Arizona State Freight Plan: Enabling Economic Competitiveness and Growth

Project Kick-Off Meeting
May 21, 2015

Team led by: CPCS

In association with:

HDR

And specialty sub-consultants:

Elliott D. Pollack & Company
ATRI
PLANET

Gill V. Hicks & Associates
Chris Caplice Ph.D. (MIT)
Agenda

Welcome and Introductions

Arizona’s State Freight Plan Overview

Arizona’s Freight Vision, Goals and Objectives

Arizona Freight System Performance Approach and Discussion

Top Economic Sectors Approach

Closing Thoughts
Overview of CPCS Team

Team combines CPCS’s multimodal freight strategy, economics and related analytical expertise, with regional knowledge of the economic context and transportation system in, and connected to, Arizona.

- **CPCS**: Project leadership, sector transportation needs analysis, strategy, goals and objectives, GIS analysis and mapping, improvement strategy, plan
- **HDR**: Arizona transportation systems and conditions analysis (modal expertise), modeling, forecasting, Mexico border and trade expertise, prioritization
- **American Transportation Research Institute**: GPS truck data and analysis
- **Elliott D. Pollack & Company**: Arizona economic research and analysis
- **Dr. Chris Caplice (MIT)**: Scenario planning expertise
- **Plan*ET Communities**: Outreach
- **Gill V. Hicks & Associates**: Regional marine ports and freight flows expertise
- **Sector Experts**: Knowledge and expertise in key Arizona economics sectors
Team Structure

Arizona Department of Transportation

Project Management Team

Modal Expert Team
System Analysis Team
Freight Analysis Team
Economics Team
Senior Advisory Team
Panel of Sector Experts
GIS Team
Outreach Team

Analytical and Administrative Support
Agenda

- Welcome and Introductions
- Arizona’s State Freight Plan Overview
- Arizona’s Freight Vision, Goals and Objectives
- Arizona Freight System Performance Approach and Discussion
- Top Economic Sectors Approach
- Closing Thoughts
Key Issues for Arizona State Freight Plan

- Population growth driving demand
  - 45% increase in state population from 2013 to 2035
- Significance of transit (flow through) traffic
- Arizona’s role in international trade
  - Ports of Los Angeles / Long Beach
  - Trade with Mexico / Sonora
- Economic competitiveness
  - Transportation investments that support key sectors
- Coordination with other transportation planning initiatives
- Achieving stakeholder buy-in
Key Issues for Arizona State Freight Plan

Volume (ton) share by top sectors, 2012

- Wholesalers and Retailers
- Transportation Equipment
- Mining (except oil and gas)
- High-Tech Manufacturing
- General Manufacturing
- Forestry
- Food and Beverage
- Energy (oil and gas)

Legend:
- Truck
- Rail
- Air
- Multiple modes

CPCS Solutions for growing economies

ADOT
Work Plan Focused on Economic Competitiveness

Jurisdictions with access to competitive transportation infrastructure and services are at a competitive advantage in attracting investment, creating jobs and realizing economic growth. Arizona’s State Freight Plan can help enable this outcome.

Optimizing Freight Transportation System Means Different Things to Different People

**Freight Shippers:** Faster, cheaper, more reliable

**Consumers:** Right price, right place, right time

**Carriers:** Maximize utilization of assets, profits

**Society:** Maximize benefits, minimize impacts

**Government:** Enable all of the above

(With scarce resources, competing priorities)

So where to begin to optimize freight transportation system performance?

Derived Demand
(without it, there is nothing to optimize)

Sources of Production

Markets
Stepped Approach to the Project

Goals, Objectives, Strategy

Phase 1: Define Strategic Goals and Objectives

Phase 4: Define Policies and Strategies

System Analysis and Needs

Phase 2: Develop Inventory of State Freight Transportation Assets

Phase 3: Assess Arizona’s Freight Characteristics and Economic Context

Phase 5: Identify the Condition and Performance of State Freight Transportation System

Phase 6: Develop Freight Forecasts and Scenarios

Phase 7: Define Trends, Needs and Issues

Phase 8: Assess Strengths, Weaknesses of the State’s Freight Transportation System

Prioritization and Action Plan

Phase 9: Define the Decision Making Process and Prioritization Framework

Phase 10: Define the State Freight Transportation System Improvement Strategy

Phase 11: Develop an Actionable Implementation Plan
Overview of Work Plan and Deliverables

22: Working Papers

6: Reports

+ GIS database, project website

1: Leading State Freight Plan
State Freight Plan will Yield a Strategy and Implementation Plan

