3 - Airlines Serving Tucson International Airport**

<table>
<thead>
<tr>
<th><strong>East Concourse</strong></th>
<th><strong>West Concourse</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>• American</td>
<td>• Alaska</td>
</tr>
<tr>
<td>• Southwest</td>
<td>• Horizon Air</td>
</tr>
<tr>
<td>• Frontier</td>
<td>• America West</td>
</tr>
<tr>
<td></td>
<td>• Northwest</td>
</tr>
<tr>
<td></td>
<td>• Continental</td>
</tr>
<tr>
<td></td>
<td>• United</td>
</tr>
<tr>
<td></td>
<td>• Delta</td>
</tr>
</tbody>
</table>
Table 2-4 - 2003 Total Cargo at Tucson International Airport

<table>
<thead>
<tr>
<th></th>
<th>2003</th>
<th>Enplaned</th>
<th>Deplaned</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Integrated Cargo (pounds)</td>
<td>20,212,553</td>
<td>37,632,730</td>
<td>57,845,283</td>
<td></td>
</tr>
<tr>
<td>Belly Cargo (pounds)</td>
<td>1,736,866</td>
<td>2,775,279</td>
<td>4,512,145</td>
<td></td>
</tr>
<tr>
<td>Combined Totals (pounds)</td>
<td>21,949,419</td>
<td>40,408,009</td>
<td>62,357,428</td>
<td></td>
</tr>
</tbody>
</table>

**TIA Master Plan Recommendations**

*Air Cargo Facilities:* The cargo facilities at TIA were determined to be sufficient for current levels of activity. The industry standard methodology for determining cargo facility requirements is based on the ratio of cargo tonnage that is processed per unit of building space available. With the amount of property available, cargo operators can double or triple the tonnage moved through existing building space. TIA has the opportunity to expand its cargo facilities without causing existing and future tenants to make these types of infrastructure investments themselves.

Near and longer term cargo building expansion to serve the Tucson air cargo market was also evaluated in the Master Plan. The selected alternative has interim cargo expansion immediately east of the existing cargo complex with the replacement cargo area off to the east end of runway 11L/29R. This option considers the need to expand the existing facilities in the near term and provides a long term cargo solution when a new passenger terminal is needed at TIA (estimated to be 20 to 30 years in the future).

The extension of the Federal Express building to the north, along with the new cargo building and apron, is essentially a mirror image of the existing cargo facilities. This has been determined to be the most efficient layout due to the possibility for incremental growth and the consolidation of these functions in the current cargo area.

*Cargo Truck Staging Area:* To address congestion of trucks remaining idle in and around the existing cargo complex, a cargo truck staging area has been included in the Plan. This staging area will consist of a paved parking surface designated for large trucks and other cargo support vehicles. The best location for the cargo truck staging area will depend on the preferred cargo development option and the other land use options in the area immediately surrounding the existing cargo complex.

*Ground Cargo:* The City of Tucson’s proximity to the Mexican border and the land available for development at TIA could make Tucson, and the area immediately surrounding the airport, an ideal location for a cross-border cargo processing facility. This facility could serve as a ground or truck cargo processing point from which cargo could be transferred to trucks bound to other parts of the U.S. or transferred to air cargo for more immediate transfer to its final destination. To provide space for this potential cargo hub operation, a parcel on airport property from Swan Road to
Craycroft Road has been identified. While there are no immediate site plans for this cargo development, the space identified should be adequate for this type of activity.

**Light Rail:** A possible light rail line has been identified in the southern portion of the airfield between the existing rail line that runs along Nogales Highway and the Bombardier facilities on airport. In the event that Bombardier becomes a rail car manufacturer for the City of Phoenix light rail system, this link to the existing rail line would allow for efficient transport to Phoenix.

**b. Pipeline Tank Farm**

*Kinder-Morgan Pipeline Terminal:* The Kinder-Morgan Pipeline Terminal, located at 3841 East Refinery Way on the northwest corner of Ajo Way and Alvernon Way, is the only transport-pipeline facility in the Tucson Metropolitan area. Over 200 trucks are served per day. The facility primarily delivers refined petroleum products. These include:

- Two grades of gasoline (unleaded and supreme unleaded)
- Diesel fuel (low and high sulfur)
- Jet-A fuel (commercial jet aircraft)
- JP-8 Fuel (military jet aircraft)
- Transmix (gas and oil mixture that is a by-product of shipping)

**c. Rail Freight Facility**

*The Port of Tucson:* The Port of Tucson officially opened for business in August of 2004, moving 169 rail-truck containers onto and off Union Pacific rail cars in its first week. The intermodal facility is within the Century Park Research Center, a manufacturing and warehousing park north of the UP main rail line, between Kolb and Wilmot roads. Containers filled with goods arrive by truck or train, perhaps to be stored for a time, and then loaded onto another truck or a train for shipment to stores, factories, or assembly plants.
The rail line utilizes tracks, warehouses and roads built on the property. The Levin family, who owns and operates the Century Park Research Center and the Port of Tucson, invested $1.7 million in infrastructure improvements alone. The Port of Tucson replaces Phoenix as the site for UP intermodal traffic. Phoenix was on a spur line off the main east-west line, which runs through Tucson, making Pima County a more efficient location for an intermodal center. The Phoenix facility closed in June of 2004.

The Century Park Research Center is registered as a Foreign Trade Zone (FTZ 174, site 2), which allows the Port to ship and receive product in bond. Foreign Trade Zone transportation and storage can equate to savings on products or materials being imported. In addition to intermodal container handling, The Port of Tucson provides the following services:

- local freight drayage
- intermodal team track services
- rail spur to truck cross-docking
- transborder truck drayage
- premium truck brokering
- leased warehouse space
- frozen storage
- build to suit warehousing
- container-yard storage
- LTL (less than truckload) & air parcel forwarding

Rail access at the Port consists of a two mile (~10,500-ft) siding, complemented by an additional 3,000-ft siding. The 3,000 foot siding branches to grade level access, dock level access, intermodal container access, and team track facilities. The rail service has been designed with expansion in mind. Rail access to additional properties and warehouse space can be facilitated.

Public warehousing scalable from 30,000 square feet to 360,000 square feet is also available. Through Tucson Frozen Storage, the Port of Tucson can provide 25,000 square feet of below 0 degrees (F) storage. This space will increase with Tucson Frozen Storage’s new facility that is currently being built.

**d. Major Roadways/Rail Line Network**

The roadway network consists of two Interstate highways and four State highways. All other roadways are locally administered streets. The Union Pacific Railroad Co. (UP) provides freight and passenger (AmTrak) trail service to the Tucson region, via the UP main east-west rail line (from the ports of Los Angeles/Long Beach to Houston) and the north-south Nogales line, connecting into the interior of Mexico. The principal roadway/rail line network for the Tucson Metropolitan area is shown in Figure 1-1.
e. Border Ports of Entries

Border Ports of Entry (POE) are responsible for daily port specific operations. There are 317 official ports of entry in the United States. Port personnel are the personal interface at the border for most cargo and visitors entering the U.S. Four ports of entry along the U.S./Mexico border in Pima / Santa Cruz Counties have been identified in the IMS Study Area due to their impacts on the PAG transportation system (Figure 2-1):

| • Lukeville | • Nogales-Marioposa |
| • Nogales-DeConcini | • Sasabe |

All crossing data for the Ports of Entry are from the Fall, 2004 Arizona Economic Indicators.

- **Lukeville**

The Lukeville POE (Figure 2-1) is located in Lukeville, Ariz, approximately 146 miles from Tucson, at State Highway 85 and the international border. The facility's total area is 24,000 square feet. The number of crossings from Mexico into the United States for the year 2003 was 1,236,547 pedestrians, and 413,994 vehicles.

- **Nogales-DeConcini (formerly Nogales-Downtown)**

The Nogales-DeConcini POE (Figure 2-1), located at 9 N. Grand Ave. in Nogales, Ariz, approximately 58 miles from the south edge of Tucson, is at the intersection of Grand Avenue and Terrace Street. It was reconstructed just a few years ago, and is a relatively small, urban facility on a total area of 4 acres. The number of crossings in 2003 was 14,810,175 pedestrians and 2,322,137 vehicles. There were no commercial truck crossings at this POE.

- **Nogales-Mariposa**

This cargo port (Figure 2-1) is the 8th busiest land cargo port in the Southwestern United States, and processed more than 1,764,300 commercial vehicles in 2003. The new Inspection Station incorporates state-of-the-art technology to expedite truck traffic without compromising security. In addition to ADOT-MVD, agencies that have staff working at the site include Federal Motor Carrier Safety Administration, and Arizona Department of Public Safety.

