Cross Town Improvement Project

Performance Metrics

Cross Town Improvement Project (C-TIP)
Problem Statement

- The inefficiency of cross-town rubber tire interchanges creates conditions that adversely impact:
  - Congestion
  - Efficiency of the transportation network
  - Safety of the motoring public
  - Environment of neighboring communities
  - Energy consumption

Cross Town Improvement Project (C-TIP) Background

- Truck-borne “rubber tire” interchanges are used:
  - When steel wheel rail-to-rail interchanges are not possible
  - To save time (steel wheel rail-to-rail interchanges often take 2-3 days)
  - When service criteria for cutoff connection not met
  - When railroads have car shortages or don’t want to relinquish scarce assets
- Interchange of this traffic must occur, often in metropolitan areas
  - Truck to rail (near ports)
  - Rail to truck to rail (rail interchanges)

Cross Town Improvement Project (C-TIP) Goal

To develop and deploy an information sharing / transfer capability that enables the coordination of moves between parties to ***Maximize*** loaded moves and ***Eliminate*** unproductive moves.

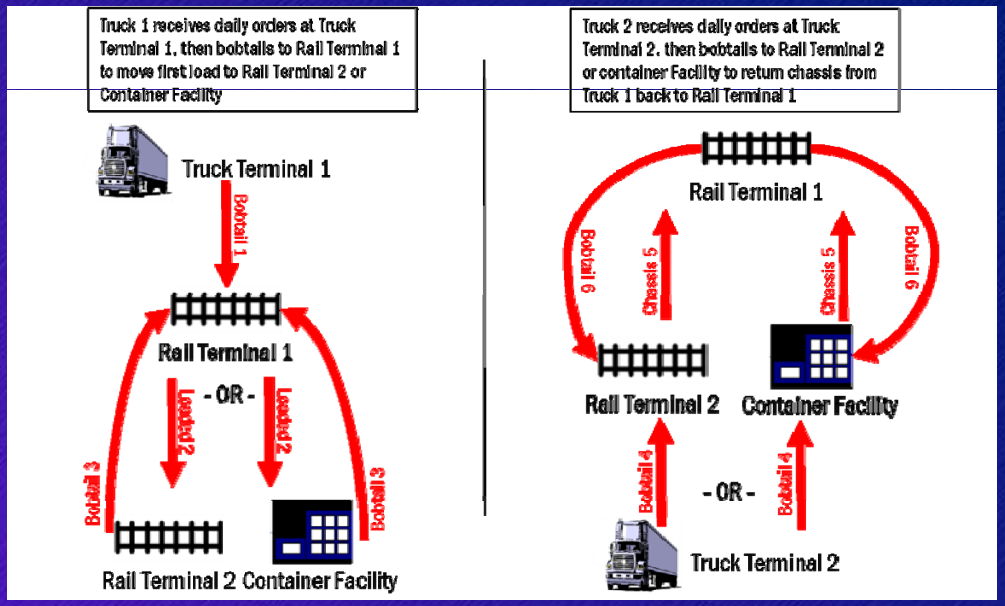
C-TIP Congestion Mitigation

- Because C-TIP is intended to reduce empty trips, it will be an important congestion mitigation tool
- A travel demand management analysis conducted for Kansas City indicates C-TIP has the potential to:
  - Reduce intermodal freight trips by 40%
  - Provide benefits that are equivalent to removing nearly 300,000 personal vehicle trips annually
  - Reduce annual truck VMT by more than 3.7 million
- In the Chicago metropolitan area C-TIP could result in a reduction of nearly 2 million truck trips annually, with a passenger car equivalent of an annual reduction of 5.85 million trips

Current Cross-Town/Local Delivery

Worst Case:
1 delivery requires 6 trips

Trip 1: Truck 1 from Truck Terminal 1 to Rail Terminal 1 (bobtail);
Trip 2: Truck 1 from Rail Terminal 1 to Rail Terminal 2 OR Local Delivery (loaded);
Trip 3: Truck 1 from Rail Terminal 2/Local Delivery to Rail Terminal 1 (bobtail);
Trip 4: Truck 2 from Truck Terminal 2 to Rail Terminal 2 (bobtail);
Trip 5: Truck 2 from Rail Terminal 2 to Rail Terminal 1 (chassis repositioning); and
Trip 6: Truck 2 from Rail Terminal 1 to Rail Terminal 2 (bobtail).



