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## 1.0 Executive Summary

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### 1.1 BUSINESS OVERVIEW

Chicago is continually making infrastructure enhancements that support its status as a world-class city. Through an innovative arrangement with private sector partners, the Chicago Transit Authority (CTA) has an immediate opportunity to contribute to these efforts through the establishment of high-quality, direct airport train service (Direct Service) between downtown and O'Hare and Midway Airports. Key to this opportunity are CTA's agreements with The Mills Corporation and the City of Chicago, in which a private developer and the City are contributing a substantial share of the cost of a new downtown station that will anchor the airport train service.

This unique private investment in Chicago's public transportation system can facilitate CTA's plans to provide the type of airport service that has been successfully implemented in major cities around the world. In both its size and proportion to total project cost, this private investment is unprecedented and, most importantly, is already in place. Based on this landmark agreement, CTA should move ahead with the implementation of a business plan for the new service.

The airport train service is an extension of CTA's core mission to support regional mobility, and will leverage and complement capital improvements being made at both airports. The proposed Direct Service leverages existing CTA resources and assets and can potentially create new revenue streams or offset costs carried by CTA's local transit services. The Direct Service would also enhance CTA's overall abilities to innovatively link people, jobs, and communities with quality, affordable transit services.

A viable direct airport service can be initiated by CTA from the new downtown station to both airports in approximately two years in order to meet contractual obligations with the developer of the station site. Through the use of rail cars specially outfitted for airline passengers, this initial Direct Service would provide customers with direct, closed-door service (non-stop via CTA's existing Blue and Orange Lines). The Direct Service would enable CTA to improve airport mobility within two years and provide flexibility for the ultimate phasing in of a full express airport service (Express Service).

As funding becomes available to finance a series of infrastructure investments, the Direct Service can be transitioned to full Express Service that will result in greater time savings and travel time reliability. Several important components must be added including new or upgraded station facilities and infrastructure to enable the future express airport trains to pass local trains. Prompt phasing in of Express Service will become even more important if the Chicago region is successful in its bid to host the 2016 Summer Olympics. Premium amenity airport train service will be a desirable option for Olympic visitors to Chicago. Concurrently, CTA's local rail service would also benefit from upgrades associated with the phased airport train service infrastructure improvements.

Premium fare single market services are not CTA's traditional business. Therefore, it is recommended that CTA tap into the existing domestic and international market of transportation service providers to enlist the private sector to manage both the initial Direct Service and the ultimate Express Service. The selected management company would be the "face" of the new service by providing all marketing and customer service, while utilizing CTA to operate and maintain the trains. A public/private partnership

such as this can balance risks and allow for cost-effective financing for the eventual build-out to full Express Service.

CTA should immediately begin the process of establishing a partnership with a qualified provider of transit services for the initial Direct Service. The procurement should be structured in a flexible manner to allow for evolution of the service to the full Express Service, including the delivery of the infrastructure. Over the next few years, CTA and its partners should also work to identify sources of funds to close the gap that is projected to exist between the capital and financing costs of the Express Service and the estimated financing capacity.

## **1.2 SERVICE DESCRIPTION**

In developing the Express Airport Train Service Business Plan, case studies were completed on 21 similar airport rail links that exist or are planned in Europe, Asia, Australia, Africa, and North America. This research on fare levels and structures, operational characteristics, ownership structures, service offerings, funding sources, marketing strategies, and strategic partnerships helped provide context and a basis for the analysis of an airport train service in Chicago.

The Express Service will provide direct, non-stop rail service from a downtown Chicago station to O'Hare and Midway airports. The initial Direct Service configuration will run closed-door service from the Loop to each airport with the same travel times as current CTA service, but with significant comfort enhancements. Ultimately, as additional infrastructure investments are made, shorter travel times will be achieved.

The downtown station will be located at 108 N. State Street, a centrally located development site with retail, office, and hotel space bounded by Randolph, Dearborn, Washington, and State Streets. Trains to both airports are expected to have clock-face departures from the downtown station every 15 to 30 minutes for at least 16 hours per day.

The initial Direct Service would run on existing track shared with CTA Blue, Red, and Orange lines. The travel times expected for the Direct Service are 45 minutes to O'Hare and 30 minutes to Midway. Direct Service operations will be scheduled in-between the existing local train service on the Blue, Red, and Orange Lines.

As funds become available, additional track would be constructed, allowing the airport trains to pass regular service trains making intermediate passenger stops. There is also the potential for Blue and Orange Line customers to experience improved service as a result of many of these improvements. Ultimately, a nominal Express Service running time of 30 minutes is projected between downtown and O'Hare Airport, while only 20 minutes will be required for travel between Midway Airport and downtown.

The airport service trains would begin and end their operating day from CTA's existing Midway yard and shop. Schedules developed for the business plan provide about 70 one-way trips per day (the same schedule would be in effect seven days per week). Preliminary staffing estimates to support the ultimate Express Service indicate a 111-person requirement (all classifications from Line Manager to customer assistant, to train operators and mechanics have been considered). Requirements include dedicated positions in supervision, train operations, servicing, and repairs.

Over time, there will be investment choices available to CTA and its private sector partners to build the infrastructure needed to reduce airport train service travel times. On the O'Hare route, there is an option to develop short sections of passing tracks along the elevated portion of the Blue Line or to create a longer stretch of passing tracks on a new alignment along the Kennedy Expressway and Union Pacific Railroad. The Kennedy Expressway-UP alignment offers a shorter travel time, a stretch of dedicated track, and enhanced opportunities to significantly improve service for customers of ordinary CTA rail services, but at a significantly higher capital cost. Working with its funding partners, CTA needs to determine whether to continue study of the Kennedy Expressway-UP Alignment. A Midway express route has also been analyzed, in which trains would travel on the Orange Line track with the future implementation of one passing location and a new Midway Airport station.

