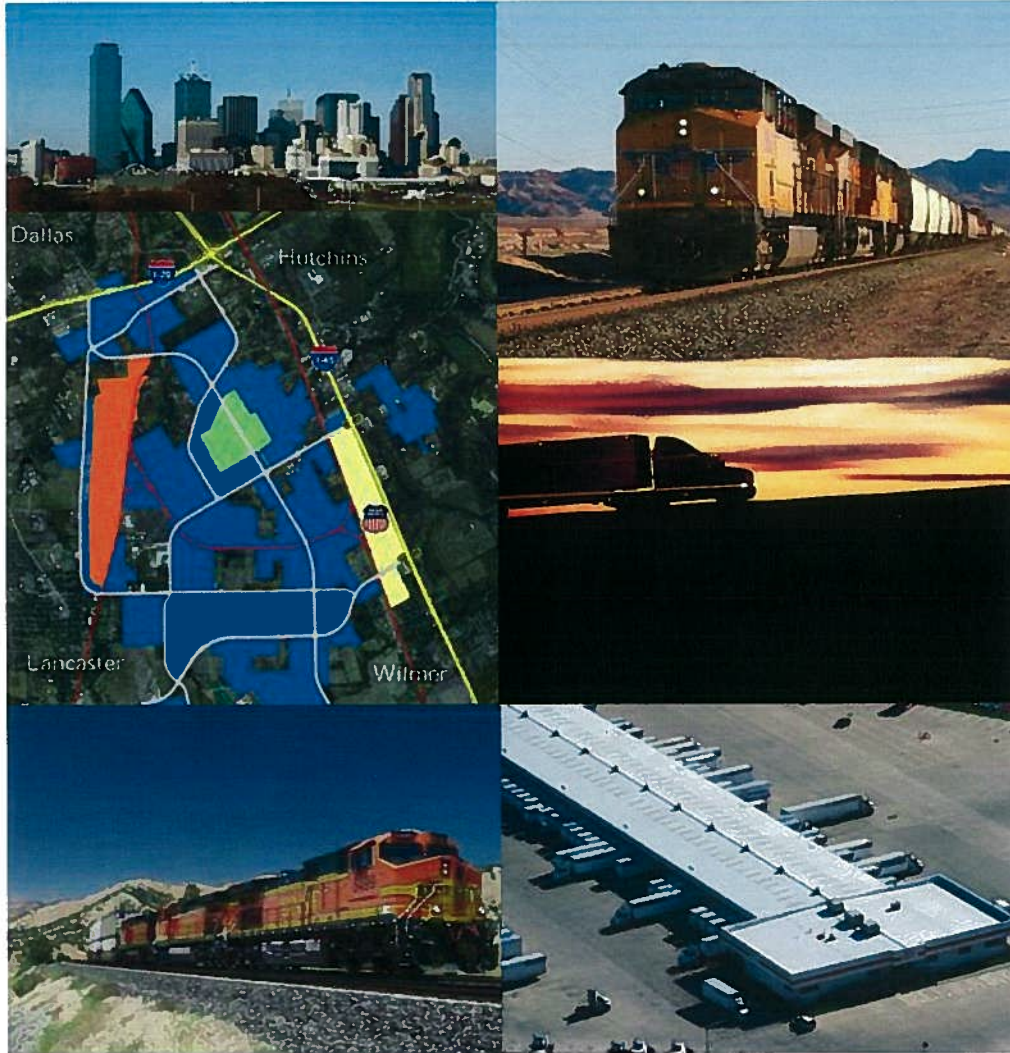


Final

# IIPOD Competitive Assessment and Opportunities Study

## Task 4: Recommendations



**Submitted to:**

**Office of Economic Development  
City of Dallas**

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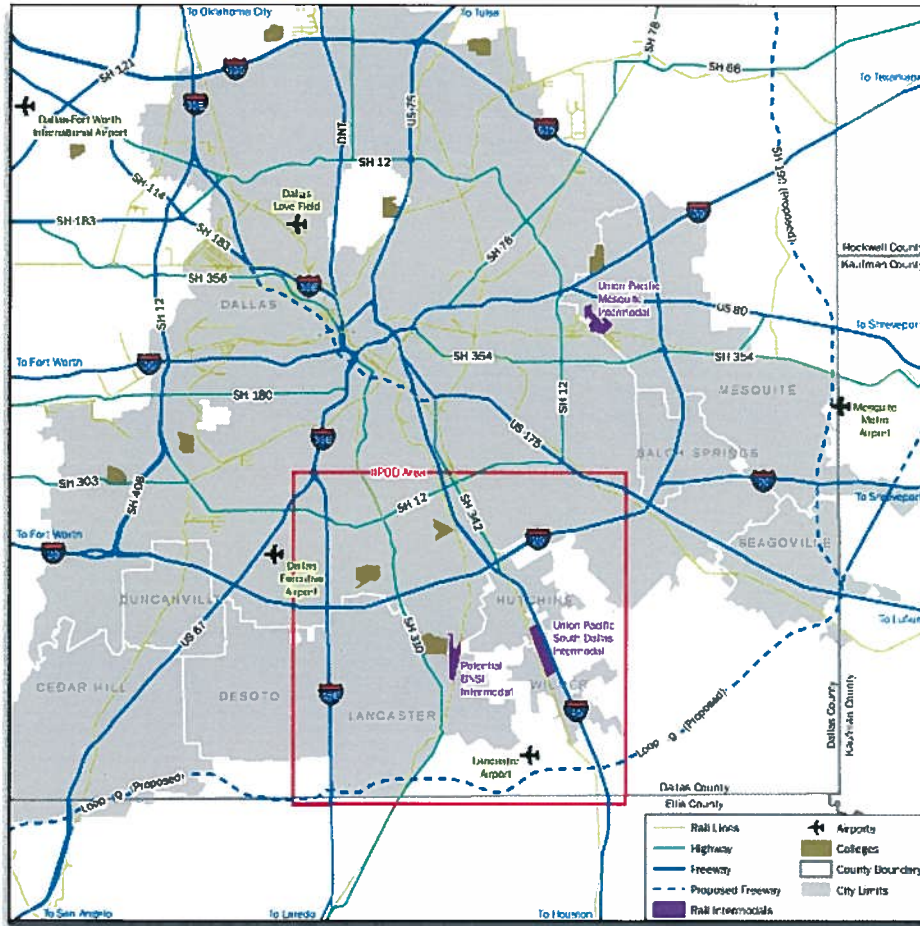
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# 1. Study Background

## 1.1 IIPOD Profile

The International Inland Port of Dallas (IIPOD) is a public-private partnership designed to further develop Dallas as a premier logistics and distribution center, and regional freight transportation hub. IIPOD is a catalyst for economic development supporting investment, job growth and the local tax base. The project is located in Southern Dallas County, covering an impact area of 234,000 acres across 12 municipalities. IIPOD is built on the region's excellent transportation infrastructure, which includes five interstate highways and two Class I railroads – UP and BNSF – and is focused on the I-35, I-45, I-20 and the future Loop 9. IIPOD is the location of UP's recently completed Dallas Intermodal Terminal and a potential BNSF intermodal terminal. The area also includes the Lancaster Airport. The location of the IIPOD is shown in Figure 1-1. Long term objectives include the future incorporation of new transport concepts and technologies, such as agile terminals and enhanced security and logistics services to facilitate faster movement and processing of international cargo.