System Investment Needs and Opportunities
(per System Analysis and Needs)

- Stakeholder input
- Strategic screens
  (per Goals, Objectives, Strategies)
- Prioritization framework, incl.
  Benefits Cost Analysis
- Sequencing of project
  to enhance benefits

State Freight Transportation System Improvement Strategy & Implementation Plan

Review consistency against ADOT goals
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Phase 1: Vision, Goals, Objectives

Backdrop: Competitiveness and Growth of the Arizona Economy

Overarching Vision and Mission of ADOT

bqAZ Vision and Guiding Principles
Arizona Long Range Transportation Plan Goals
Other ADOT Transportation Goals

Regional Goals, Other Goals
Regional Transportation Plan Goals (MAG, PAG)
Goals of TTCA, ACA, Others
Neighboring State Plans, Goals

What Strategic Goals and Objectives Should Drive Arizona’s State Freight Plan?

Stakeholder Input, Incl. Freight Advisory Committee

Freight Vision Statement
Phase 1: Vision, Goals, Objectives

**Vision:** Arizona’s freight transportation system enhances economic competitiveness and growth through effective system performance and management.

**Goal 1 - Enhance Economic Competitiveness:** Arizona’s freight transportation system to enhance economic competitiveness and growth of Arizona’s key goods movement sectors, leading to an increase in the State’s economic activity and outputs.

**Goal 2 - Increase System Performance:** To reduce freight transportation cost, travel time and improve system reliability from the perspective of shippers and carriers, while minimizing negative externalities, such as emissions, congestion, and noise relating to freight transportation in the State.

**Goal 3 - Improve System Management:** To increase the effectiveness of system planning, investment and management, including through the use of innovative technologies.
Phase 1: Vision, Goals, Objectives

Each goal supported by set of objectives

- **Economic Competitiveness**
  - Increase Economic Activity, Investment and High Paying Jobs
  - Increase Trade

- **Increase System Performance**
  - Increase Mobility and Multimodal Accessibility
  - Increase Safety and Security
  - Increase System Efficiency and Reliability
  - Minimize Negative Social and Environmental Impacts

- **Improve System Management**
  - Ensure System Preservation and Maintenance
  - Work in Partnership
  - Ensure Good Fiscal Stewardship
  - Link Transportation and Land-Use
  - Increase Effective Performance Monitoring
  - Increase Smart Network Expansion
Phase 1: Vision, Goals, Objectives

Vision, goals and supporting objectives to guide project

- Vision Statement, Goals and Objectives (Phase 1)
- Policies and Strategies (Phase 4)
- Decision Making Process and Prioritization Framework (Phase 9)
Phase 1: Discussion and Validation

Does the Vision capture where we want to be going?

Did we hit the right goals and objectives?

Other reactions which should be captured?
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Phase 2: System Analysis and Needs: Evidence Based Approach

Our approach will triangulate between traditional and new data sources and expertise to provide Arizona with new perspectives on transportation and economic competitiveness.

- Current and future freight flows and clusters of activity, organized by industry sector and assigned to GIS.
Phase 2: Develop Inventory Transportation Assets

• Multimodal asset inventory
  – Highway
  – Rail
  – Pipeline
  – Aviation

• Data collection focused on
  – Existing studies
  – Performance data (truck GPS)
  – Consultations with stakeholders
Phase 2: Early Performance Analysis

- ATRI Truck GPS Data
  - Raw data
  - April 2015

- Analysis will identify
  - Corridor performance
  - Recurring congestion
  - Emerging bottlenecks
Phase 2: Early Performance Analysis

• ATRI Truck GPS Data
  – Provides local/regional snapshots of truck speeds
  – Major truck gateways (e.g. Nogales)
  – Major warehouse / distribution centers (e.g. Tolleson)
Phase 2: Discussion and “Freight Facilities Stories”

What are the key freight facilities (nodes and corridors) in AZ?

Which characteristics define these facilities or make them unique?