**Table 1: Direct Service and Express Service Overview**

	Direct Service	Express Service - O'Hare Alignment Options	
		Blue Line Elevated Passing Track Plan	Kennedy Expressway-UP Alignment
Benefits & Strategic Implications	Allows CTA to improve airport mobility within two years. Potentially enhances CTA's operating budget through payments from a concessionaire. Provides flexibility for phasing in of Express Service build-out.	Without additional infrastructure improvements, may constrain ability to increase frequency of local trains to accommodate future growth.	Enhanced service for existing Blue Line customers and competitive position for expansion of local service west of O'Hare.
Preliminary Estimate of Capital Cost (2006\$)	\$64M	approx \$770M	approx \$1,500M
ROW Requirements	Runs on existing track.	May impact adjoining residential and commercial properties in urban corridor.	UP and IDOT easements. Limited impact to adjoining residential and commercial property.
Average O'Hare Travel Time	45 minutes	30 minutes	25 minutes
Average Midway Travel Time	30 minutes	20 minutes	20 minutes
Demand Estimate	Year 2010: 1.7M riders	Year 2030: 2.9M express riders	Year 2030: 3.1M express riders plus opportunity to improve ordinary service and enhance ridership in Blue Line corridor
Operations	Must integrate Direct Service trains with ordinary Blue and Orange Line trains.	Some local Blue Line trains may wait at stations while express trains pass.	Lower potential for operating delays due to largely separated operations. Sustained higher-speed operation. Enhanced schedule reliability for express and ordinary trains.
Track Maintenance	Maintenance on shared track can be done either on late night shifts or on weekends.	Maintenance on shared track can be done either on late night shifts or on weekends.	Overnight maintenance on separate alignment should not interfere significantly with express or local operations.
Customer Impacts	Minimal impacts on current Blue Line and Orange Line customers.	Train schedules may have to be modified to minimize service reliability impacts for Blue and Orange Line customers.	Opportunity for limited-stop local service benefiting existing Blue Line customers. Improved reliability for current CTA customers.



### 1.3 MARKETING STRATEGY

CTA's airport services will provide a premium transport option for business travelers, visitors, and Chicago residents to access O'Hare and Midway airports. These services would provide all CTA customers with incremental benefits in convenience, comfort, time savings, and travel time reliability. The Direct Service creates value for customers primarily on convenience, comfort, and reliability, with the later build-out of the Express Service providing additional time savings and increased travel time reliability. In both cases, CTA's position relative to other airport access providers is enhanced. Ultimately, CTA's services would provide passengers with a convenient station location in the airport terminal. Through a premium amenity direct closed-door service, the initial Direct Service will attract new customers to transit who would otherwise contribute to Chicago's roadway congestion.

A range of other stakeholders stand to benefit from the project. Table 2 identifies these key stakeholders and their potential benefits.

**Table 2: Stakeholder Benefits**

Stakeholder	Potential Benefits
Downtown Property Owners	Opportunities to market direct connection to airports.
Hotel and Tourism Industry	More options for travelers—an amenity that helps Chicago compete with other cities for conventions and special events such as the 2016 Olympics.
Downtown Businesses	Direct, reliable, fast connections to both airports.
Residents	Time and cost savings for air travel.
Airport Employees	Additional commuting option.
Airports	Additional groundside transportation capacity. Additional access to the Airport.
Airlines	Joint marketing opportunities. More frequent, reliable flight crew transport.
Highway Travelers	Reduced travel congestion due to airport traveler use of the train.

The market for premium airport rail services consists primarily of business and leisure air travelers. Business travelers tend to put a high value on convenience, reliability, and flexibility and value some premium services. They are relatively price-insensitive and would therefore be likely to use a service that offers efficiency and added comfort, regardless of the cost. Leisure travelers are more price-sensitive than business travelers and tend to carry more luggage. Good value for money, including group discounts and ease of use, are important for the leisure travelers. Airport workers and persons traveling to the airport to meet others are also potential customers, though they are likely to place a lower value on the benefits provided by Direct or Express Service.

Demand studies demonstrate a market exists for efficient, reliable transit links between the Loop and O'Hare and Midway airports. At a \$10 one-way base fare, Direct Service revenues should be sufficient to

cover initial capital investments and operating and maintenance costs. At this fare level, ridership for the initial Direct Service is projected to be 1.7 million in 2010.

Fares for the ultimate Express Service have been benchmarked against pricing strategies for several dozen airport express train systems and compared to the prices of the transportation alternatives available to CTA's customers. Reasonable one-way fare price ranges for business planning purposes are \$9 to \$13 for Midway and \$12 to \$17 for O'Hare. At these fare levels, ridership on the Express Service is projected at 2.9 million to 3.3 million passengers in 2030, although the additional traffic and publicity boost associated with a 2016 Olympics could allow these forecasts to be achieved in an earlier timeframe. These fare levels are adequate to cover all operating expenses and a portion of the required capital investment. Partnerships with other public and private stakeholders would be required to close the gap on the remaining required capital investment.

## **1.4 DEVELOPMENT AND OPERATIONAL STRATEGY**

CTA should leverage the private sector's expertise and resources in delivering the project. Private sector players can provide management, marketing, customer service, and development expertise to optimize revenues and service levels. The partnership structure contemplated would leverage CTA's resources and expertise as well, through reciprocal contracts with CTA for train dispatching and control, operations, and maintenance.

CTA should negotiate a concession agreement with a qualified team of service providers that can, working in full partnership with CTA, deliver financing, customer service, management, pricing, and revenue management for the initial Direct Service. The concessionaire would negotiate an agreement for CTA to provide operations and maintenance for the airport train service. Flexibility related to future capital investments should be included in this concession agreement.

A concession agreement shifts the operations of the new Service to a Private Operator with the motivation and expertise to create a loop/airport train service with a market identity distinct from current CTA operations. The agreement would also shift to the Private Operator a substantial portion of the upfront costs of the new Service and all of the ongoing operating costs at a time when CTA's own resources are limited and the use of any CTA resources for the Service may be controversial.

CTA and its partners need to manage the following potential risk factors:

- Operational – Schedules need to be modified to accommodate the Express Service and minimize delays in local service.
- Revenue – The project carries some revenue risk based on the range of alternatives available to customers – including CTA's existing rail services – and the dependence on air travel and the Loop as a destination.
- Capital Improvements – Risk exists relative to developing the infrastructure inside of an operating rail environment. Also, reliance on other projects, such as highway development, could create complexities. In general, there are fewer opportunities for transfer of risk than in typical outsourcing arrangements. For the Direct Service, the availability of rail cars and the ability to rehabilitate the cars in time for the 108 N. State Street station opening present schedule challenges.

- Public Support – Communication with CTA customers will be important to address perception that the investment will only benefit the “premium service.” This risk can be offset by related improvements to Blue Line service, potentially enhancing CTA’s operating budget through payments from the management concessionaire, increasing capacity to the airports, and private financing of the associated capital investments.