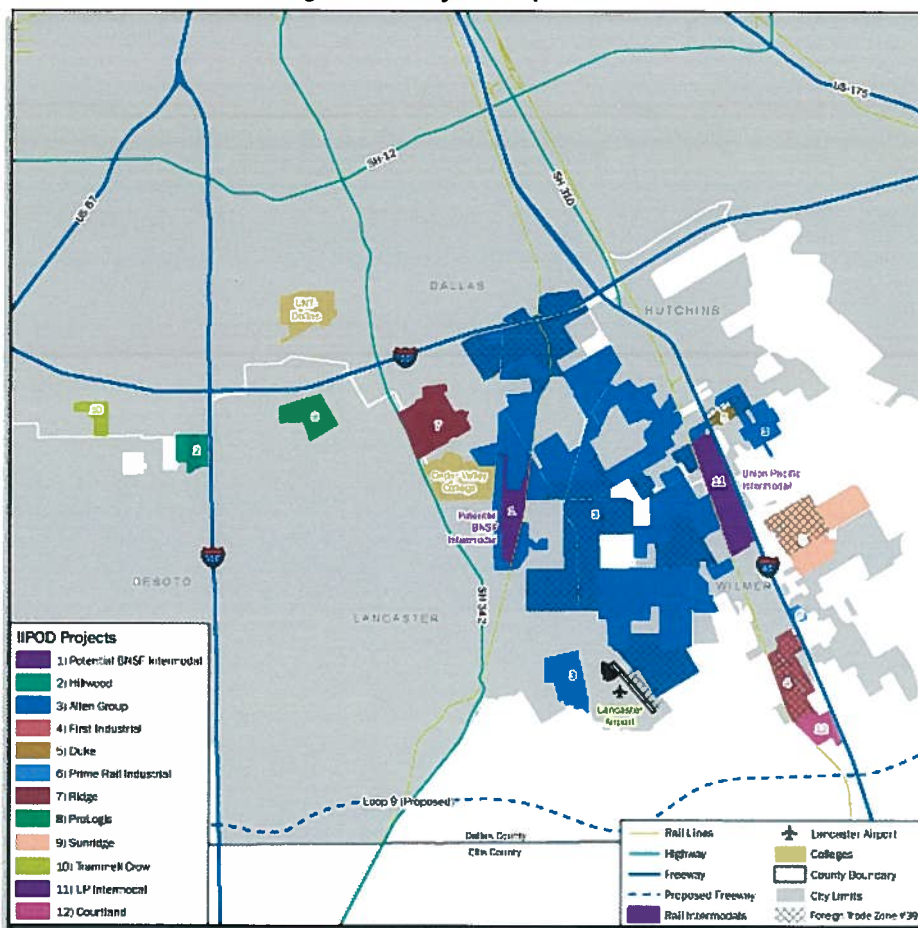
Figure 1-1: Location Map of IIPOD



Source: City of Dallas

IIPOD incorporates a variety of land uses and facilities, which will be built out over the next 30 years, driven by market needs. As shown in Figure 1-2, two important elements are the intermodal rail yards developed by UP and BNSF, and logistics parks surrounding these facilities, which will support movements of cargo by rail. Another important element is the location's proximity to the future Loop 9, a highway project designed to provide improved access for Southern Dallas County.

Figure 1-2: Layout Map of IIPOD



Source: City of Dallas

## 1.2 Study Objective

The City of Dallas retained TranSystems to evaluate the competitive position and opportunities for directly or indirectly advancing freight movement into, out of and through the Dallas area. The study comprised three main research tasks: (1) Existing & Projected Cargo Volumes, (2) Global, National, and Regional Freight Transportation Influences, and (3) Competitive Assessment. The analysis and findings of these research tasks were presented in three individual reports. The objective of Task 4 report is to present main recommendations for further development of the IIPOD project, based on the analysis and findings of the previous tasks.

## 2. Recommendations

The main recommendations are described by opportunity and strategy. Where appropriate, the opportunity description provides guidance on trade lanes, commodity focus, transportation modes and other factors that may be relevant. The strategy element provides, when appropriate, general guidance on collaboration with other entities, funding and time horizon.

## A. Dallas – Houston Intermodal Rail Corridor

### Opportunity

The Port of Houston is the predominant container port in Texas, and it handles import and export cargo generated by the Dallas region. Today, this cargo moves by truck between Houston and Dallas. Projected medium to long term growth of container traffic is anticipated to generate additional truck traffic and place added strain on the highway system between the two locations.