Governor Janet Napolitano formally dedicated a new Motor Carrier Inspection Station in March 2004 at the Nogales-Mariposa Port of Entry. The new $11 million Inspection Station project serves the southernmost gateway of the CANAMEX High Priority Corridor connecting the U.S. with Mexico and Canada. Funding partners for the project include: U.S. Customs, U.S. General Services Administration (GSA), and U.S. Department of Transportation, in addition to state funding.
Located in Sasabe, Ariz. (Figure 2-1) on State Highway 286 and the international border, this port of entry facility is approximately 68 miles southwest of Tucson. The total area of this facility is 10 acres. The number of pedestrian crossings in 2003 was 103,049. Motor vehicle crossings were 44,196 for the same year.

Federal Border Enforcement at the Ports of Entry

U.S. Customs and Border Protection (CBP) enforces the import and export laws and regulations of the federal government and conducts immigration policy and programs. The federal side of the POE facility also performs agriculture inspections to protect the United States from potential carriers of animal and plant pests or diseases that could cause serious damage to America’s crops, livestock, pets, and the environment.

U.S. Customs and Border Protection established a new frontline officer program, the CBP Officer, to serve at the Nation’s ports of entry and provide the American public, travelers and the international trade community with "one face at the border." The CBP Officer Program unified and integrated the work of approximately 18,000 inspectors from three different agencies, who came together when CBP was formed in March 2003.

The first CBP Officers were hired in late September 2003 and began training in October. In the spring of 2004, remaining Customs, Immigration, and Agricultural Inspectors converted to new Officer positions and begin cross-training in all new aspects of their jobs.

State Border Enforcement at the Ports of Entry

The Motor Vehicle Division (MVD) of the Arizona Department of Transportation carries out the State functions at the port of entry facilities. MVD provides various commercial vehicle enforcement services that work closely with federal and state agencies to ensure the safe movement of commercial vehicle traffic traveling on Arizona's highways.

The State’s mission is to ensure that all commercial vehicles operating on Arizona highways are properly credentialed, and in safe operating condition while providing efficient, fair, and friendly treatment to all visitors and residents of the State of Arizona.

MVD Commercial Vehicle Enforcement Services monitor and screen all commercial traffic entering the State of Arizona for registration, motor tax, size and weight restrictions, commercial drivers’ license requirements, insurance requirements, and motor carrier equipment safety requirements.
Chapter 3. Trends, Issues and Opportunities

A. Population

Population in the region has put an increasing burden on its transportation system as demands for expanded service and maintenance escalate. Future projections offer no signs of relief. Pima County’s Census population, as a whole, increased from 666,880 residents in 1990 to 843,746 in 2000, a 26.5% increase. Pima County accounted for 16% of the State’s population and is the second most populated county in Arizona. The July 1, 2003, estimate for Pima County, as recorded by the regional Population Planning Committee, is 910,950, of which 325,425 live within the unincorporated area. The County’s population is expected to increase to approximately 1.5 million by the year 2030.

Figure 3-1
Pima County Population Growth Forecasts

The City of Tucson had a 2000 Census count of 486,699, making it the 30th largest city in the U.S. This accounted for approximately 58% of the County’s total. The Population Planning Committee estimate for July 1 2003 is 514,725. By 2030, The City of Tucson’s population is expected to increase to over 900,000 people.
The greatest growth rates are occurring in the suburbs. From 1990 to 2000, growth and annexation in the Towns of Marana and Oro Valley outpaced other communities in our State, with population increases of 520% and 345%, respectively. The new town of Sahuarita was incorporated in 1994, where 2,159 residents were counted in a special census in 1995 and 3,242 people during the 2000 census. The Town of Sahuarita is expected to increase by over 650% between 2000 and 2010. Figure 3-1 (prior page) and Table 3-1 summarizes the population increases in the PAG region.

Table 3-1, Population Growth in Pima County

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Arizona</td>
<td>3,665,228</td>
<td>5,130,632</td>
<td>1,465,404</td>
<td>39.9</td>
<td>5,629,870</td>
<td>8,496,020</td>
</tr>
<tr>
<td>Pima County</td>
<td>666,880</td>
<td>843,746</td>
<td>176,866</td>
<td>26.5</td>
<td>910,950</td>
<td>1,506,673</td>
</tr>
<tr>
<td>Unincorporated Pima County</td>
<td>247,540</td>
<td>305,059</td>
<td>57,519</td>
<td>23.2</td>
<td>325,425</td>
<td>361,537</td>
</tr>
<tr>
<td>Tucson</td>
<td>405,390</td>
<td>486,699</td>
<td>81,309</td>
<td>20.1</td>
<td>514,725</td>
<td>915,904</td>
</tr>
<tr>
<td>South Tucson</td>
<td>5,093</td>
<td>5,490</td>
<td>397</td>
<td>7.7</td>
<td>5,550</td>
<td>6,255</td>
</tr>
<tr>
<td>Marana</td>
<td>2,187</td>
<td>13,556</td>
<td>11,369</td>
<td>519.8</td>
<td>20,600</td>
<td>96,541</td>
</tr>
<tr>
<td>Oro Valley</td>
<td>6,670</td>
<td>29,700</td>
<td>23,030</td>
<td>345.3</td>
<td>37,225</td>
<td>70,559</td>
</tr>
<tr>
<td>Sahuarita</td>
<td>1,629*</td>
<td>3,242</td>
<td>1,613</td>
<td>99.0</td>
<td>7,425</td>
<td>55,877</td>
</tr>
</tbody>
</table>

Source: U.S. Census Bureau
*1990 population estimated from Census tracts approximate to the incorporation limits of the town.
**PAG Population Planning Committee

B. Employment

Employment figures (Table 3-2) provide an insight on the strength and stability of a region’s growth potential. Between 1997 and 2003, total employment increased approximately 16.2%. The civilian labor force in Pima County totaled approximately 47% of the total estimated population in 2003. Approximately 18,400 members of the labor force, or 4.3%, were unemployed, significantly below that of the State (5.6%) and National average (6.0%).

Unemployment (Tables 3-2 & 3-3) reached a high in 2002 and job opportunities were stagnant as a result of the recession in 2001. Yet, Tucson’s economy held strong and mid-2004 figures give evidence of promising growth. The total civilian labor force has steadily grown to 432,700 members, a 1.5% increase over 2002. The 16,900 persons unemployed in 2004 have dropped below the high (20,700) of 2002, and private sector employment in Pima County (271,300) has surpassed pre-911 levels. Overall, between 2001 and mid-2004, total employment in the region has risen 3.8%. Figure 3-1 (page 3-1) further illustrates projected employment growth for the PAG region.
Table 3-2, Labor Force and Employment in Pima County, Annual Averages

<table>
<thead>
<tr>
<th></th>
<th>1997*</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004#</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Civilian Labor Force</td>
<td>362,700</td>
<td>415,100</td>
<td>426,300</td>
<td>426,000</td>
<td>432,700</td>
</tr>
<tr>
<td>Total Unemployment</td>
<td>11,900</td>
<td>14,600</td>
<td>20,700</td>
<td>18,400</td>
<td>16,900</td>
</tr>
<tr>
<td>Total Employment</td>
<td>350,800</td>
<td>400,500</td>
<td>405,600</td>
<td>407,600</td>
<td>415,800</td>
</tr>
<tr>
<td>Non-Farm</td>
<td>315,400</td>
<td>347,500</td>
<td>345,900</td>
<td>346,000</td>
<td>351,100</td>
</tr>
<tr>
<td>Private Sector</td>
<td>244,200</td>
<td>270,600</td>
<td>268,000</td>
<td>267,700</td>
<td>271,300</td>
</tr>
<tr>
<td>Government</td>
<td>71,200</td>
<td>76,800</td>
<td>77,900</td>
<td>78,200</td>
<td>79,800</td>
</tr>
</tbody>
</table>

Note: Figures are organized in North American Industrial Classification System (NAICS).
*Discontinued Standard Industry Classification (SIC) System.
#As of April, 2004

Table 3-3, Unemployment Rate Comparisons, Annual Averages

<table>
<thead>
<tr>
<th></th>
<th>1997*</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004#</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pima County</td>
<td>3.3%</td>
<td>3.5%</td>
<td>4.9%</td>
<td>4.3%</td>
<td>4.0%</td>
</tr>
<tr>
<td>Maricopa</td>
<td>3.0%</td>
<td>3.9%</td>
<td>5.6%</td>
<td>4.9%</td>
<td>4.4%</td>
</tr>
<tr>
<td>Arizona</td>
<td>4.7%</td>
<td>4.7%</td>
<td>6.2%</td>
<td>5.6%</td>
<td>5.2%</td>
</tr>
<tr>
<td>United States</td>
<td>5.0%</td>
<td>4.8%</td>
<td>5.8%</td>
<td>6.0%</td>
<td>5.6%</td>
</tr>
</tbody>
</table>

*Discontinued Standard Industry Classification (SIC) System. #As of April, 2004

Trade Initiatives

C. North American Free Trade Agreement (NAFTA)

Implemented on January 1, 1994, NAFTA formed the world’s second largest free-trade zone, bringing together 365 million consumers in Canada, Mexico, and the United States to an open market. The pact called for the gradual removal of tariffs and other trade barriers on most goods produced and sold in North America. Many tariffs were eliminated immediately, with others being phased out over periods of 5 to 15 years.