## **1.5 FINANCIAL PROJECTIONS**

At a one-way base fare of approximately \$10 the Direct Service should be viable for a private concessionaire. That fare level, based on forecasts, should generate sufficient revenue to cover Direct Service initial capital investments and operating and maintenance expenses. The concessionaire’s upfront investments related to providing Direct Service total approximately \$64 million and include rail cars, downtown station additions, service planning, and fare collection systems.

Revenues from the Express Service are also forecast to cover operating costs, but not all capital costs. The Blue Line Passing Track Plan can only support a portion of capital costs. Other funding sources would be needed to cover the balance of project costs. The actual funding shortfall is dependent on the type of project delivery method chosen, which in turn dictates the financing options available.

## 2.0 Business Overview

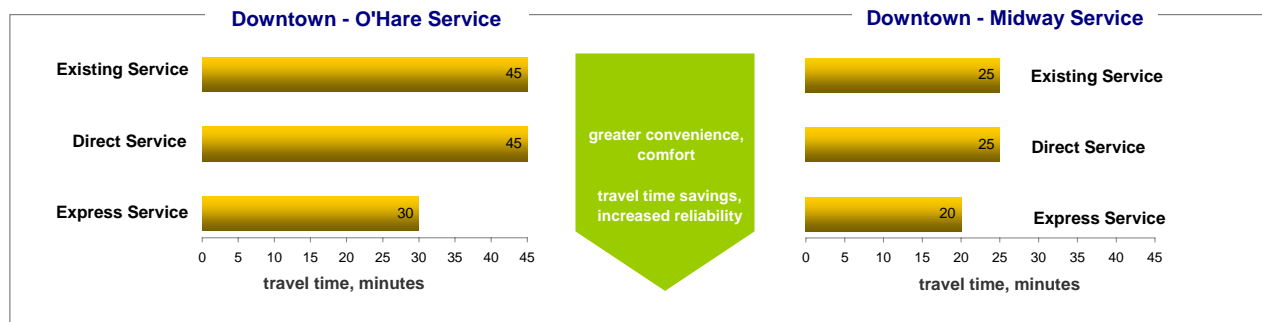
### 2.1 OPPORTUNITY

Approximately 6.8 million people each year travel between Chicago’s downtown and O’Hare and Midway airports<sup>1</sup>. A large number of these trips are currently made by taxi, private car, CTA rail service, or express buses/vans. All of the options that use the highway system for these trips are becoming progressively longer and less reliable, as airport travel increases without a proportionate increase in road capacity. Rail transit can capture a larger share of the market by reducing travel time, improving space and comfort on the train, and providing new customer services. With the future opening of a transit center at 108 N. State Street, CTA is in position to seize this opportunity by providing convenient non-stop service to O’Hare and Midway airports.

### 2.2 SERVICES

The proposed Direct and Express Services provide CTA customers with incremental benefits in convenience, comfort, time savings, and travel time reliability. The Direct Service creates value for customers primarily on convenience and comfort, with the later build-out of the Express Service providing material time savings, and increased travel time reliability. In both cases, CTA’s service offerings, relative to other airport access options, are more attractive.

**Figure 1: Direct and Express Service Attributes**



#### 2.2.1 Initial Direct Service

In approximately two years, CTA can provide direct closed-door service to Midway and O’Hare airports from the new transit station being developed at 108 N. State Street in partnership with the City and the private sector. The Direct Service will accelerate the airport train service initiative, potentially enhance CTA’s operating budget through payments from a concessionaire, and provide flexibility for phasing in of the Express Service. The station will provide a downtown hub for air travelers with possible amenities such as luggage assistance, remote check-in, and departure information. Train service leaving downtown

<sup>1</sup> Based on Wilbur Smith Associates’ *Airport Express Ridership and Revenue Forecast (2004)* report. The report defined a study area covering downtown areas from which it would be reasonable to use the Airport Express. Total trips were estimated at approximately 18.5 million.

as frequently as every 15 minutes will be provided on refurbished and upgraded rail cars to both major airports via CTA's existing Blue, Orange, and Red lines. Travel times to O'Hare will be virtually the same as typical Blue Line trip, or about 45 minutes. Trips to Midway will take approximately 30 minutes.

### ***2.2.2 Express Service***

After a series of investments in new infrastructure, the Direct Service can be transitioned to Express Service with reduced travel times and increased time reliability. This ultimate configuration could produce travel times to O'Hare of 30 minutes and 20 minutes to Midway. In addition to capital expenditures to reduce travel times, other improvements over the Direct Service are envisioned to include a new in-terminal station at Midway and new rail cars designed and outfitted specifically for the Express Service.

## **2.3 CUSTOMERS**

The project's primary customers would be business and leisure air travelers who travel to or from Chicago's airports and downtown. Secondary markets include airport/airline employees and people accompanying an air traveler to/from the airport.

- Business travelers tend to put a high value on convenience, reliability, and flexibility, as well as valuing some premium services. They are relatively price-insensitive and tend to carry less luggage than other travelers.
- Leisure travelers are more price-sensitive than business travelers, and tend to carry more luggage. Good value for money, including group discounts, and ease of use are important for this market segment.
- Airport/airline employees can potentially use an air-rail link as transportation to and from work. Some airport express trains use discounted multi-trip passes to entice this group.
- Air travelers may be accompanied to the airport by one or more people, or met at the airport by someone who travels back with them. Multi-person discounts are useful for attracting accompanied travelers.

## **2.4 VALUE TO CUSTOMERS AND KEY STAKEHOLDERS**

### ***2.4.1 CTA Customers***

The Direct and Express Services will provide an improved alternative for CTA's customers who are business travelers, visitors, or Chicago residents who travel to and from the airports. CTA's existing lines will have less crowded trains due to diversion of airport passengers and their luggage. Ultimately, since the Express Service will require a higher level of signal and track maintenance, local trains may also benefit from improved operating performance due to better track and system conditions.

### 2.4.2 CTA

The airport service is a premium service targeted at a specific market of customers. It is an extension of CTA's core mission to support mobility. The project helps CTA provide additional customer choices and new services without necessarily increasing operating subsidies. By attracting new customers to transit services CTA could also benefit from additional local service trips and revenues from its airport train customers. The service leverages existing CTA resources and assets and can potentially create new revenue streams or offset costs carried by local services. The airport service can enhance CTA's role in the community and its image of innovation and leadership, adding to its brand equity.