C-TIP Performance Metrics
Potential Weekly Trip Reductions

Cross-Town Trips

Trucking Company	Weekly Cross-Town Loads Moved	Current Weekly Trips Required [1] (80 percent bobtail to Terminal)	Total Weekly Trips Post-C-TIP [2] (50 percent bobtail to Terminal)	Percent Change: Pre- versus Post-C-TIP Trip Reduction – percentage of total trips reduced	Truck Trips Eliminated per Week
Greer	120	384	240	-38 %	144
Mid Cities	50	160	100	-38 %	60
ITS	30	96	60	-38 %	36
Total	200	640	400	-38 %	240

Local Delivery Trips

Weekly Local Deliveries	Current Weekly Trips Required [1] (80 percent bobtail to Terminal)	Total Weekly Trips Post-C-TIP [2] (50 percent bobtail to Terminal)	Percent Change: Pre- versus Post-C-TIP Trip Reduction – percentage of total trips reduced	Truck Trips Eliminated per Week
1,400	4,480	2,800	- 38%	1,680

C-TIP Performance Metrics
Potential Congestion Mitigation

Total Trip Reduction

Weekly Cross-Towns Trips Eliminated	Weekly Local Delivery Trips Eliminated	Total Weekly Trips Eliminated	Total Annual Truck Trips Eliminated	Annual Passenger Car Trips Eliminated (using passenger car equivalent)
240	1,680	1,920	99,840	299,520

VMT Reduction

Total Annual Truck Trips Eliminated	Total Annual VMT Reduction	Annual Passenger Car VMT Eliminated (using passenger car equivalent)
99,840	1,248,000	3,744,000

Estimates based on:
- One-way Trip Length = 12.5 mile average trip length (ref: C-TIP baseline data, 2005)
- Trip Equivalent = 3 car trips/truck trip (ref: Highway Capacity Manual)

Benefit-Cost Analysis

Cost/Benefit Analysis

- Work in process…
- Functional requirements are being defined
- Reengaging stakeholders
- Technical design underway
- Cost/Benefit analysis to be defined

Technology Overview

C-TIP Components

- Intermodal Move Exchange (IMEX)
  - Facilitate exchange of load data and carrier availability
  - Provide collaboration between railroads, terminal operators and trucking companies
- Wireless Drayage Updating (WDU)
  - Provide the distribution of information to drivers regarding load assignments, delivery instructions, traffic congestion, etc.
  - Supports two-way communications and incorporation of location-based services

C-TIP Components (cont.)

- Chassis Utilization Tracking (CUT)
  - Track/manage use of intermodal chassis equipment
  - Facilitate chassis pool management
  - Maintain usage statistics
- Real-Time Traffic Monitoring (RTTM)
  - Provide up-to-the-minute roadway conditions, travel speeds, predicted travel time, etc.
  - Incorporate use of KC Scout system of roadway sensors for traffic status information to support dispatch and driver decision processes