NAFTA has been a success for the U.S. and its NAFTA partners. It has contributed to more trade, higher productivity, better jobs, and higher wages. In ten years of NAFTA, total trade among the three countries has more than doubled, from $306 billion to $621 billion in 2003. That’s $1.7 billion in trade per day.

In regards to the American economy:

• U.S. agricultural exports to Mexico increased by 100.4% from 1993 to 2002.
• U.S. manufacturing output soared in the 1990s, up 44% in real terms.
• U.S. employment grew over 20 million between 1993 and 2000.
• Real hourly compensation rose by 14.7% from 1993 to 2003 for private sector U.S. workers
• U.S. manufacturing wages also increased, with real hourly compensation up by 14.4% since 1993, more than double the 6.5% increase in the 10 years preceding NAFTA
• Income gains and tax cuts from NAFTA were worth up to $930 each year for the average U.S. household of four.
• By the end of 2002, U.S. exports to Mexico of passenger vehicles and light trucks totaled $3.6 billion, 38 times greater than shipments in 1993.

For Mexico, NAFTA has resulted in expanded exports, higher wages for Mexican workers, more foreign investment, and a stronger agriculture sector. For example,

• Mexico exported $143 billion to its NAFTA partners in 2001, an increase of 232% from 1993 - twice as fast as export growth to the rest of the world.
• Growth in Mexican exports accounted for more than half of the increase in Mexico’s real national income during the period from 1993 to 2001.
• 1 of every 5 people in Mexico are employed in export-oriented jobs, and fully half of the 3.5 million new jobs generated in Mexico in 1995-2000 were a result of NAFTA and export growth
• Employment in Mexico’s export sector pays 37% more than jobs in the rest of the Mexican manufacturing sector.
• Mexican farm production increased by 50% from 1993 to 2001.

The trade production occurring between the U.S. and Mexico offers many economic opportunities for the Arizona-Sonora corridor. However, the Arizona cross-border passage has had a declining share of U.S-Mexico trade as a result of NAFTA. Over the 1994-2002 period, the Mariposa Port of Entry in Nogales, which is Arizona’s largest commercial port of entry, has steadily lost its relative share of northbound U.S.-Mexico surface trade by value. Mariposa experienced a drop from 8% to 5%, while other major North American entry ports have maintained or increased their share. This does not mean that Mariposa is not busy. Mariposa is processing far more vehicles than it was designed to in the peak seasons of the year. The Nogales-Mariposa POE processed $10.8 billion in total surface trade in 2002. Yet, trade by value has not grown at the same rate as the entire U.S.-Mexico border. While the U.S.-Mexico border has experienced a 31% increase in trade since 1998, Nogales has grown by only 5%.

Since shippers can choose which port of entry to send their trucks through, and there is congestion at the Nogales-Mariposa POE, some commercial traffic has been diverted to other locations. Each truck that goes to another trade corridor means a lost opportunity for Arizona workers to handle merchandise in warehouses, process paperwork at local customs brokerages, or convert the shipments into higher-value products at southern Arizona factories.

Therefore, it is of vital importance that officials not only improve the capacity and other infrastructure barriers of the Mariposa Port of Entry (see Cyberport - page 3-8),
but that local and regional leaders enhance the area’s intermodal and transportation systems to bring back some of those lost economic opportunities. This is significant not just in Santa Cruz County, with its fresh-produce distribution industry, but also in the Tucson region, where public officials and business people are working to create an international commerce cluster on the southeast side of the City called Puerto Nuevo (page 3-11).

(stats from Office of the United States Trade Representative)

D. CANAMEX Corridor

Background

Congress defined the CANAMEX Corridor as a high priority corridor as part of the 1995 Highway System Designation Act (PL 104-59). The path of the Corridor, beginning in Nogales, Arizona, and running through the states of Arizona, Nevada, Utah, Idaho, and Montana, where it finally enters Alberta, Canada. Specifically, in Arizona the Corridor traverses I-19 from Nogales to Tucson, I-10 from Tucson to Phoenix, and then US 93 to the Nevada border, where it connects to Interstate 15, which goes all way to the Canadian Border.

The CANAMEX Corridor Coalition (CCC), comprised of the five directors of the Departments of Transportation plus private sector representatives from each state, has a primary objective of developing and implementing the CANAMEX Corridor Plan (2001). Although the principal target of the Corridor is to establish a continuous four-lane highway linking the U.S. CANAMEX states with Mexico and Canada, the Plan provides areas of collaboration by the states with the goals of stimulating investment and economic growth in the region, and enhancing safety and efficiency within the corridor.

Hence, to complement highway infrastructure requiring nearly 1,500 lane miles at an estimated $5.8 billion over the next 30 years, the CANAMEX Corridor Plan identified four additional bold initiatives:

| • Smart Freight Corridor: | Utilize shared Information Technology Systems (ITS) to enhance safety and efficiency for both freight and tourists by providing information to the public, enforcement agencies and emergency teams. |

3 - 5
• **Smart Tourist Corridor:** Also relies on shared ITS to strengthen tourism by providing information on tourist attractions, rest areas, border crossings and licenses.

• **Telecommunications Access for Rural Areas:** Considered the essential infrastructure for economic growth in the early part of the 21st century. A broadband backbone following the corridor will give the corridor a sound regional competitive advantage.

• **Smart Process Partnerships:** Create opportunities for e-commerce and e-government to partner for greater efficiencies and savings for government, business and individuals. Areas of partnering possibilities include registrations, licensing and electronic signature.

If implemented, these initiatives will accelerate job growth by 1 million over 30 years, 11% faster than naturally occurring growth. As the realization of NAFTA moves toward fruition, the CANAMEX Corridor will broaden its ingenuity to harvest the benefits of increased trade, tourism and economic activity within the region.

**Arizona CANAMEX Task Force**

The Arizona Governor’s CANAMEX Task Force was originally established in 1998 to coordinate transportation, telecommunications, and economic development within the Corridor. In June 2003, Governor Janet Napolitano issued Executive Order 2003-19 to continue the Governor’s CANAMEX Task Force through December 2004.

The mission of the Task Force was to accelerate quality job growth based on increased trade and tourism by creating the Nation’s safest and most efficient trade and transportation corridor. Specifically, the Task Force:

- Coordinated with political subdivisions to enhance the safety and efficiency of the Corridor through strategic investment in transportation, telecommunications and economic infrastructure.

- Pursued funding sources for projects of strategic importance such as the Hoover Dam Bypass, U.S. 93 and the widening of SR 85.
• Focused on transportation, ports of entry, commerce, communications infrastructure, border issues and alliances between the American and Mexican states and the Canadian provinces of Alberta

• Identified inter-regional legislative and policy initiatives and works to support those initiatives.

• Promoted Arizona as the southern CANAMEX Gateway and center of Corridor activities in cooperation with various state agencies and communities.

**Canamex Key Accomplishments**

Below is a short list of projects that the CANAMEX Task Force aided in improving trade, commerce and tourism throughout the Arizona segments of the Corridor. For all practical purposes, these projects impact the Intermodal Management System of the Tucson region:

• **Implement Smart Tourist Corridor**: The Smart Tourist Corridor Plan ($400,000 multi-state funding) was completed in March 2004. The Arizona Office of Tourism and the Arizona Department of Transportation began a 6-month pilot to include tourism information as part of the State’s 511 system. The pilot was to determine whether this mechanism to expand real-time tourist information increases tourism and related tax revenues. Similar Tourism-Transportation partnerships are being, or will be established in the other CANAMEX states. Southern Arizona has the most to gain of the U.S. CANAMEX states when the important Mexican tourism interests get involved with this effort.

• **Fund Hoover Dam Bypass**: In 2003, roughly 60% of the project funding ($138 million of $234 million) had been secured. Utility relocation was under way and construction on the Arizona approach to the Bypass had begun. The project is now 100% funded thanks to Sen. Harry Reid (NV) and the decision by Arizona to issue bonds for its remaining portion. The bypass is on schedule to open in late 2007.

• **Upgrade US 93 to 4 lanes**: The project to upgrade 177 miles between Wickenburg and the new Hoover Dam Bypass is 35% complete. Funding to complete an additional 3% is committed in the current Five-year Transportation Plan (FY05-09). Funding for the remaining 62% has not been identified.

• **Construct New I-10/I-19 Interchange in Metropolitan Tucson**: Improving this interchange to improve traffic flow in the greater Tucson metropolitan area has been a major CANAMEX priority. **Construction of the new interchange is now complete**
• **Establish Phoenix Bypass Route:** In 2001, the need to designate a greater Phoenix bypass route for through traffic was identified to reduce congestion and improve air quality. The southern leg was defined and the project to widen 33 miles of SR 85 to 4 lanes is 12% complete, 15% is under construction and 34% is under design. Funding for the remaining 39% remains to be identified. The northern leg from I-10 to Wickenburg has not yet been defined.