### 2.4.3 Other Stakeholders

A range of other stakeholders stand to benefit from the project. Table 3 identifies key stakeholders and potential benefits.

**Table 3: Stakeholder Benefits**

Stakeholder	Potential Benefits
Downtown Property Owners	Opportunities to market direct connection to airports.
Hotel and Tourism Industry	More options for travelers.
Downtown Businesses	Direct, reliable, fast connections to both airports.
Residents	Time and cost savings for air travel.
Airport Employees	Additional commuting option.
Airports	Additional groundside transportation capacity. Additional access to the Airport.
Airlines	Joint marketing opportunities. More frequent, reliable flight crew transport.
Highway Travelers	Reduced travel congestion due to airport traveler use of the train.

## 2.5 BUSINESS MODEL

The overall airport service business model should be pursued by a concession agreement with the private sector that allows CTA to deliver a differentiated service without overextending its resources. Demand for convenient and reliable transportation between Chicago's downtown and its two airports, coupled with market-based pricing, allows CTA to capture a portion of the value created from enhanced services. Properly executing this business model requires the following key elements:

- A quick start-up to take advantage of investment in the downtown station and to grow market awareness.

- Market pricing of the service based on the value created for customers in terms of convenience, reliability, and service.
- Leveraging fare revenues to the degree possible to finance infrastructure enhancements to further reduce travel time and increase reliability.
- Promotion of a thorough customer service orientation.
- A strong independent brand and marketing program that articulates the value of premium airport services.
- Development of a flexible concession framework that can evolve as the project moves closer to the ultimate configuration.
- Leverage existing CTA resources and infrastructure while utilizing private sector expertise and funding.
- Development of new partnerships with public and private entities (hotel, airports, taxis, etc.) related to funding, sales, services, and promotion of express airport link as an essential component of the community.
- Identification of new capital funding sources to build out the system.

## **3.0 Service Description**

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### **3.1 AIRPORT TRAIN SERVICE**

It is proposed that the Direct Service would operate every 15 minutes on a minimum 16 hour operating day. The same schedule would be in effect seven days per week. Clock-face departure times would be operated from the downtown station, which would be adjusted to maximize layover times at the airport terminals. This will allow light cleaning of the cars to occur after each trip. It also provides layover times consistent with CTA practices on the local lines operating out of those terminals.

Twelve two-car trains are required for the Direct Service on a 15 minute interval schedule. Spare cars would be deployed at both the Midway and O'Hare ends of the line to cover any in-service occurrences during the operating day. This schedule would provide approximately 70 one-way trips per day. Due to capacity constraints at Rosemont Yard and the recommended use of 3200-series cars, it is assumed that all trains will begin and end their operating day from Midway Yard which can accommodate additional capacity and is currently home to 3200-series rail cars. This requires some deadheading of the first and last trains of the day to allow them to provide early departures from 108 N. State Street, as well as to return the trains to Midway after having made the late evening trips to 108 N. State Street.

Express Service would be provided seven days per week, leaving as frequently as every 15 minutes for a minimum of 16 hours per day. Clock-face departure times would be operated from the downtown station. This schedule would provide about 70 one-way trips per day. The nine trainsets required to cover the express schedule would begin and end their operating day from Midway Yard. There would be some deadhead trips to downtown early in the operating day, to get trains in place to make the first trips to Midway. Similarly, some of the last departures from Midway would operate only to the 108 N. State station, and then would be taken out of service, deadheading back to Midway for servicing/storage. Complete, spare 4-car consists would be available at both Midway and O'Hare in the event of a breakdown to minimize service delays.

#### ***3.1.1 Amenities and Customer Services***

CTA airport travelers can expect amenities and services from both the Direct Service and the Express Service that provide greater comfort and convenience than is available on CTA's typical commuter-oriented rail service or with a common taxi cab. Pre-boarding services could include the ability to buy train tickets at the airport, baggage assistance, and flight information at the 108 N. State Street station. Custom designed car interiors would allow customers to easily maneuver and store luggage while larger seats would make for a more comfortable ride. The potential for on-train flight information would keep customers updated on arrivals and departures.

### **3.2 CAPITAL INVESTMENTS**

The proposed Direct Service assumes that CTA's private sector partner would retrofit and upgrade approximately 30 cars. The estimated cost for the rehabilitation of cars is based on historical (2001) costs for CTA's 2600-series rehab, escalated to 2006 dollars and adjusted to reflect a smaller quantity of cars going through the overhaul program. When these adjustments are made, the estimated per-car cost



is \$975,000 per car. Premium interior finishes including 2-by-1 seating, improved acoustic insulation and space for luggage is estimated at an additional \$160,000 per car. Therefore, the estimated total capital cost necessary for the retrofit is approximately \$34 million.

CTA's private sector partner would also make station improvements to segregate premium airport service customers from local service customers at O'Hare and Midway and provide additional premium finishes at the 108 N. State Street downtown terminal. These enhancements are estimated at \$10 million per station requiring approximately \$64 million in total capital to implement the Direct Service.

To achieve full Express Service, additional capital investments would be required to address station enhancements, passing track construction, control systems implementation, and vehicle additions. These investments would support improved running times, increased reliability, lower impact on existing service, and increased capacity.

The Express Service will be substantially more capital intensive than implementing the Direct Service. Depending on which of the two alignments is chosen, preliminary cost estimates range from \$771 million to over \$1.5 billion. Table 4 summarizes the major cost categories making up these estimates. The top two lines related to the 108 N. State Street location have been funded separately and are not included in the totals.

**Table 4: Express Service Preliminary Estimate of Capital Costs**

Element	Blue Line Elevated Alignment (2006\$ millions)	Kennedy Expressway-UP Alignment (2006\$ millions)
108 N. State Street Station (1)	\$94	\$94
108 N. State Street Station – Connecting Tunnels (1)	\$94	\$94
Blue Line Passing Tracks & Station – Damen (2)	\$90	-
Blue Line Passing Tracks & Station – California (2)	\$79	-
Kennedy Expressway Highway Modifications	\$116	\$116
Kennedy Expressway Passing Tracks	\$127	\$127
Centralized Traffic Control	\$10	\$10
Orange Line Passing Tracks (2)	\$71	\$71
New Midway Approach Tracks and Station (2)	\$109	\$109
Vehicles (3)	\$69	\$69
Alternative Alignment along Kennedy Expressway (2)	-	\$843
<b>Subtotal</b>	<b>\$671</b>	<b>\$1,345</b>
Property Acquisition	\$100	\$151
<b>Total (4)</b>	<b>\$771</b>	<b>\$1,496</b>

Notes: (1) Not included in totals; funded separately. (2) Includes design, construction management, and agency costs. (3) Vehicles assumed to cost \$1.4M each. (4) The addition of Automated Train Operations would add approximately \$120M to the Blue Line Alignment.