*Container traffic through Texas ports is projected to increase from 1.85 million TEU in 2007 to 6.21 million TEU in 2037. The great majority of this traffic will pass through the Port of Houston.*

The opportunity is to evaluate the potential for intermodal rail service between the Port of Houston and IIPOD, a distance of 250 to 265 miles (depending on railroad). The expectation is that short-haul rail service would operate over existing rail lines and utilize IIPOD intermodal rail yards. The opportunity extends to logistics facilities and services that could be developed at IIPOD to process the containerized cargo. Containerized commodity types include higher-value imports of intermediary and finished goods.

*Short-haul intermodal rail service is successfully operating between: Port of Norfolk, VA and Virginia Inland Port (Front Royal); Port of Savannah, GA and Atlanta; Ports of Seattle/Tacoma and Portland, and Ports of Seattle/Tacoma and Eastern WA State.*

The Dallas-Houston Corridor is the primary opportunity, but in the future the City of Dallas should also look at potential secondary corridors: Dallas-Corpus Christi (405 to 470 miles by rail) and Dallas-Freeport (330 miles by rail) if these two ports are successful in expanding their presence in the container cargo market.

There are a number of successful short haul intermodal services in operation around the country, which can be used as benchmarks. They are supported by factors that include expensive costs for alternative trucking, traffic congestion on highways, high cargo volume corridors, and participation of major railroads.

### Strategy

The success of short haul intermodal rail service between Houston and IIPOD will be driven by successful collaboration between the City of Dallas and other stakeholders. Potential partners for evaluation of rail service include, but are not limited to: Port of Houston Authority, City of Houston, Harris County, BNSF Railroad, UP Railroad, container shipping lines, and Texas Department of Transportation. One important element in the evaluation process is how to address potential rail congestion issues in and through Houston.

*Short-haul intermodal rail service has been successful when collaboration occurs between stakeholders. Georgia Ports Authority worked with Norfolk Southern Railroad and container shipping lines to develop rail service between the Port of Savannah and Atlanta, a distance of 279-miles.*

The City of Dallas would act as a facilitator and would not make direct investments in rail service. Short haul rail service would be developed and operated by the private sector, and supported by local, state and federal resources where appropriate. Collaborating parties would pursue state and federal financial support for any infrastructure improvements that are required to bring service online.

*Funding for the Norfolk-Columbus Heartland Rail Corridor came from a blend of local, state, federal and private resources.*

The time horizon for development of short-haul intermodal rail service will be driven by a mixture of planning requirements and market needs; and should be a medium to long term objective for the City of Dallas.

## B. Dallas – Northern Mexico Freight Corridor

### **Opportunity**

Mexican border-states are important trade partners with the Dallas region. Cargo moves by truck and rail modes through the major border crossing points of Laredo, El Paso, Eagle Pass and Brownsville. Freight flows are a blend of raw materials, intermediary products and finished goods. IIPOD is well positioned to service these freight flows due to its location on major Dallas-Mexico highway and rail transportation corridors. The proposed Trans-Texas Corridor could further enhance the attractiveness of IIPOD. Long term projected trade growth will generate additional truck movements between the Mexican border-states and Dallas, and place additional demands on the Interstate-35, which is the principal highway corridor for Mexican truck freight.

*In 2007, the four Mexican border states of Chihuahua, Coahuila, Nuevo Leon and Tamaulipas generated 5.2 Million short tons of truck cargo, which accounted for 61% of total Dallas-Mexico truck cargo; and 0.4 million short tons of rail cargo, which was 30% of total Dallas-Mexico rail cargo.*

*Cargo moving by truck between the Dallas region and Mexico is projected to more than double over the next 30 years. Cargo growth and highway congestion may create opportunities to convert some truck freight to rail service.*

The opportunity is to evaluate the potential for intermodal rail service between IIPOD and key freight centers in Northern Mexico (for example, Monterrey), similar to the Dallas-Houston rail concept described earlier. In particular, higher-value commodities should be targeted as they are suitable for intermodal rail service, and the logistics facilities and services offered by IIPOD. A critical element will include the incorporation of technologies to enhance cross-border transit efficiency and security (see the "Technology and Security" opportunity discussed later in the report).