• **Start Cyberport Phase II:** see below

• **Coordinate Port of Entry Development with Border Communities:** Arizona’s commitment to closer coordination with the federal agencies and port of entry planning groups to ensure local involvement has resulted in the All-Arizona Border Walk and over 20 meetings with community leaders in Douglas, Nogales, and San Luis. This input will be used to complete master plans for the border communities in 2005.

• **Develop CANAMEX Brand:** In March 2004, the five U.S. CANAMEX tourism directors signed a letter agreement pledging to promote and support CANAMEX tourism development. They are currently seeking federal funds to conduct a multi-state Marketing Study to support brand development.

• **Raise CANAMEX’s Profile:** With the support and participation of the CANAMEX tourism agencies, CANAMEX is now being incorporated into the Arizona state tourism map and State promotional materials. The Arizona Office of Tourism will work with the other CANAMEX jurisdictions to expand the use of CANAMEX on web-sites and in marketing and promotional materials.

• **Increase Trade:** Outreach to the U.S. CANAMEX state economic development agencies was conducted in 2004. Multi-state trade opportunities have been raised as a common opportunity. A multi-state trade strategy and action plan was developed in 2004.

• **Accelerate Broadband Deployment:** Community Telecommunications Assessments have been completed for roughly 90% of rural Arizona. CANAMEX coverage gaps have been mapped. The Governor’s Information Technology Agency has developed a multiple deployment model approach to address coverage gaps. Federal grants are being pursued to fund proof of concept and deployment projects.

**E. Cyberport**

Geographic position alone cannot maintain Arizona’s competitiveness in the global marketplace. Regulatory process, and infrastructure improvements are critical to ensuring that Arizona maintains strategic access to the markets of North America and beyond. Significant improvements at the port-of-entry and throughout the trade-flow
process are required to maintain Nogales, the keystone to the CANAMEX Corridor, as a port of choice and to secure Arizona’s position as a primary gateway for U.S.-Mexico trade.

The Nogales-Mariposa commercial port-of-entry and its associated highway infrastructure are nearing capacity and frequently operate over capacity during the peak winter months of the Mexican produce season. This results in long lines to cross the border, increasing the time and cost of moving trade. Total U.S.-Mexico surface trade has more than doubled in terms of value from $88 billion in 1994 to approximately $200 billion in 2002. However, when all variables are considered, Nogales-Mariposa is losing its relative share of U.S.-Mexico trade.

To address these issues in Arizona and position the State as a national and global leader, the Governor’s CANAMEX Task Force commissioned the Nogales Cyberport Project. The Cyberport concept was derived from creative input from bi-national industry and agency stakeholders as well as detailed analyses of legal, logistical and commodity-flow issues.

The Goal of Cyberport

The goal of the Nogales Cyberport Project is to achieve a coordinated, seamless, flexible, and integrated system for the safe, secure, and efficient movement of trade. The project looks beyond technology and beyond the port compound to consider a holistic, system-wide approach to the development of innovation and advancement throughout the entire trade-flow process — from the point of origin to the point of destination. Cyberport aims to reduce congestion and bottlenecks while meeting the needs of government agencies and the trade community. The project also establishes the Nogales port as a national model and pilot test site.

How Cyberport Works

The Cyberport concept optimizes a mix of consolidation and decentralization of border crossing procedures at locations throughout the trade-flow process where each is the most effective. The Cyberport concept integrates the modernization of technology, logistics, and infrastructure along with reforms in the procedural and regulatory environment.

CyberPort’s Guiding Principles

The Cyberport concept is based on principles that respond to nine rules for new global trade. Technology is a thread that runs through each of these principles and serves to unify the solution that Cyberport offers. CyberPort’s guiding principles include:

<table>
<thead>
<tr>
<th>Coordination and cooperation</th>
<th>Maximizing new technology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Integrated systems</td>
<td>Shipment transparency</td>
</tr>
<tr>
<td>Pre-clearance incentives</td>
<td>Performance standards and measurement</td>
</tr>
</tbody>
</table>
• risk management
• multimodal solutions

• infrastructure capacity and design
• multinational partnerships

• shared information

Preferred Concept Model

Four concept model alternatives were developed ranging from a highly centralized border-crossing process to a highly decentralized one. Each concept alternative was consistent with established Cyberport principles and was evaluated with respect to safety, security, efficiency, legal requirements, future growth scenarios, and impacts on the local, state and regional level.

The preferred concept model for the implementation of a Cyberport process through Nogales is a hybrid that optimizes a mix of consolidation and decentralization of border-crossing procedures at locations where each is deemed to be the most appropriate. One of the key elements of this concept is the implementation of off-site inspection for many of the activities that currently occur inside the port compound such as agricultural inspections, truck safety inspections, fee and permitting procedures, and truck weight certification. Through pre-clearance and certification, a significant amount of congestion inside the port compound can be relieved as compliant trade is able to avoid, in most cases, the need for secondary inspection. Other key elements of the Cyberport Concept are the dedicated access for qualified shipments to primary Customs facilities and the establishment of joint U.S.-Mexico public/private examination zones.

Regional Benefits

The regional purpose of applying the Cyberport concept in southern Arizona is to strengthen the relationship with Sonora and to facilitate the development and competitiveness of the CANAMEX region. Operations of an efficient and effective border crossing will enable the Tucson metropolitan area to become better positioned to serve as a hub for the flow of trade and tourism between the United States and Mexico. Another objective of the Cyberport concept is to position the State of Arizona as a leading gateway between the western United States and Mexico, thereby, increasing its regional competitiveness. The aim is to facilitate the growth of commerce in and through Arizona—creating jobs in transportation and distribution, export-related activities, tourism, and other trade-related services.

Current Status

The Phase I Cyberport Concept Study ($525,000) was completed in June 2003. Phase II involves physical infrastructure feasibility studies and implementation. $2.7 million in Federal funding has been secured to advance various Cyberport projects including a long-range port redesign study. A State Cyberport Coordinator has been hired. A new State safety inspection facility was opened at the Nogales-Mariposa crossing in March 2004, and a state-of-the-art Intelligent Transportation System program is nearly operational. State and federal agencies are working to open a dedicated commuter
(SENTRI) lane at the Nogales-DeConcini crossing by September 2004 and are exploring options for building a dedicated lane for trucks participating in the Federal Free and Secure Trade (FAST) program at the Mariposa POE.

All data is from the U.S. Department of Transportation, Bureau of Transportation Statistics.

F. Puerto Nuevo

Puerto Nuevo Tucson is a strategic, multi-dimensional, inland port with numerous facilities throughout Tucson, serving the United States, Mexico and beyond. This unique distribution hub facilitates the free and competitive flow of regional and international trade between the United States and Mexico, in addition to providing convenient cost-effective access to all corners of our fast growing global marketplace.

This multi-modal center allows companies to be more viable from this exceptional one-stop distribution point. Puerto Nuevo is advantageously located adjacent to Interstate 10 with direct access to the Century Park Research Center, University of Arizona Science and Technology Park, Tucson International Airport, and Union Pacific’s mainline at the Port of Tucson’s rail-truck transfer station. Puerto Nuevo is also in close proximity to the large and lucrative markets of Phoenix/Tucson, Sonora/Sinaloa, Los Angeles/San Diego/Tijuana, and El Paso/Ciudad Juarez, providing overnight and same day truck service, and access to more than 2,000 maquiladoras.

Services include logistics, multimodal transportation infrastructure, cargo consolidation, warehousing and distribution, manufacturing, high-tech research and development, and international business and support services. Companies may benefit by qualifying to operate in a Foreign Trade Zone and can utilize the Empowerment Zone Program to receive state corporate income tax credits.

The Empowerment Zone Program

The Empowerment Zone is a mixture of tax, financing and workforce training incentives that are designed to benefit workers, employers and revitalize the inner city.

Through a competitive process, the City of Tucson, together with Pima County and the City of South Tucson, applied for and received this designation from the U.S. Department of Housing and Urban Development (HUD). A broad community partnership is working to coordinate the Zone benefits with existing workforce training programs, business outreach efforts and community revitalization activities to deliver tangible benefits to residents, neighborhoods and the business community.

Federal tax incentives are now available to support local businesses and encourage the hiring of Zone residents. The federal tax incentives benefit businesses by improving the bottom line and benefit individuals by increasing job opportunities and
income. Many businesses are already pursuing reinvestment of the tax incentives to benefit their employees and the community at large.

A program of particular interest to employers is WOTC (Work Opportunity Tax Credit) since it offers an incentive to employers in the form of a federal tax credit, for hiring job seekers from nine targeted groups.

The local Job Service can issue conditional certifications to job seekers who qualify for eligibility under one of the program's nine targeted groups. An employer may place a job order with the Job Service and request the referral of WOTC eligible applicants. Job Service will then search the database for qualified candidates who have been issued a conditional certification (or meet WOTC eligibility criteria) and refer those clients to the employer.