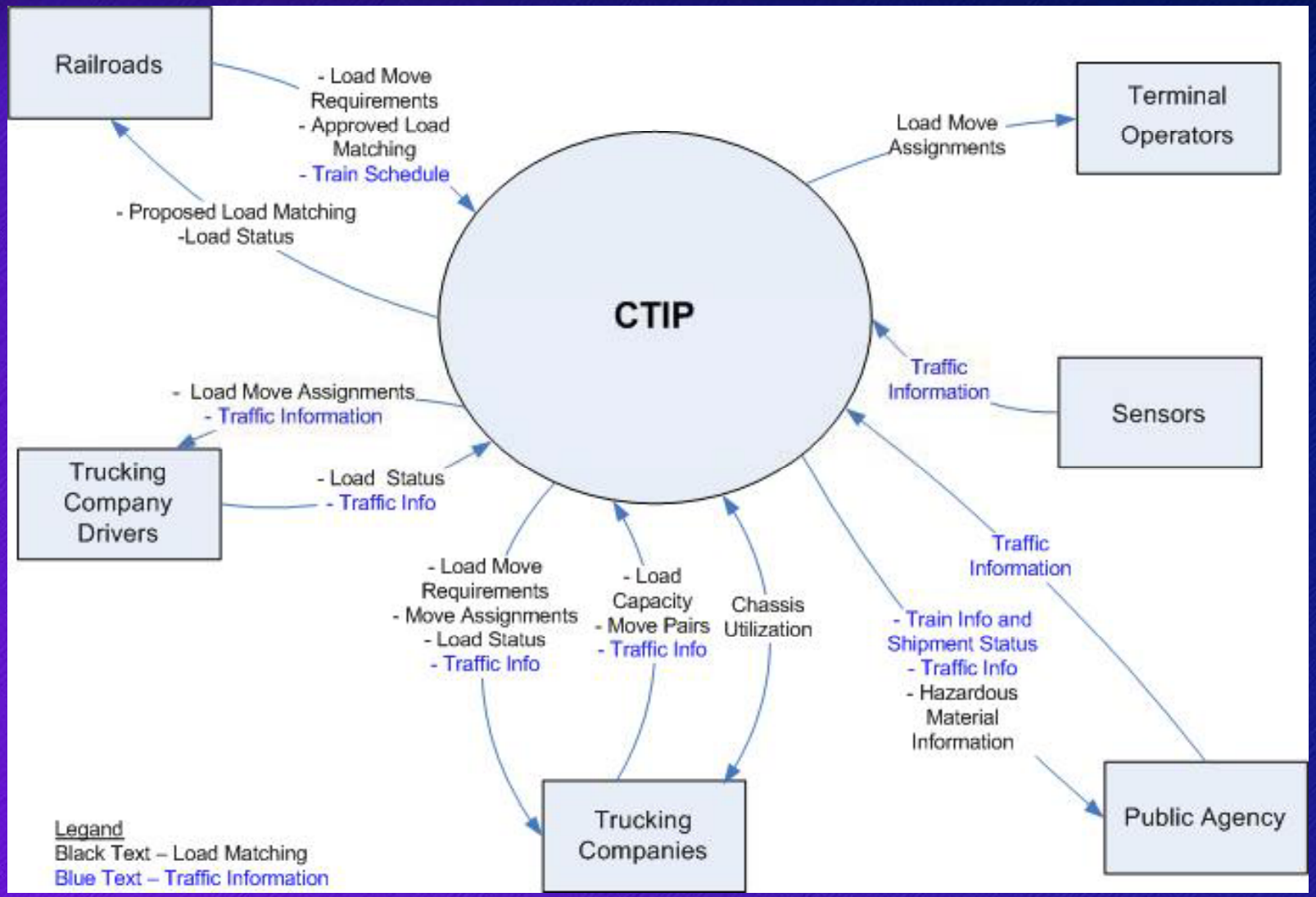
C-TIP Status

- Completed Activities
  - Mapping of “AS-IS” business processes complete
  - Technology assessment complete
  - Partner Operation Coalition complete
  - Concept of Operations Completed
  - Case Study on how C-TIP will effect Congestion Mitigation Completed
  - Funding secured

C-TIP Application Development Status

- Initial prototype application being redeployed into EFM architecture
  - Complete in December ’08
  - Leveraged/reused some CEFM pilot code
  - Data exchange information flowing from UP, BNSF, and NS
- C-TIP functional requirements and use cases completed in December ’08 for all components
- First deployment of IMEX module expected in July ’09
- Future C-TIP components deployed through 2010

C-TIP Functional Architecture



Methodology for Commercialization

Methodology to Commercialization

- Define business model
- Identify support roles for technology provider
- Install/implement Registry and Enterprise Service Bus
- Leverage existing pilot software and services
- Locate business partners/customers for implementation
- Determine ongoing support roles for technology provider and business partners

C-TIP Project Partners

- Mid-America Regional Council (MPO)
- Kansas DOT, Missouri DOT
- Kansas City Scout
- 4 Class I Railroads - UP, BNSF, NS and KCS
- 3 Trucking (drayage) firms.
- Kansas City SmartPort, Inc.
- Intermodal Freight Technology Working Group (IFTWG)

C-TIP Support

"The Mid-America Regional Council recognizes the significant benefits that CTIP, in concert with Kansas City SmartPort and other strategic freight management initiatives, offers the Kansas City region. These include improved truck safety, better traffic flow and air quality while enhancing our region's economic competitiveness as national freight distribution center.

Through a rigorous and competitive application process, MARC selected CTIP for an award of $200,000 from the 2009 Congestion Mitigation Air Quality program.

– Ron Achelpohl, Assistant Director of Transportation, MARC."