### **Strategy**

The success of intermodal rail service between Northern Mexico and IIPOD will be driven by successful collaboration between the City of Dallas and other stakeholders, competitive pricing, suitable infrastructure and an efficient, secure border crossing process. Potential partners for evaluation of rail service include, but are not limited to: UP Railroad, BNSF Railroad, Ferromex, Texas State Government, U.S. Customs and Border Protection (BCP), Mexican Customs and Mexican State governments.

*The higher-value commodities accounted for an estimated 56% of total Dallas-Mexico truck tonnage in 2007. Examples include Electrical Equipment, Food or Kindred Products, Transportation Equipment, and Machinery.*

*Efficient and secure cross-border transportation is critical for shippers and service providers. Use of technology supports this market need.*

The City of Dallas would act as a facilitator and would not make direct investments in the operation of rail service. The intent would be for private sector operation of rail service, supported by local, state and federal resources as appropriate. Collaborating partners should pursue state and federal financial support for any infrastructure improvements that are required to bring new services online.

The time horizon for development of new intermodal rail services will be driven by a mixture of planning requirements and market needs; and should be a medium to long term objective for the City of Dallas.

## C. Higher-Value Commodities

### Opportunity

A significant share of freight moving in and out of the Dallas region comprises higher-value commodities. "Higher value" not only refers to commodities with a relatively high value per short ton (for example, electronics), but also covers those commodities that are processed (for example, food products) as opposed to basic commodities (for example, grain) and those more likely to require warehousing and logistics services. Higher-value commodities are consumed in the Dallas region, and also distributed from the Dallas region to other locations in Texas and outside Texas. These commodities also have a greater propensity to move by intermodal rail service, including shipments of containerized imports from major ports such as Los Angeles and Long Beach.

*Projected long term growth of higher-value commodity tons by freight flow (total growth over 30-year forecast period):*

- +154% - Dallas domestic truck
- +143% - Dallas domestic intermodal rail
- +115% - Dallas-Mexico cross-border
- +99% - Dallas-Canada cross-border

*In 2007, higher-value commodities accounted for (share of total tons):*

- 87% of Dallas inbound and outbound domestic intermodal rail cargo
- 53% of Dallas-Mexico cross-border cargo by truck and rail.
- 40% of Dallas inbound and outbound domestic truck cargo
- 32% of Dallas-Canada cross-border cargo by truck and rail

Higher-value commodities are projected to grow at a faster rate than the overall market, driven by long term economic trends such as population growth and expansion of per capita income. The opportunity for IIPOD is to offer logistics facilities and services for the handling of such commodities. Facility examples include intermodal rail yards, warehousing and distribution centers, and cross-docks. Services may include basic storage to pick-and-pack and light assembly.

### Strategy

The opportunity is partially integrated with the development of the intermodal rail corridors (Dallas-Houston, etc.) for higher-value commodities moving by rail. For example, higher-value commodities account for a large share of the containerized cargo imported through the Port of Houston, which could be transferred by intermodal rail service to IIPOD for deconsolidation, warehousing and distribution.

The opportunity also extends to intermodal rail cargo moving in other corridors, so the marketing of IIPOD should also target these opportunities. For example, the Southern California-Dallas intermodal rail corridor which handles a large volume of containerized imports and exports moving through the ports of Los Angeles and Long Beach. Another "international" corridor is the Port of Oakland-Dallas intermodal rail corridor, which may expand in the future based on proposed new investments in container terminal capacity and intermodal rail facilities at the Port of Oakland. Most of the traffic in these corridors comprises higher-value containerized commodities.