The Employment Security Administration's Special Programs Unit in Phoenix ultimately determines eligibility and issues the Employer Certification (ETA-9063) needed to claim the Federal tax credit.

G. Supreme Court Ruling Allows Mexican Trucks in U.S.

The Supreme Court ruled unanimously in June 2004 that the Bush administration has the right to allow Mexican trucks to travel beyond the current 20-mile limit along the U.S. border without a more extensive environmental review. This ruling means trucks hauling goods into the United States can bypass their usual stopping places in Rio Rico and no longer transfer their contents to a U.S. truck to finish the journey. Yet, several steps still need to be taken before Mexican 18-wheelers gain full access to American roads, including an agreement with the Mexican government on safety inspections. The U.S. government is trying to establish a procedure to let its agents audit the safety practices of Mexican trucking firms that want to operate in the United States.

Under NAFTA, the United States and Mexico were supposed to allow each other’s trucks and passenger buses in 2000, but neither did. The Clinton administration postponed opening the U.S. border, citing safety concerns.

In 2001, a NAFTA tribunal ruled that the U.S. could not ban Mexican trucks, although it could regulate them for safety and other concerns. The Bush administration pledged to put safeguards into place and open the border in 2002. However, a lawsuit by environmentalists Public Citizens, and the Teamsters union against U.S. Transportation Department blocked the move. A Federal appeals court in California barred access to Mexican trucks until USDOT conducted a more complete environmental assessment under the Clean Air Act. The Supreme Court overturned that decision, saying the President, not the DOT, made the decision to allow Mexican trucks into the United States. This made the lawsuit filed irrelevant.

Opponents say allowing Mexican trucking into the U.S. will take jobs away from Americans. Environmental groups and some state and local officials say that decision will increase smog because Mexican trucks and diesel fuel burn dirtier. Southern
California and much of Arizona already exceed Federal smog standards. Local air quality officials will face the task of adopting new measures to counterbalance the harm and meet the Federal requirements.

Proponents say opening the market between Mexico and the U.S. for trucks and buses will mean more opportunities for American companies, more jobs for American drivers, and better deals for American consumers. Some Mexican trucking firms worry that better equipped, better financed U.S. companies will take some of their work. Too, despite the claims of certain labor and environmental interests, the trade community does not expect to see a significant or immediate increase in Mexican trucks using U.S. highways. Although trucking firms will welcome the regulatory change, they will have to make their trips into the U.S. financially viable by finding customers in this Country to fill their trucks with goods headed back to Mexico.

If American and Mexican trucking firms take advantage of this trade initiative, there is little question that the increase of trucks heading to or coming from Mexico will impact the Tucson region. Some preparation has already taken place. The Federal Motor Carrier Safety Administration added safety inspectors at Nogales Mariposa POE and other border crossings. Fourteen inspectors are now assigned to Nogales, four to San Luis, three to Douglas, and two to Naco. In addition to the Federal inspectors, State inspectors from the Arizona Department of Public Safety also staff Arizona ports of entry on the Mexican border. And earlier this year, a new safety-inspection station at the Mariposa POE opened allowing both Federal and State safety inspectors to have their own space, rather than doing their work in improvised corners of the port. About 260,000 truck crossings take place there annually.

**H. Weight Limit on 22nd Street Overpass**

The City of Tucson, in May 2004, imposed a lower weight limit for vehicles going over the East 22nd Street overpass. Vehicles that weigh more than 40,000 pounds are now required to detour around the deteriorating 39-year-old bridge that spans the Aviation Parkway and the west end of the Union Pacific railroad yard. This section of the busy route has provided access to an average of 42,700 vehicles daily (2003).

Freight and trucking terminals operating in the area and major freight shipments needing to travel in an east-west direction have experienced some disruption to travel.

Until 2004, the 2,058 feet-long bridge had a 72,000 pound gross vehicle weight limit. However, an engineering consulting firm confirmed that the bridge was wearing out more quickly than it was designed when it was built in 1966. The new weight limit, which typically applies to larger trucks such as 18-wheelers, was imposed to slow the wear and tear on the bridge caused by years of ever-increasing traffic. Most mid-sized trucks will still be allowed to cross.

The City foresees two options: (1) Replacing the bridge with a new six-lane structure when they widen 22nd Street to six lanes within the next decade. Estimates range
from $16 million to $19 million. (2) Replacing the deck with a 7 ½ inch layer of concrete and additional reinforcement to withstand the added weight. This option is estimated at $2.4 million and would leave the overpass with four lanes.

The City of Tucson intends to seek federal money through the state to help repair the problem. (Source: AZ Daily Star)
4 Chapter 4 - Future Intermodal Needs

A. Overview

The first PAG Intermodal Management System Plan (adopted 1995) was developed during a period of change and adjustment for significant components of the region's intermodal facilities. The Southern Pacific Railroad's truck-rail intermodal facility's continued existence and operation was threatened, and in fact did eventually close. This closure created a crisis of sorts for the few remaining users of the facility, as they had to find alternate shipping arrangements.

PAG took a leadership role to help address the situation created by the closure. Actions taken included hosting meetings of railroad and political leaders, conducting surveys of current, past, and potential rail freight users, developing a forecast model for intermodal “lifts” and development of major components of a business plan for a privately owned truck-rail facility.

Tucson entrepreneur Alan Levin stepped forward and, using strategically located land he already owned, with his own resources, developed the “Port of Tucson”, a full-service truck-rail intermodal facility. The Port of Tucson came on line in August 2004 (described earlier in this document, in detail, page 2-21)

This important progress, coupled with specific local economic development planning & implementation, and continued meetings of the PAG Freight Advisory Task Force, positions this update of the PAG Intermodal Management System Plan to have a bolder, more soundly based future vision.

B. Future Vision

The opportunity to have and more specifically pursue a dynamic vision of the future for the region's Intermodal System was helped by efforts of the Greater Tucson Strategic Partnership for Economic Development (GTSPED) Planning Committee's Greater Tucson Strategic Economic Direction (GTSED). PAG Staff participated in this successful effort. The vision statement in this important document says:

"Our natural and cultural environment and the coordinated efforts of our beautifully diverse community will enable the Tucson region to become a recognized leader in the emerging knowledge-based, global society offering a high quality of life and place for all of its people."

The Greater Tucson Strategic Economic Direction spells out several important transportation related items:

- Under 'Critical Business Factors', it includes "...the accessibility to suppliers, customers, and new markets..." (page 3)
- Under 'Key Strategies', it includes "...additional air service... and encouraging international trade..." (page 4)
- Under 'Critical Business Factors, Creation, Expansion & Attraction' it includes "Accessibility of efficient inter-modal systems" (page 6)
- Under 'Tactic 6, International Trade', it includes "Facilitate the growth of a multi-modal transportation infrastructure designed to efficiently import and export products to and from Mexico and the U.S." (page 13)
4.1 These important statements, as embodied in the GTSED, are consistent with more recent directions of the PAG Intermodal Transportation Program efforts. The 1995 IMSP said, "...the IMS will evolve and improve over time, both the system elements and the framework for evaluating intermodal opportunities and choices". This has proven to be the case, as staff and private sector participants have become more knowledgeable and familiar with each other’s capabilities and limitations, and important initiatives, both private and public, have been advanced.

The Mission Statement of the Tucson Mexico Trade Office (TMTO - one of the Greater Tucson Strategic Partnership for Economic Development partners) addresses the elements of the GTSED cited above, and embodies important aspects of the spirit and the objectives of the PAG Intermodal Management System:

"Create a multi-dimensional inland port, with multiple facilities throughout Tucson. A strategically located international trade processing center, incorporating the most advanced technology, will augment the capacity and streamline the movement of north/south and east/west bound products. Allow local and regional companies to competitively access the global marketplace."

To help accomplish this, the Tucson Mexico Trade Office has set a goal of facilitating the establishment of a Port Authority for the trade hub they envision. The Authority would establish and run the inland port, and in the process, would work to consolidate existing trucking terminal locations through land trades and other mechanisms.

C. Future Needs

To achieve the vision of the Tucson Region becoming a "multi-dimensional inland port, with multiple facilities throughout Tucson," and "A strategically located international trade processing center..." requires consistent efforts. These efforts must not only develop facilities, but equally important, organize and arrange the myriad of trade agreements and arrangements that must exist for the vision to become reality.