• Identifying “Freight Facilities Stories”
  – Sidebars in reports
  – Key role of facilities / linkages to Arizona economic sectors
  – Potential examples:
    • Port of Tucson
    • West Side (Tolleson) Distribution Center Cluster

Port of Tucson
• Inland port with FTZ
• Key intermodal center
• Direct rail service to move produce to Midwest
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Phase 3: Focus on Key Economic Sectors

**But:** Different economic sectors have different transportation performance needs

- Favors high reliability, speed
- Favors lowest transportation cost
- Favors high levels of service (e.g. climate control)

Performance is supply chain specific
Phase 3: Top Economic Sectors by Different Metrics

**By Volume of Flows**

- Mining (except oil and gas)
- Merchant wholesalers, nondurable goods
- Food manufacturing

**By GDP**

- Wholesale trade
- Construction
- Natural resources and mining

**By Value of Flows**

- Merchant wholesalers, durable goods
- Transportation equipment manufacturing
- Mining (except oil and gas)

**By Value of Exports**

- Computer & Electronic Products
- Transportation Equipment
- Minerals & Ores

**By Number of Jobs**

- Computer & Electronic Products
- Transportation Equipment
- Minerals & Ores
Process for Defining “Top Economic Sectors for Focus”

Top Goods Movement Sectors/Commodity Groups

<table>
<thead>
<tr>
<th>Method</th>
<th>Significance for Arizona’s State Freight Plan</th>
<th>Criteria to Identify Top Freight Sectors for Focus</th>
</tr>
</thead>
<tbody>
<tr>
<td>By Value of Flows ($)</td>
<td>Importance to Arizona economy, shippers, receivers</td>
<td>• Values of regional significance</td>
</tr>
<tr>
<td>By Volume of Flows (Ton-Miles)</td>
<td>Capacity utilization and pressure on state freight transportation system</td>
<td>• Significant use of system capacity</td>
</tr>
<tr>
<td>By Contribution to GDP ($)</td>
<td>Importance to overall GDP in Arizona’s economy</td>
<td>• Importance to Arizona economy</td>
</tr>
<tr>
<td>By Export Value ($)</td>
<td>Importance to Arizona trade (exports to other states, international)</td>
<td>• Export potential</td>
</tr>
<tr>
<td>By Employment (Jobs)</td>
<td>Importance to Arizona economy and employment</td>
<td>• Importance to employment in Arizona (particularly high value, high paying jobs)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Role of transportation in sector competitiveness</td>
</tr>
</tbody>
</table>

Source: CPCS
## Phase 3: Focus Sectors

<table>
<thead>
<tr>
<th>Top 10 Sectors for Focus</th>
<th>Related NAICS Codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wholesalers and Retailers</td>
<td>42, 44, 45</td>
</tr>
<tr>
<td>Food and Beverage</td>
<td>311, 312, 722</td>
</tr>
<tr>
<td>High-Tech Manufacturing</td>
<td>334-335</td>
</tr>
<tr>
<td>General Manufacturing</td>
<td>313-315, 325-327, 331-333, 337, 339</td>
</tr>
<tr>
<td>Transportation Equipment</td>
<td>336</td>
</tr>
<tr>
<td>Transportation and Logistics</td>
<td>48, 49</td>
</tr>
<tr>
<td>Mining (except oil and gas)*</td>
<td>212, 213</td>
</tr>
<tr>
<td>Energy (oil and gas)*</td>
<td>211, 324</td>
</tr>
<tr>
<td>Agriculture*</td>
<td>111, 112, 115</td>
</tr>
<tr>
<td>Forestry*</td>
<td>113, 321, 322</td>
</tr>
</tbody>
</table>

*Also included are the focus sectors identified in MAP-21 and FHWA Guidance.*
Phase 3: Sector-Based Transportation Performance Needs

For each sector, we are addressing:

- How supply chains are structured, managed, and related trends
- Transportation performance requirements and decision drivers
- Top three transportation issues in Arizona
- Top three transportation system improvements

Analysis largely informed through consultations (which are ongoing)
Example Sector-Specific Maps:
Warehousing and Retail Clusters (Left), Forestry Sector Employment (Right)
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## Next Steps and Upcoming Meetings

<table>
<thead>
<tr>
<th>Proposed Meeting Date</th>
<th>Planned Activity</th>
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<tbody>
<tr>
<td>August 19, 2015</td>
<td>• Identify Drivers of Future Scenarios</td>
</tr>
<tr>
<td></td>
<td>• Validate System Assessment and Economic Sector Needs</td>
</tr>
<tr>
<td>November 5, 2015</td>
<td>• Define Future Scenarios</td>
</tr>
<tr>
<td></td>
<td>• Validate System Performance</td>
</tr>
<tr>
<td>February 17, 2016</td>
<td>Scenario Results and Implications</td>
</tr>
<tr>
<td></td>
<td>• Validate Scenario Forecasts and Implications for the System</td>
</tr>
</tbody>
</table>
Questions and Discussion

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