*In 2007, the top three domestic intermodal rail corridors were (share of Dallas region's total inbound and outbound intermodal tons):*

- 63% Dallas-Los Angeles BEA\*  
(includes Ports of Los Angeles and Long Beach)
  - 17% Dallas-Chicago BEA
  - 9% Dallas-San Francisco BEA  
(includes Port of Oakland)
- \* Business Economic Area

The City of Dallas should collaborate with the major railroads (BNSF and UP) and others (shipping lines, 3PLs, etc.) to develop IIPOD as a destination and origin point of higher-value commodities moving in major intermodal lanes, both existing lanes and short-haul rail service connected to the Port of Houston. In addition, IIPOD should be positioned as a local and regional distribution hub for trucked shipments of higher-value commodities.

## D. Technology and Security

### **Opportunity**

Shippers are using information technology (IT) to improve the efficiency and lower the costs of their supply chains. Advances in IT are expected to allow shippers to better manage inventory level; for example, by replenishing “out-of-stock” inventories in one region with product from “over-stock” areas. This will involve upgrading and/or replacing warehouse management systems and incorporating RFID and other changes to improve real-time data collection. The use of IT to enhance security compliance in the international supply chain (for example, Dallas-Mexico) will remain an important industry trend.

*Kansas City SmartPort’s Trade Data Exchange (TDE) is designed to connect different international supply chain parties and, using various technologies, provide users with shipment information – e.g. in-transit status. TDE is scalable and not constrained by geographic region, offering potential for participation by other inland logistics centers.*

*Kansas City SmartPort is pursuing an opportunity to establish the SmartPort Pre-Clearance Facility. The inland facility would process US exports to Mexico, to create secure sealed shipments from Kansas City to final destination in Mexico.*

The opportunity for IIPOD is to participate in the development of strategies and the application of secure intelligent transportation systems to create secure transport corridors, notably for the higher-value commodities moving in the cross-border trade with Mexico. Secure corridors involve the application of software and hardware to provide real-time information on shipments including departure, en-route shipment location, arrival at destination, and in-transit security of the trailer or container.

### **Strategy**

The City of Dallas should pursue a collaborative approach to integrate IIPOD into the development of secure transport corridors. For example, the City of Dallas could coordinate with the private companies serving IIPOD on future security needs and strategies for trade with Mexico. A collaborative approach should also be considered with entities such as Kansas City SmartPort, so that the City of Dallas and IIPOD can participate in initiatives such as the Trade Data Exchange, which is scalable and not constrained by geographic region. Another strategic pursuit is the development of a IIPOD pre-clearance facility for US exports to Mexico, creating secure shipments on departure from IIPOD to final destination in Mexico.