The programs and projects presented here have been assigned identifying labels:

Project Labeling Key

<table>
<thead>
<tr>
<th>Label</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>Freight</td>
</tr>
<tr>
<td>IMF</td>
<td>InterModal Facility</td>
</tr>
<tr>
<td>TAA</td>
<td>Trade Alliances &amp; Agreements</td>
</tr>
<tr>
<td>M/MI</td>
<td>Maintenance / Spot Improvement</td>
</tr>
<tr>
<td>W/R</td>
<td>Widening / Reconstruction</td>
</tr>
<tr>
<td>MS</td>
<td>Major Structure</td>
</tr>
</tbody>
</table>

1. Intermodal Facilities

As reported earlier in this Plan, important progress has been made in facilities. One of the most important facilities to date is the Port of Tucson, at Kolb & I-10 (see page 2-21). The Tucson International Airport's air freight terminals (off S. Country Club Road - see page 2-18) are also important intermodal facilities.
**Truck freight facilities** are located throughout the region, however, there are two areas of distinct concentration: 1) Flowing Wells Road - Fairview Avenue, in the Grant/Miracle Mile area, and 2) Country Club Road - Alvernon Way, in the 36th Street/Irvington Road area. These facilities are included, even though they do not interface two different modes, as they provide terminal type services, with break bulk, and load consolidation to/from 18 wheeler highway trucks and single unit local delivery trucks.

**F-IMF-1**, The Tucson-Mexico Trade Office foresees the establishment of a large truck service center, strategically located to serve both local air and rail centers. This center would have convenient access to both I-10 and I-19. This facility will be an important component of the Trade Processing Center.

**F-IMF-2**, TMTO also foresees the establishment of a rail port of entry facility, focused on and facilitating international trade with Mexico, Latin & South America, and Asia.

### 2. Trade Agreements & Arrangements

The types of agreements and arrangements that need to be made to foster greater trade traffic are those that act on actual trade functions, and primarily on private sector businesses. At the same time, both in the United States and Mexico, governments do play important roles.

For example, the City of Tucson's Tucson-Mexico Trade Office has both led and hosted a variety of trade missions with communities throughout Mexico, from Nogales, as far south as Guadalajara. As a result of these efforts, new relationships have been created and existing ties strengthened for local businesses in search of opportunities in Mexico.

**F-TAA-1**, They (TMTO) work to create alliances with and among the communities in the economic region of southern Arizona and northwestern Mexico, which should enhance the competitive standing of industries in each community. Additional resources would advance the efforts, both time and scope wise.

**F-TAA-2**, Working with the State of Arizona (Department of Commerce) the Tucson-Mexico Trade Office is laying the groundwork to establish mutually beneficial trade linkages with South American countries such as Chile, Argentina, Columbia, and Peru. Additional resources would advance the efforts, both time and scope wise.

TMTO also works to establish common ground among participating communities with respect to economic development goals. They endeavor to link the government, business, and educational sectors of the communities they work with.
The Tucson-Mexico Trade Office works to match Tucson’s industrial suppliers with major manufacturers in Mexico by:

1. Participating in appropriate industrial expositions
2. Conducting trade missions to the highly industrialized cities of Mexico
3. Offering opportunities for one-on-one meetings between Tucson’s suppliers and appropriate industry representatives in Mexico.

3. Roadway Access Improvements

A survey of Tucson region trucking firms was undertaken in December 2004 - January 2005, as one important way to help identify potential roadway access improvements. The response to this survey, coupled with field checks, consultation with jurisdiction staff, and analysis of trucking facility locations and their locational relationships to the principal street system, has yielded the following list of potential improvements:

**Minor / Spot Improvements**

**F-M/SI-1, Flowing Wells Road / Miracle Mile:** rehab intersection approach (from the south), and curb radii improvements

**F-M/SI-2, Flowing Wells Road**, Miracle Mile to Grant; A) Pavement rehabilitation, minor widening, and B) Study to possibly reconstruct with continuous center turn lane.

**Flowing Wells Road**

**F-M/SI-3, W. Grant Rd. - Dragoon / Jackrabbit Ave.** Intersection, curb radii improvements, and Signal warrants review

**F-M/SI-4, Valencia Rd. / Plumer Ave.** Signal warrants review
F-M/SI-5, Park Ave. / Evans Blvd. curb radii improvements

F-M/SI-6, Randolph Avenue, south & north of Ajo Rd., Intersections with 45th, 46th, 47th, 48th, President, Lincoln, District, Columbia, Milber, Pennsylvania, and Michigan Streets and Gas Road (12 total), curb radii improvements

F-M/SI-7, Truck Crossing Signs, (to be added, as locations are specifically identified)

Widening / Reconstruction

F-W/R-1 Contractor’s Way, Irvington to Ajo; pavement rehabilitation & minor widening, and study for possible reconstruction to 3 lanes with continuous center turn lane.

Major Structures

As rail traffic to and from Mexico increases, both the Union Pacific’s Main and Nogales Lines’ at grade crossings will cause more and more frequent delays. Many commercial and trucking firms are located on the south side of the metro area, and thus are affected by the Nogales Line at grade crossings. Other trucking terminal locations are located central & northwest, and are affected regularly by Main Line at-grade crossings.

F-MS-1 to 10, The PAG Rail Crossing Study (an update is almost completed, but the original 2001 Study is still in effect) assessed the relative status of the various at-grade crossings based on safety and delay. The top 10 ranked crossings include:

MS-1. 6th Street at UPRR Main Line
MS-2. Prince Road at UPRR Main Line
MS-3. Ina Road at UPRR Main Line
MS-4. Ajo Way at Nogales Line
MS-5. Ruthrauff Road at UPRR Main Line
MS-6. Irvington Road at Nogales Line
MS-7. Main Avenue at UPRR Main Line
MS-8. 22nd Street at Nogales Line
MS-9. Cortaro Farms Road at UPRR Main Line
MS-10. Valencia Road at Nogales Line

Every one of the above crossings would help freight movements, as well as passenger and emergency vehicle movements, if completed.

Interchanges and/or bridges that especially affect freight movement, and which have been identified as deficient include:

F-MS-11, The 22nd Street overpass being weight-limited, as reported earlier in this document, affects freight movements negatively, and causes extra travel and expense. It should be seriously considered for rehabilitation or replacement, to allow freight movement in this important freight corridor to return to equilibrium.
**F-MS-12, Kolb/I-10 Interchange:** This interchange serves the Commerce Business Park, where the Port of Tucson is located. The interchange is an older one, with narrow ramps and tighter curves. Reconstruction is needed to better handle truck freight traffic.

**D. Available Revenue Sources**

There are a variety of revenue sources available, or potentially available for intermodal improvements. Since this Plan deals primarily with improvements to the public roadway system, resources that are eligible and available for roadways are the primary source that is looked to. Program actions, such as focused studies to move to direct actions, can use these transportation funds as well.

The following list of funding sources is extracted from the PAG Transportation Improvement Program. This document is the legal instrument for associating specific projects with specific funding. Funding sources included are:

<table>
<thead>
<tr>
<th>Fund Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.6%</td>
<td>Highway User Revenue Funds reserved for State Highways</td>
</tr>
<tr>
<td>12.6%</td>
<td>Highway User Revenue Funds (HURF)</td>
</tr>
<tr>
<td>5307</td>
<td>Federal FTA formula funds (Urbanized Area Transit)</td>
</tr>
<tr>
<td>5309</td>
<td>Federal FTA Capital Investment Grants &amp; Loans (New starts)</td>
</tr>
<tr>
<td>5310</td>
<td>Federal FTA funds (Elderly &amp; Disabled Transit)</td>
</tr>
<tr>
<td>5311</td>
<td>Federal FTA Rural Transit</td>
</tr>
<tr>
<td>ACSTP</td>
<td>Advance Construction STP Funds Programmed by PAG</td>
</tr>
<tr>
<td>ADEQ</td>
<td>Arizona Dept. of Environmental Quality</td>
</tr>
<tr>
<td>ASTP</td>
<td>Federal STP Funds Programmed by ADOT</td>
</tr>
<tr>
<td>ATEA</td>
<td>Federal Transportation Enhancement funds programmed for ADOT projects</td>
</tr>
<tr>
<td>BIA</td>
<td>Bureau of Indian Affairs - Federal funds provided for tribal projects</td>
</tr>
<tr>
<td>BOND</td>
<td>Local Jurisdiction Bond Funds</td>
</tr>
<tr>
<td>BR</td>
<td>ADOT Federal Bridge Funds</td>
</tr>
<tr>
<td>DEMO</td>
<td>Federal High Priority Project Funds</td>
</tr>
<tr>
<td>DIFO</td>
<td>Local Funds Generated by Development Impact Fee Ordinances</td>
</tr>
<tr>
<td>ER</td>
<td>Federal Emergency Repair Funds</td>
</tr>
<tr>
<td>FAA</td>
<td>Federal Aviation Administration</td>
</tr>
<tr>
<td>HELP</td>
<td>Highway Expansion Loan Program (State infrastructure bank)</td>
</tr>
<tr>
<td>HES</td>
<td>Federal Safety Program Funds Programmed by ADOT</td>
</tr>
<tr>
<td>IM</td>
<td>Federal Interstate Maintenance Program</td>
</tr>
<tr>
<td>ITS</td>
<td>Special appropriations in TEA-21 for Intelligent Transportation Projects</td>
</tr>
<tr>
<td>LTAF</td>
<td>Local Transportation Assistance Fund (State lottery funds)</td>
</tr>
<tr>
<td>LOCAL</td>
<td>Local Jurisdiction Sources</td>
</tr>
<tr>
<td>MAR</td>
<td>Marana funds provided for projects sponsored by other agencies</td>
</tr>
<tr>
<td>NH</td>
<td>Federal National Highway System</td>
</tr>
<tr>
<td>OV</td>
<td>Oro Valley funds provided for projects sponsored by other agencies</td>
</tr>
<tr>
<td>PC</td>
<td>Pima County Funds provided for projects in other jurisdictions</td>
</tr>
<tr>
<td>PDAF</td>
<td>Project Development Activity Funds (subcategory of 12.6%)</td>
</tr>
<tr>
<td>PLH</td>
<td>Public Lands - Highways (Federal)</td>
</tr>
<tr>
<td>PVT</td>
<td>Private Contributions</td>
</tr>
<tr>
<td>RABA</td>
<td>Revenue Aligned Budget Authority - A Federal fund category similar to STP</td>
</tr>
</tbody>
</table>
**STATE Non Federal State Funds**