Contingency of 30% or 35% included in line item estimates except vehicles, which are currently under procurement. Estimate excludes signal system upgrades from Logan Square to Jefferson Park, which were previously identified as cost to be paid for as express airport train service capital expenditures. Allowances for developer costs, operator mobilization, environmental assessment and mitigation excluded in the above table but included in the financial analysis. Capital reinvestment excluded from financial analysis. Assumes all IDOT right-of-way is valued at zero cost. Does not include \$64M in capital costs that would be necessary to start Direct Service.

### **3.2.1 New Vehicles**

A total of nine 4-car trains would be required to operate the Express Service schedule. All nine trains would begin and end their operating day from Midway Yard. It is recommended that a complete spare 4-car train set be available at Midway and another at O'Hare that would be placed into service in the event of a vehicle breakdown. An additional four cars should be held at Midway as spares. Initially, a total of 48 cars would therefore be required to support the proposed schedule. At an estimated rehab price of \$1.4 million per car (in 2006 dollars), the 48 cars would cost approximately \$67 million.

Option 3 to the AC car procurement provided for up to 84 brand new cars for the Express Service, with up to 56 of the cars configured as passenger cars and the other 28 being equipped as baggage cars. The proposed Express Service operating plan would require 48 passenger-equipped cars and no baggage cars.

The new Express Service cars would be equipped with high-back seating (configured in a 2-by-1 arrangement) and would include some partitioned conference seating arranged around fixed tables. These cars would also be equipped with interior carpeting, task lighting, luggage racks, and power outlets (for laptop computers) at each seat. A provision would be made for the future installation of a video

information system, which could provide real-time flight and other information to customers. Only one side door per carside would be provided, to further enhance the premium environment.

### ***3.2.2 Stations***

An estimated total of \$30 million in station modifications at O'Hare, Midway, and 108 N. State Street would be necessary to accommodate the Direct Service. Major investments at the downtown station include connecting tunnels costing an estimated \$94 million and construction of a rail station totaling an additional \$94 million. For the Express Service, an estimated \$109 million in investments at the Midway station would provide a new terminal station closer to the airport terminal, a new connecting aerial track structure, and some relocation of existing utilities.

For O'Hare, the Express Service capital plan does not presently include costs beyond the interim modifications required for Direct Service. However, CTA may consider, perhaps in partnership with stakeholders, additional investments to improve the level of service provided at this station. A preliminary estimate for major enhancements total \$122 million, and cover a new terminal station, a new traction power substation, and property acquisition.

If Express Service passing tracks are located at Damen and California stations on the Blue Line, the local tracks will need to be realigned and new station facilities to serve local customers will also be required.

### ***3.2.3 Passing Tracks***

The Express Service capital plan includes investments of approximately \$367 million for passing tracks under the Blue Line Elevated Alignment option. Passing track costs under the Kennedy Expressway Alignment option would be more expensive and include tracks along the Kennedy Expressway and costs related to the construction of new CTA double tracks along existing UP-Northwest Line embankment.

#### ***3.2.3.1 O'Hare Route – Kennedy Expressway Median***

Express tracks would be built extending from Balmoral Avenue (north of the Foster Avenue overpass) to Cumberland Avenue. Northbound, the express track can extend west of the Cumberland station. Southbound, the express track cannot begin until east of the Cumberland interlocking. This is due to the fact that the retaining wall for the Cumberland station bus facility and parking structure constrains the highway width at this location. Existing highway lane usage restrictions are already frequently violated as through traffic frequently uses the dedicated exit ramp approach lane to by-pass queued traffic.

The approximate one-way length of the express tracks is 3.1 miles. As noted above, the northbound track is slightly longer (about 1,550 feet) than the southbound express track. Fully interlocked crossovers between the express and local tracks would be provided at the Nagle and Harlem crossovers. This will increase operating flexibility.

Reconstruction of the Kennedy Expressway in both directions would be required over about a 3.7 mile segment which includes 11 overpasses and 24 on/off ramps. In order to accommodate the wider rapid transit right-of-way, the existing side slopes outside of the highway lanes will be removed, with the relocated highway lanes in a trench. These relocations may impact entrance/exit ramp lengths. Also, to avoid reconstruction of the overpasses, the existing outside emergency lane will end at each bridge pier. A similar configuration is being used on the Dan Ryan reconstruction.

### **3.2.3.2 O'Hare Route – Blue Line Elevated**

Two 3,000-foot passing tracks would be constructed, one southbound at California/Milwaukee, the other northbound at Damen/Milwaukee. These will allow the express train to pass a stopped Blue Line local train. In addition, the two stations would be reconstructed to accommodate this additional track. At Damen/Milwaukee, the station reconstruction is also planned to eliminate the “jog” in the mainline tracks at North Avenue. Consequently, about 1,100 feet of mainline structure and double-track railroad would also be reconstructed as part of this effort.

The passing tracks would be fully-signalized. Number 20 switches (suitable for 40 mph) would be used at each end of the siding, allowing local trains to enter and leave as close to line speed as possible while properly and safely berthing the train in the station.

### **3.2.3.3 O'Hare Route – Kennedy Expressway-UP Alignment**

Costs for the Kennedy Expressway-UP Alignment option along the UP-Northwest embankment total \$843 million. Key components include construction of an aerial structure from Augusta to Balmoral; a subway connection to the Blue Line at Milwaukee-Elston; new double-track construction; and new substations along the alignment. Intermediate crossovers and a long center-track section will be provided to increase the operating flexibility of the physical plant. Widened structure cross sections would be provided at two locations to facilitate the future implementation of intermediate stations (at Division Street and Jefferson Park).

### **3.2.3.4 Midway Route**

Passing tracks would be constructed in both directions in the vicinity of the Western-49<sup>th</sup> Station. Major elements include cut and fill work, the construction of new express tracks, and signaling and communication systems.

### **3.2.4 Right-of-Way**

Approximately \$100 million in property acquisitions are required to accommodate construction of passing tracks. For the Blue Line Elevated section along the O'Hare route, a total of \$10.9 million in acquisition cost is estimated. This estimate is based on a 75,600 square feet acquisition at \$144 per square feet.