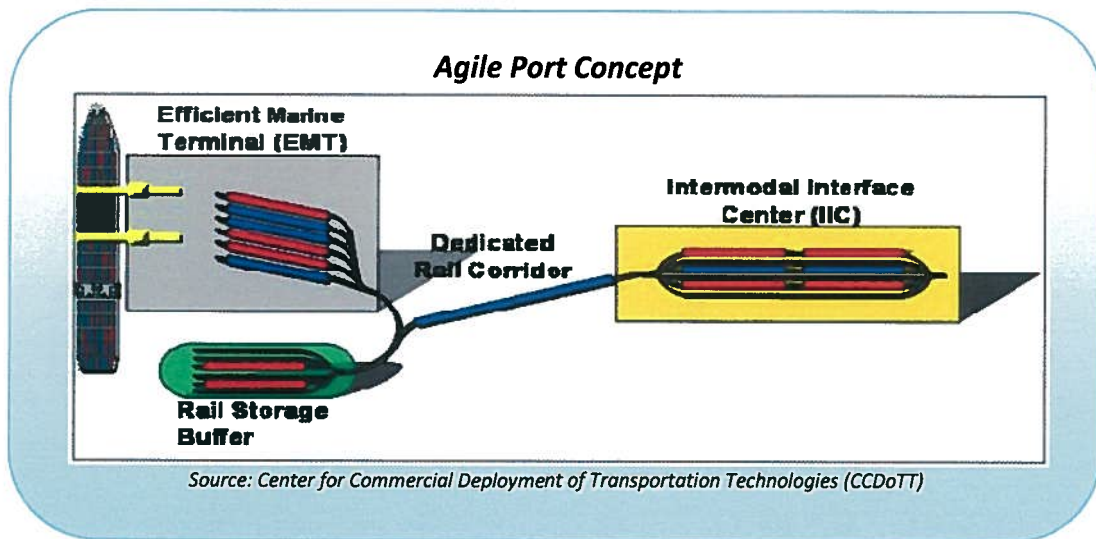
## E. Agile Port Concept

### Opportunity

Agile port concepts are designed to increase the throughput capacity of existing terminal infrastructure by integrating the marine terminal with an inland intermodal facility. An important element is the transfer of container sorting and storage from the marine terminal to the inland location, thus boosting the throughput capacity of the marine terminal. The inland location would offer lower land costs and relatively less congested infrastructure. The inland facility is used to sort containers, build full unit trains for inland markets, and receive full unit trains from inland points.

*The Center for Commercial Deployment of Transportation Technologies (CCDoTT), based at Cal State University of Long Beach, is sponsoring research into agile port concepts. CCDoTT is focused on evaluating maritime transportation issues on behalf of both commercial and military interests, including dual-use applications.*

Houston and other Texas Gulf ports are planning new investments in container terminal capacity and their throughput is projected to grow over the long-term. As these container ports approach throughput capacity under current operating conditions, they may seek out alternative agile port methods to improve their throughput capacity. The long term opportunity for the City of Dallas would be to present IIPOD as a prospective location for the inland terminal component of an agile port system.



### Strategy

The City of Dallas should remain up to date on agile port concepts and any future proposals that may arise to apply such concepts to container terminals at ports in Texas. The opportunity could be integrated as a long term component of the evaluation of short-haul intermodal rail service between Texas ports and IIPOD.

## F. Education

### **Opportunity**

The availability of a trained workforce and an educational pipeline to provide new entrants to the logistics workforce are strengths for locations competing for investment in the logistics industry (warehousing and distribution, rail terminals, etc.). Schools in the Dallas region offer a very strong array of educational programs in the logistics field, and this is a competitive strength for Dallas. Cedar Valley College and University of North Texas-Dallas, two schools located in close proximity to the IIPOD, offer logistics programs. The opportunity is to collaborate with educational institutions in the region, to ensure the logistics programs offered by schools meet the skill requirements of current and future logistics activities at IIPOD. Further opportunities for collaboration may involve internships at IIPOD businesses to provide real world experience to logistics program students.

**Logistics Programs at Schools in the Dallas Region**

<b>Close to IIPOD Location</b>	<b>Program</b>
Cedar Valley College, Dallas	Associate of Applied Sciences (A.A.S.) in Logistics Management & Technology
University of North Texas – Dallas, Dallas	B.S. in Logistics and Supply Chain Management
<b>Other Dallas Region Schools</b>	
North Lake College, Irving	A.A.S. in Logistics Management & Technology
Texas Christian University, Fort Worth	B.B.A. in Supply and Value Chain Management
University of North Texas, Denton	B.S. in Logistics M.B.A. in Logistics and Supply Chain Management
University of Texas - Arlington	M.S. in Logistics

### **Strategy**

The City of Dallas should collaborate with schools in the area to ensure logistics programs and the number of graduates meet the current and future needs of businesses operating at IIPOD. Collaboration could be through an educational steering committee that draws on representatives of the City, industry and schools.

## G. Environmental

### **Opportunity**

Shippers and service providers are starting to incorporate environmental impacts into supply chain design and operation, in response to more stringent environmental regulations and higher energy costs. Environmental impacts are being addressed in a variety of ways from building design, equipment efficiency, vehicle route management, and staff training.