**STP**  Federal Surface Transportation Program Funds Programmed by PAG

**STPX**  Federal Surface Transportation Program Funds Programmed by PAG which are intended to participate in the State’s HURF Exchange Program

**TAA**  Tucson Airport Authority Funds

**TEA**  Transportation Enhancement Funds Programmed by ADOT

**TENH**  STP Funds Programmed by PAG for Transit Enhancement Purposes

**TUC**  City of Tucson funds provided for projects sponsored by other agencies

Funding sources that are eligible to be used for improvements to the public roadway system are shown in **bold**, and include a majority of the funding sources listed. Transit funds, while not used for roadway improvements, can be, and are, used for intermodal support aspects, such as pedestrian and bicycle access improvements at stops and centers. They are used also for bike racks on buses, which has proven very successful in facilitating bike-bus, and bus-bike intermodalism.

**E. Timeline for Improvements (Future needs timeline)**

The majority of projects identified in this Plan are short range, in that they can be implemented in five years or less. Other projects, such as the Truck Service Center, are truly longer term, and require a reasonable level of planning, to prepare them for specific funding commitments in the future. Table 4-1 (Next page, 4-8) shows the various identified projects and the timeframes that would bring them on line beneficially:

**F. Economic benefits of the IMS**

Freight movement, carried out safely and efficiently, contributes directly to reduced shipping costs for 1) goods we use/consume that arrive from other places, and 2) goods we produce for the national and world marketplace.

Our region gains economic advantages when these goods’ movements incur lower shipping costs, and are thus more competitive in the marketplace. Funds that help us achieve safer and more efficient freight movements are an investment that can benefit all the citizens of our region.

The primary elements of cost include fuel, vehicle and labor costs. Each has normal and extraordinary facets, as discussed and described here.
Table 4-1
Project Approximate Timing

<table>
<thead>
<tr>
<th>Project</th>
<th>Approximate Timing</th>
</tr>
</thead>
<tbody>
<tr>
<td>F-IMF-1, Large Truck Service Center; as a part of the Trade Processing Center complex.</td>
<td>10 years or less</td>
</tr>
<tr>
<td>F-IMF-2, Rail Port of Entry Facility; as a part of the Trade Processing Center complex.</td>
<td>15 years or less</td>
</tr>
<tr>
<td>F-TAA-1, Trade Alliances Creation; focused on S AZ and NW Mexico</td>
<td>5 years or less</td>
</tr>
<tr>
<td>F-TAA-2, Trade Linkages Creation; focused on South American countries</td>
<td>5 to 10 years</td>
</tr>
<tr>
<td>F-M/SI-1, Flowing Wells Road / Miracle Mile; intersection approach and curb radii</td>
<td>5 years or less</td>
</tr>
<tr>
<td>F-M/SI-2, Flowing Wells Road, Miracle Mile to Grant; 1) pavement rehab, minor widening, and 2) study for continuous center turn lane.</td>
<td>5 years or less / 5 years or more</td>
</tr>
<tr>
<td>F-M/SI-3, W. Grant Rd. - Dragoon / Jackrabbit Ave Intersection, curb radii improvements, &amp; Signal warrants review</td>
<td>5 years or less</td>
</tr>
<tr>
<td>F-M/SI-4, Valencia Rd. / Plumer Ave. Signal warrants review</td>
<td>5 years or less</td>
</tr>
<tr>
<td>F-M/SI-5, Park Ave. / Evans Blvd. curb radii improvements</td>
<td>5 years or less</td>
</tr>
<tr>
<td>F-M/SI-6, Randolph Avenue, S &amp; N of Ajo, 12 Intersections with streets, curb radii improvements</td>
<td>5 years or less</td>
</tr>
<tr>
<td>F-M/SI-6, Truck Crossing Signs (to be added)</td>
<td>3 years or less</td>
</tr>
<tr>
<td>F-W/R-1, Contractor's Way, Irvington to Ajo; pavement rehab &amp; minor widen, study for reconstruction to 3 lanes with center turn lane.</td>
<td>5 years or less / 5 years or more</td>
</tr>
<tr>
<td>F-MS-1 to 11, The PAG Rail Crossing Study assessed the relative status of the various at-grade crossings using safety and delay. All these crossings have distinct effects on freight movements:</td>
<td></td>
</tr>
<tr>
<td>MS-1. 6th Street at UPRR Main Line</td>
<td>10 years or less</td>
</tr>
<tr>
<td>MS-2. Prince Road at UPRR Main Line</td>
<td>10 years or less</td>
</tr>
<tr>
<td>MS-3. Ina Road at UPRR Main Line</td>
<td>10 years or less</td>
</tr>
<tr>
<td>MS-4. Ajo Way at Nogales Line</td>
<td>10 years or less</td>
</tr>
<tr>
<td>MS-5. Ruthrauff Road at UPRR Main Line</td>
<td>15 years or less</td>
</tr>
<tr>
<td>MS-6. Irvington Road at Nogales Line</td>
<td>10 years or less</td>
</tr>
<tr>
<td>MS-7. Main Avenue at UPRR Main Line</td>
<td>10 years or less</td>
</tr>
<tr>
<td>MS-8. 22nd Street at Nogales Line</td>
<td>10 years or less</td>
</tr>
<tr>
<td>MS-9. Cortaro Farms Road at UPRR Main Line</td>
<td>15 years or less</td>
</tr>
<tr>
<td>MS-10. Valencia Road at Nogales Line</td>
<td>10 years or less</td>
</tr>
<tr>
<td>MS-11. 22nd Street at UPRR Main Line (Rehab)</td>
<td>10 years or less</td>
</tr>
<tr>
<td>MS-12. Kolb/I-10 Interchange</td>
<td>10 years or less</td>
</tr>
</tbody>
</table>

Every one of the above crossings will help freight movements, as well as passenger and emergency vehicle movements, when completed.
To create an example, a tractor-trailer truck hauls plastic garbage bags made in the Phoenix area to a Tucson wholesaler who then sells and delivers (using single unit local delivery trucks) them to hardware and grocery stores. Consumers purchase and use these bags. If a delay happens in any part of this delivery process, all three cost elements are increased.

For example, a crash on I-10 that delays the Phoenix to Tucson delivery one hour will result in increases in labor, fuel, and even though minor, wear and tear on the vehicle. This might total to a modest sum, say $25.00 (Fuel $.50, labor $19.50, and vehicle wear $5.00). But if we multiply this modest sum by many occurrences, it becomes substantial. Say that there is an aggregate commercial vehicle delay of 10,000 hours each month for Tucson businesses. This is 120,000 hours annually, or $3,000,000 total. Who pays this extra cost? **Everyone** who buys goods, and/or works a job in our region shares in “paying” these increased transportation costs!

So, as can be seen, everyone in the Tucson region benefits when shipping costs for freight are reduced!
5 Chapter 5 - Recommendations

G. Overview

Based on the findings of Chapter 4, Future Intermodal Needs, intermodal needs are generally reflective of the overall transportation system. That is, they are always present, regardless of how much improvement is done.

This is the second PAG Intermodal Management System Plan (the first was adopted in 1995), and it reflects improved understanding by all parties, and thus more effective assessment and responses to needs.

B. Recommended Policies, Programs, and Projects

Chapter 4 identified a variety of needs, which were classified into the following three major categories:

1. Intermodal facilities
2. Trade agreements & arrangements
3. Roadway access improvements
   a. Minor/Spot improvements
   b. Widening/Reconstruction
   c. Major Structures

Roadway access improvements were further divided into the three sub-categories, as shown above.

Based on the review of these needs (as listed in Chapter 4), the PAG Freight Advisory Task Force (FATF), at their Jan 14, 2005, meeting, developed the following priorities for implementation of the recommended projects:

FIRST Priority (1st Five years)

F-M/SI-1, Flowing Wells Road / Miracle Mile; intersection approach and curb radii

F-M/SI-3, W. Grant Rd. - Dragoon / Jackrabbit Ave Intersection, curb radii improvements, & Signal warrants review

F-W/R-1, Contractor's Way, Irvington to Ajo; pavement rehab & minor widen, study for reconstruction to 3 lanes with center turn lane.