Under the Kennedy Expressway-UP Alignment, additional property acquisition costs total \$50.7 million, based on 412,215 square feet at \$123 per square feet. This cost includes surface land at the Blue Line connection and a ramp to an elevated structure, along with substation sites. No cost for Illinois Department of Transportation (IDOT) ROW is assumed. Easement costs to cross the UP rail lines (at two locations – Addison Street and north of Jefferson Park) were also included in the estimated cost for the new alignment.

For the Midway route, property acquisition costs total \$36.9 million, for a total of 722,850 at \$51 per square-foot. Included in the acquisition is a 50-foot strip along 49<sup>th</sup> Street and a 100-foot strip from 49<sup>th</sup> to 40<sup>th</sup>.

### ***3.2.5 Systems***

Each of the estimates for passing tracks, new express tracks, or new dedicated terminal facilities include line items for all the systems equipment necessary to make a complete, safe, operational installation. These line items include traction power substations, third rail traction power distribution equipment, signal along the new tracks, interlockings (enhanced with remote control provisions) at the ends of the new tracks, or where the new tracks merge/diverge from existing CTA trackage and communications along the new tracks, as well as the required communications equipment in any new station facilities.

#### ***3.2.5.1 Train Control***

Cab signal train control equipment, as used on the existing CTA lines is envisioned to be provided over the full length of any passing or express tracks as well as on dedicated express service terminal trackage. Interlockings are provided wherever these new tracks merge/diverge from existing CTA trackage, as well as at intermediate locations over the longer-length new track installations. For example, on the Kennedy Expressway express tracks, interlockings are proposed at Nagle and Harlem to expand the existing local track interlockings. On the I-90 dedicated express line, there would be multiple intermediate interlockings. The goal of these installations is to enhance the flexibility of the installed physical plant.

One major difference from existing CTA interlockings is that all of the interlockings proposed for the passing or express or terminal tracks are to be equipped with remote controls, allowing CTA control center staff to operate the interlockings. It is assumed that these provisions will also be implemented on other CTA lines in the future.

#### ***3.2.5.2 Power***

A total of five new traction power substations would be required for the Kennedy Expressway-UP express alignment, given its longer overall length. It is possible that some of these substations could also be used to feed the existing Blue Line, when the distance to the existing line is not great. The proposed dedicated O'Hare terminal facility also includes one new substation, given the anticipated length of the overall facility. In the case of the Kennedy Expressway Median passing track segment, an allocation was made to cover the reconstruction/modification of the existing Harlem substation, since the widening of the expressway to create the four-track right-of-way will impact this installation.

All new express passing tracks, express tracks, and terminal trackage would be equipped with the typical third rail supported off insulated chairs, along with potheads, cables, and all other required appurtenances to provide a safe installation. Remote control of any new power sections would be provided, consistent with current CTA practices.

#### ***3.2.5.3 Communication***

All new express tracks, passing tracks and terminal trackage would be equipped with fiber optic cable to serve CTA control and communication needs. Any extended subway sections (approach trackage to the I-90 alignment or the dedicated O'Hare terminal, for example) would be equipped with lossy-line antenna to accommodate underground radio communications. New stations include an allocation for the in-station communications facilities including telephone, public address, variable message signs, etc.

#### **3.2.5.4 Fare Collection**

New station costs for California/Milwaukee and Damen/Milwaukee, as discussed in 3.3.2, include fare collection equipment as part of the overall station cost estimate. In a similar context, each new dedicated terminal cost estimate includes fare collection equipment. The initial \$10 million allocations for O'Hare, 108 N. State Street, and Midway for the airport service include fare collection equipment specific to that service.

### **3.3 CURRENT STAGE OF DEVELOPMENT**

#### **3.3.1 Prior Studies of Express Airport Train Service**

Components of the Express Airport Train Service have been previously studied by other public sector entities in Chicago:

- 1999 – TranSystems Corporation provided the City of Chicago with a rail access improvement study for the segment between downtown and O'Hare airport. The study evaluated three proposed routes for airport trains and compared order-of-magnitude costs for each option.
- 2000 – Parsons Brinckerhoff Quade & Douglas, under contract to the Chicago Department of Transportation (CDOT), investigated the feasibility of express service between downtown Chicago and O'Hare Airport, using existing CTA and Metra lines.
- 2003 / 2004 – CDOT engaged Resource Systems Group (RSG) and Wilbur Smith Associates (WSA) to forecast ridership for an Express Airport Train Service.

#### **3.3.2 Related CTA Studies**

- Downtown Connection of the CTA Red and Blue Lines and Expansion of the Washington Street Station Draft Environmental Assessment – In 2004, Jones & Stokes Associates, Inc. provided CTA and CDOT with an assessment of the environmental impact of creating a connection between the CTA Blue and Red lines to accommodate airport rail service.

#### **3.3.3 Downtown Station and Improvements**

In 2005, a development agreement was signed between CTA and The Mills Corporation to construct a new multi-level CTA station that would include rail service between O'Hare and Midway airports. Construction is anticipated to be completed in 2008. The station will encompass approximately 30,000 square feet.

Above the station will be a four to five story base structure that includes up to 400,000 square feet of retail, entertainment space, and dining. Three towers will be constructed above the base for residential/hotel and office space.

### ***3.3.4 New Railcar Procurement***

CTA's recent AC rail car procurement was completed in 2006 with Award of Contract going to the Canadian rail car manufacturer Bombardier. In the pre-proposal phase of this project, CTA indicated that it anticipated exercising the options in the numerical sequence. If this plan is adhered to, Option 3, which includes the express service cars, would be the last in the sequence.

### ***3.3.5 Train Control Systems***

Design of a new signal system to replace the GRS Type 1 cab signal equipment on the Blue Line (used between Jefferson Park and Western Avenue) and to replace the automatic block signals used on the Milwaukee-Dearborn and Forest Park branches is scheduled to be completed in 2009. The new equipment will enhance the reliability of the Blue Line operations, as well as allowing closer headways to be safely operated.

## 4.0 Marketing Strategy

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### 4.1 SUMMARY

In connection with this business plan, Mercer Management Consulting, Inc (Mercer) conducted a study to guide CTA's premium airport train service (Express or Direct) marketing strategy. Mercer reviewed practices of U.S. and international rail link services and developed recommendations for marketing strategies around passenger services, pricing structure, marketing and distribution channels, and branding.