Service providers, including railroads, are also addressing environmental impacts during design of facilities. Initiatives include the use of rail-mounted, electric gantry cranes, the elimination of diesel powered gantry cranes and yard tractors, and use of low-emission diesel locomotives.

*Examples of green logistics initiatives for warehouses include:*

- *Strategic warehouse & distribution center placement to control transportation costs*
- *Sustainable and LEED certified buildings*
- *Solar power*

**Solar Panel Array on Warehouse Roof**



One area of increased focus is the improved design of distribution centers (DC) and warehouses to incorporate greater energy efficiency. Leadership in Energy and Environmental Design (LEED) was developed by the United States Green Building Council (USGBC) to transform the built environment to sustainability by providing the building industry with consistent, credible standards for what constitutes a green building. Design aspects include upgraded insulation, water runoff controls, lighting control systems, skylights and windows to supplement "wired" lighting, and painting walls, ceilings and columns white to help improve lighting efficiency, and improved building ventilation. More aggressive programs include the installation of solar panels on roofs to provide off-grid power.

### **Strategy**

In the development of IIPOD, the City of Dallas should encourage the integration of green technologies into the development process subject to cost implications for shippers and service providers. Applying an environmentally friendly development strategy and state of the art technology may provide market differentiation. The City should also maintain awareness of current and future trends in the development and application of green technologies in the logistics industry.

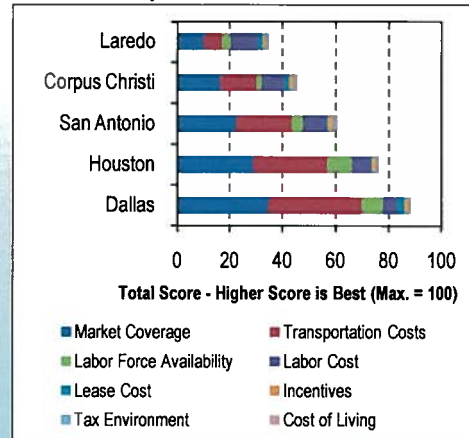
## H. Marketing of IIPOD

### Opportunity

The projected growth of domestic and international cargo traffic presents considerable opportunities for IIPOD. In the marketing and promotion of IIPOD, the City of Dallas should leverage Dallas' strong competitive position against other locations in Texas and outside Texas to take advantage of these long term opportunities.

Based on location selection criteria used by shippers to identify and select sites for warehouses and DCs, Dallas emerges as the highest ranked location when compared to Houston, San Antonio, Corpus Christi, and Laredo. Dallas also performs strongly when benchmarked against a selection of major freight centers in other parts of the country – Kansas City, Memphis, Atlanta and Savannah.

**Dallas Ranks Highest as a Location for Warehouse/Distribution Center Activities**



**Dallas Offers Large Local and Next-Day Markets**



In comparison to the other locations in Texas, Dallas offers the largest local and next-day markets (as measured by population within specific driving times), competitive lease rates and transportation costs (as measured by representative truck rates to major markets), and an incentive package comparable with other locations.

Dallas provides access to a local market population of 10.7 million (local market defined by one-way driving time of 4 hours) and a next-day market population of 29.2 million (next-day market defined by one-way driving time of 8 hours). Total population growth is projected at around 10 percent over the next five years.

### Strategy

The City of Dallas should market Dallas/IIPOD as the most attractive location in Texas for local/regional distribution, including international freight moving in corridors with Mexico, Western ports and Texas ports. Marketing strategy should emphasize Dallas' strengths including population coverage and competitive costs, as well as IIPOD's location astride important local, regional and national highway and rail corridors. Integrated into the marketing strategy should be the promotion of information technology to enhance the efficiency and security of supply chains, and the encouragement of green technologies to reduce the energy footprint of IIPOD activities. Marketing and promotion should also specifically target the major freight corridor opportunities described earlier – Dallas-Houston Intermodal Rail, Dallas-Northern Mexico Freight Flows, and Higher-Value Commodities moving in and out of the region.