F-M/SI-2, Flowing Wells Road, Miracle Mile to Grant; 1) pavement rehab, minor widening, and 2) study for continuous center turn lane.

F-IMF-1, Large Truck Service Center; as a part of the Trade Processing Center complex.

F-TAA-2, Trade Linkages Creation; focused on South American countries

F- MS-12, Kolb/I-10 Interchange; Reconstruct to better handle truck freight traffic
F-MS-8, 22nd Street at Nogales Rail Line grade crossing
F-MS-4, Ajo Way at Nogales Rail Line grade crossing
F-MS-2, Prince Road at UPRR Main Line grade crossing
F-MS-3, Ina Road at UPRR Main Line grade crossing

**SECOND Priority (2nd Five years)**

F-M/SI-5, Park Ave. / Evans Blvd. curb radii Improvements
F-M/SI-4, Valencia Rd. / Plumer Ave. Signal warrants review
F-M/SI-7, Truck Crossing Signs (exact number to be determined ~ 12)
F-M/SI-6, Randolph Avenue, S & N of Ajo, 12 Intersections with streets, curb radii improvements
F-TAA-1, Trade Alliances Creation; focused On S AZ and NW Mexico
F-MS-6, Irvington Road at Nogales Rail Line grade crossing
F-MS-9, Cortaro Farms Road at UPRR Main Line grade crossing
F-MS-5, Ruthrauff Road at UPRR Main Line grade crossing
F-MS-10, Valencia Road at Nogales Rail Line grade crossing

**THIRD Priority (3rd Five years)**

F-IMF-2, Rail Port of Entry Facility; as a part of the Trade Processing Center complex.
F-MS-1, 6th Street at UPRR Main Line grade crossing
F-MS-7, Main Ave. at UPRR Main Line grade crossing
F-MS-11, 22nd Street at UPRR Main Line Overpass

**C. Cost Estimates**

Using estimates from agency staff, previously developed costs estimates (updated), or estimates developed from standard cost tables, the following costs are estimated for the recommended projects:

<table>
<thead>
<tr>
<th>Project</th>
<th>Approximate Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>F-IMF-1, Large Truck Service Center; as a part of the Trade Processing Center complex.</td>
<td>$8 Million</td>
</tr>
<tr>
<td>F-IMF-2, Rail Port of Entry Facility; as a part of the Trade Processing Center complex.</td>
<td>$14 Million</td>
</tr>
<tr>
<td>F-TAA-1, Trade Alliances Creation; focused On S AZ and NW Mexico</td>
<td>$500,000</td>
</tr>
</tbody>
</table>
**F-TAA-2, Trade Linkages Creation;** focused on South American countries

**F-M/SI-1, Flowing Wells Road / Miracle Mile;** intersection approach and curb radii

**F-M/SI-2, Flowing Wells Road,** Miracle Mile to Grant; 1) pavement rehab, minor widening, and 2) study for continuous center turn lane.

**F-M/SI-3, W. Grant Rd. - Dragoon / Jackrabbit Ave** Intersection, curb radii improvements, & Signal warrants review

**F-M/SI-4, Valencia Rd. / Plumer Ave.** Signal warrants review

**F-M/SI-5, Park Ave. / Evans Blvd.** curb radii improvements

**F-M/SI-6, Randolph Avenue,** S & N of Ajo, 12 Intersections with streets, curb radii improvements

**F-M/SI-7, Truck Crossing Signs** (# to be added)

**F-W/R-1, Contractor’s Way,** Irvington to Ajo; pavement rehab & minor widen, study for reconstruction to 3 lanes with center turn lane.

**F-MS-1 to 12,** The PAG Rail Crossing Study assessed the relative status of the various at-grade crossings using safety and delay. The 12th project, Kolb & I-10 traffic interchange reconstruction, has been requested previously by FATF members. All these projects will have distinct positive effects on freight movements:

**MS-11. 6th Street** at UPRR Main Line

**MS-12. Prince Road** at UPRR Main Line

**MS-13. Ina Road** at UPRR Main Line

**MS-14. Ajo Way** at Nogales Line

**MS-15. Ruthrauff Road** at UPRR Main Line

**MS-16. Irvington Road** at Nogales Line

**MS-17. Main Avenue** at UPRR Main Line

**MS-18. 22nd Street** at Nogales Line

**MS-19. Cortaro Farms Road** at UPRR Main Line

**MS-20. Valencia Road** at Nogales Line

**MS-21. 22nd Street** at UPRR Main Line (Rehab)

**MS-22. Kolb/I-10 Interchange**
**Project Labeling Key**

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>Freight</td>
</tr>
<tr>
<td>IMF</td>
<td>InterModal Facility</td>
</tr>
<tr>
<td>TAA</td>
<td>Trade Alliances &amp; Agreements</td>
</tr>
<tr>
<td>M/SI</td>
<td>Maintenance / Spot Improvement</td>
</tr>
<tr>
<td>W/R</td>
<td>Widening / Reconstruction</td>
</tr>
<tr>
<td>MS</td>
<td>Major Structure</td>
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</tbody>
</table>

**D. Implementation Strategies**

The 1995 Intermodal Management System Plan said:

“Several existing institutional processes will need to be modified to make the newly developed PAG Intermodal Management System work effectively. Doing so will help ensure the **successful implementation of intermodal projects** and the IMS itself. This can best be accomplished through **integration of intermodal projects into the regional context**, (for example, the intermodal component of projects should be clearly stated in the project scope and concept) and **designation of an Intermodal System Manager**, who will be an advocate for intermodal projects as well as a key actor in other aspects of intermodal projects.”

This key statement recognizes that enhanced institutional processes, and a designated, senior staff member, dedicated to advancing intermodalism (especially freight matters) can be key in making progress and gaining momentum.

**An important component of the IMS is the process** that is recommended to ensure that future planning activities reflect awareness of the **importance of intermodal connections**. **Figure 5-1 outlines the recommended process** for achieving the regional goal of a seamless system. It shows the process to maintain the PAG IMS, and how intermodal projects should be implemented in the future. These activities include:

**Review Performance Measures.** The Goal and Objectives adopted for this Plan were used to develop the performance criteria. These performance measures should be reviewed biannually to determine if, as a result of changing conditions, modifications to the Goal and/or Objectives are appropriate.

**Update Data.** The inventories of intermodal facilities and PAG's database should be updated biannually. This database update should include the addition of any new intermodal facilities that have been identified in the inventories.

**Evaluate System Performance.** The information generated by the review of the performance Goal and Objectives, and updated inventories, will contribute to the evaluation of the intermodal system. Deficiencies that exist should be documented.
**Review Status of Projects.** This Plan recommends projects to both correct deficiencies at existing intermodal facilities, and advances the region’s economic status through improved trade. Review of the status of implementation of the projects should be undertaken annually.

**Figure 5-1**
Process For Achieving a Seamless Intermodal System

**Develop Current IMS Project List.** An annual listing of projects should be developed from two sources: 1) projects that are recommended in this Plan that have not been programmed, and 2) new deficiencies that are identified in the biannual system review.

**Address IMS Projects in TIP Process.** Current projects should be submitted to PAG for inclusion in the annual process for updating the regional Transportation Improvement Program. The TIP allocates available funding for projects, and intermodal projects compete with other projects for funding.

**Implement Projects.** When funding is made available through the PAG TIP process, the intermodal projects can be implemented.

**Intermodal System Manager.** This PAG staff person must facilitate the consideration of intermodal projects through PAG’s planning and programming processes. S/he should strive to provide training on intermodal planning to staff of local jurisdictions. Another responsibility is to ensure that PAG’s selection criteria for projects considered for funding in the TIP includes intermodal connections and linkages. Finally, the Intermodal System Manager should facilitate the implementation of the intermodal projects identified through the planning process. As a key advocate for the seamless transportation system, the IMS Manager should also work with local jurisdictions and
governmental agencies to eliminate regulatory barriers and to be involved in modal planning.

**Freight Advisory Task Force.** During development of the original (1995) IMS, there were both Freight and Passenger Advisory Committees. These were consolidated into an “Intermodal Interest Group” following Plan adoption. This group met whenever there were developments affecting intermodal linkages (such as the closure of the Pacific Fruit Express Intermodal facility by the Southern Pacific Railroad). Meetings have been conducted quarterly to annually, depending on need. In 2002, the Intermodal Interest Group, which had come to be almost totally freight oriented, voted to rename themselves the “Freight Advisory Task Force”.

**Champions.** Key to achieving the seamless system is the presence of champions for the IMS projects. Champions were expected to emerge from the Intermodal Interest Group to take leadership roles in the acceptance, programming, and implementation of projects. To some degree this took place, but not completely. Only with the involvement of Champions can projects actually be funded and implemented.

If the process shown in Figure 5-1 is followed, the Overall IMSP Goal of a seamless and complete Intermodal System can be realized.