The major findings of the study are as follows:

- Premium airport train service is generally priced at 20 to 50 percent of the cost of a taxi trip for the same distance. While the base fare is usually set to target price-insensitive business travelers, a range of discounts (e.g., age-based, multi-trip) attract more price-sensitive segments of the market.
- Many airport rail links offer premium passenger services, such as baggage assistance, flight check-in, and shuttle services. The decision on service offering is usually a result of a cost-benefit analysis, to ensure that the incremental revenue from providing these ancillary services justify the additional costs associated with furnishing that service.
- Commercial revenues (non-fare revenues) contribute minimally to total revenue for airport rail links. The largest portion of commercial revenues is derived from advertising contracts, which commonly serve as an extension of the existing contract with the larger public transportation system.

Based on the review of existing commercial practices and the potential CTA premium airport train market, the following marketing strategies should be considered either by CTA or a future management company:

- **Passenger services** - Based on research and benchmarking of air-rail links, the service provider should consider offering flight check-in and baggage tagging at the premium airport train station in downtown Chicago. It is suggested that baggage check-in at 108 N. State Street not be provided and that a downtown station shuttle not be offered. Further cost-benefit analysis should be conducted to evaluate these options to determine their impact on passenger ridership and on service profitability.
- **Passenger service pricing structure** - After studying the pricing structures of premium international airport train services, a base price for the Express Service ranging from \$12 to \$17 for the trip from the downtown station to O'Hare airport and from \$9 to \$13 to Midway airport is suggested. A range of introductory, loyalty, and demographics-related discounts can be introduced to attract price-sensitive passenger segments. The marketing study did not specifically address pricing for Direct Service.
- **Ticket distribution/marketing channels** - Marketing partnerships with major airlines serving O'Hare and Midway airports will be crucial for the premium airport train service. Potential partnerships with downtown hotels, as well as with convention and tourism agencies in the City of Chicago, will be important for the success of the premium airport train service. To ensure beneficial



partnership for all involved parties, CTA might be required to provide financial incentives for partners distributing premium airport train tickets. Based on benchmarking of partnerships formed by other air rail links, incentives might include ticket discounts from five to 15 percent.

- **Commercial revenue sources** - It is expected that non-operating activities will account for a small portion of total premium airport train revenues. Based on case studies of airport rail express links, non-fare revenue of the service can potentially account for up to five percent of the total annual ticket revenue. The largest portion of the non-fare revenue is typically derived from the advertising contacts, including downtown station billboards, train wrapping, on-board television screens, promotional information on back of the tickets sold at the station and other materials.
- **Pre-launch advertising strategy and budget** - As part of the pre-launch advertising strategy it is important to take full advantage of opportunities for free advertising through media: television, radio, and local newspaper updates. Other important strategies include (1) utilizing a wide variety of channels for the initial advertising effort; (2) developing a consistent message for the premium airport train; (3) extending the geographic reach of pre-launch advertising beyond the Chicago area; (4) developing partnership promotions; and (5) providing introductory discounts for selected corporations and government organizations.
- **Areas for further testing and research** - CTA may consider the following areas for further analysis: (1) cost-benefit analysis of full-service baggage check-in offered at the premium airport train station in downtown Chicago; (2) cost-benefit analysis and detailed customer demand forecast of the downtown shuttle to the premium airport train downtown station; and (3) in-depth price level testing for various stages of development. The price level testing should use average ticket price per passenger after factoring in offered discounts and promotions.

A more detailed discussion of the Marketing Plan is provided in Section 7 of Appendix E of this report.

## **4.2 COMPETITIVE POSITION**

### ***4.2.1 Service Differentiators***

The airport service differentiates itself from other modes of airport travel in a number of ways:

- **Reliable** – Perhaps most importantly, both the Direct and Express Services would provide time reliability that is not available with automobile journeys. This becomes significant when passengers are trying to arrive in time for flight departures, business meetings, conferences, etc.
- **Direct** – Allows airport passengers to avoid competition with non-airport destined passengers for seats and space.
- **Comfortable** – Railcars will be outfitted with dedicated space for baggage, an individual seat for each passenger, and other amenities such as power outlets for laptop computers.
- **Less Expensive** – The Direct Service will be less expensive than nearly all other travel options. For an individual, the Express Service will be priced far less than taxis and comparably to express buses.

## ***4.2.2 Market Position Relative to Other Options***

### ***4.2.2.1 Taxi***

Taxis provide door-to-door private service to the airport on demand. Fares are typically metered and are calculated based on the distance and time of the trip, according to standard rates established by a city or county governing agency. Taxis to and from O'Hare International Airport are metered, and rates are calculated based on time and distance of the journey. Fares start at a flat rate of \$2.25, plus \$1.80 for each additional mile and \$0.20 for every 36 seconds of time elapsed. The fee for the first additional passenger between the ages of 12 and 65 is \$1, and each subsequent additional passenger is \$0.50. A \$1 surcharge applies for all trips to or from either airport. Waiting time is charged at \$2 for every six minutes. Tips are customary and at the discretion of the customer.

The average fare from downtown to O'Hare is \$35 to \$40 before tips and additional charges, and takes between 30 and 70 minutes, depending on traffic conditions. From downtown to Midway, the fare ranges from \$25 to \$28 before extra charges, and usually takes 20 to 40 minutes, with variable traffic. Flat rate fares are available for shared rides from either airport to downtown, for a maximum of four people. The flat rate from O'Hare is \$19 per person, from Midway \$14 per person.

### ***4.2.2.2 Express Bus / Shuttle Services***

The main bus service between the two Chicago airports and downtown is the Continental Airport Express. This is primarily a ten-passenger van shuttle service with daily departures every ten to 15 minutes, 4:00AM to 10:30PM for Midway, and to 11:30PM for O'Hare. Travel times are the same or higher than taxi, depending on the number of passengers riding in the shuttle. Tickets for travel from the airport can be purchased at counters in the baggage claim area, and for travel to the airport, tickets can be purchased online, or upon pick-up, but reservations must be made in advance.

The fare for door-to-door service between O'Hare and any downtown location is \$25 per person one-way, \$46 roundtrip. For two people the fare is \$18 per person one-way and \$34 per person roundtrip. Groups of three or more pay \$14 one-way per person and \$27 per person roundtrip. For Midway door-to-door service, the fare per passenger is \$20 one-way, \$36 roundtrip. For two people it is \$14 per person one-way and \$26 per person roundtrip. Groups of three or more pay \$12 per person one-way and \$22 per person roundtrip.

### ***4.2.2.3 CTA Local Train Service***

CTA trains provide transport to and from both airports for a fare of \$1.75 (Chicago Card) or \$2 (Transit Card or cash) per one-way journey. System-wide, CTA trains run every three to ten minutes in weekday rush hours, and every six to 15 minutes at most other times. Overnight (Owl) service is generally run between the hours of 1:30AM and 4:30AM, and varies by line: the Red Line runs every 15 minutes; the Blue Line runs every 30 minutes; and the Orange Line does not offer Owl service. The Blue Line serves O'Hare Airport with a journey time from downtown of about 45 minutes. The Orange Line offers travel between downtown and Midway Airport in about 30 minutes. Service on the Orange Line is provided between 3:55 AM and 1:19 AM from Monday through Friday, 4:35AM and 1:18AM on Saturday, and 5:35AM and 11:58PM on Sunday.

#### **4.2.2.4 Private Car**

At O'Hare Airport, parking in the hourly lot costs \$4 or less per hour when one parks less than three hours. Otherwise, the rate rises to \$21 for four hours or less and increases incrementally to \$50 when customers park from nine to 24 hours. This is done to penalize long-term parking in the hourly lot. In the valet garage, it costs \$10 to for the first hour and increases incrementally to \$32 when one is parked from over eight to less than 24 hours. The daily garage costs \$2 each hour after the first three hours or less, which costs \$4 to a daily maximum of \$26 per day over 11 hours. The international lot charges about \$2 per hour, with a maximum rate of \$30 for over 13 hours to 24 hours, and the economy lots cost less than \$2 per hour for nine hours or less, but cost \$13 for over nine to less than 24 hours.

At Midway Airport, parking is free for the first ten minutes, \$2 for the next 20 minutes and then costs \$4 for 30 to 60 minutes with \$2 per hour incremental increases beginning with \$6 for three hours or less to a maximum and \$50 per day for 24 hours in the hourly garage. In the daily parking garage, the cost is free for the first ten minutes, \$2 for the next 20 minutes, and then \$4 for 30 to 60 minutes with \$2 per hour increments beginning at \$6 for two hours or less and increasing to \$25 for over 16 to 24 hours per day. In an economy lot with access to terminals by a free shuttle bus, one hour or less costs \$2, two hours or less is \$5 and from two hours up to 24 hours costs \$12, or in a further lot, \$8 per day.

#### **4.2.2.5 Hired Car Service / Limousine**

Hired car or limousine service includes a choice between a sedan and a limousine. Most companies charge the same rate whether the destination is Midway or O'Hare Airport. As long as companies have availability, there is no set schedule to ordering hired car service. Prices range from \$65 for a sedan to \$85 for a limousine. The City of Chicago provides a list of prearranged and scheduled ground transportation companies on its website. Hired car service is a premium ground transportation service and is available throughout the downtown area.

The Airport Express Train Service will need to focus on convenience, travel time reliability, and price to differentiate itself from the competition.

**Table 5: Comparison of Competitive Options**

Competitive Option	Comments
Taxi	<ul style="list-style-type: none"> <li>• Ranked most popular by survey of Chicago travelers. (1)</li> <li>• Provides point-to-point personal transportation.</li> <li>• Susceptible to traffic congestion delay.</li> <li>• Expensive option (depending on party size).</li> </ul>
Express Bus / Shuttle Services (Continental Airport Express)	<ul style="list-style-type: none"> <li>• Multiple stops are time consuming.</li> <li>• Susceptible to traffic congestion delay.</li> </ul>
Existing CTA Services	<ul style="list-style-type: none"> <li>• Inexpensive, but lacks premium amenities.</li> <li>• Multiple stops add time; peak hour crowding.</li> <li>• No luggage provisions.</li> </ul>
Private Car / Car Rental	<ul style="list-style-type: none"> <li>• Point-to-point transportation.</li> <li>• Susceptible to traffic congestion delay.</li> <li>• Inconvenient car pick-up / return; additional cost of downtown parking.</li> </ul>
Car Service / Limousine	<ul style="list-style-type: none"> <li>• Point-to-point transportation.</li> <li>• Susceptible to traffic congestion delay.</li> <li>• Expensive option (depending on party size).</li> </ul>

Source: (1) Resource Systems Group 2004.

### **4.2.3 Competitor Response**

Competitors will almost certainly respond to the introduction of a CTA premium-quality airport service. Pricing responses could likely first come from express buses and hired cars, since taxis would need approval from the City of Chicago to change fares. Reduced fares or special deals could be offered by these groups to dissuade airport travelers from changing their current behavior.

The nature of the airport service also leads to other inherent risks. Taxis, express buses, and hired car services all provide the convenience of point-to-point transportation that customers will always find valuable.

## **4.3 PROMOTION**

### **4.3.1 Promotion Strategy**

Based on research into the pre-launch advertising strategies of international airport rail link services, the following options are suggested for the advertising strategy for the airport service:

- Utilize a wide variety of channels for the initial advertising effort to ensure a broad range of potential travelers are informed of the new service, e.g., local media (radio, TV, and newspapers), dedicated

user-friendly web page, and billboards on Chicago public transport and next to the highways to the airport. During steady state operations, blanket the airports with signage so that arriving airline passengers can quickly understand what the service is offering, the benefits, and the location of the station.

- Develop a consistent message highlighting the service as a “premium, fast, and convenient service,” which should be captured in advertising through all chosen channels.
- Extend the geographic reach of pre-launch advertising beyond the Chicago area, as many business travelers are frequent flyers who develop efficient travel habits for each city. Placing advertising in areas at selected major U.S. airports where passengers may be boarding flights to Chicago will contribute to further expanding the potential market for the service.
- Develop partnership promotions. Creative advertising strategies may be developed in conjunction with marketing partners, such as hotels, airlines, travel agencies, and government organizations.
- Provide introductory discounts for selected corporations and government organizations as a way to gain access to their wide traveler base. These promotional “trial” discounts would allow CTA to introduce the service to its primary passenger base. The discounts of up to five to ten percent of base ticket price could be offered for the first year of Direct Service with evaluation of potential extension of the program for selected corporate and government clients.

The initial Direct Service as well as ultimate Express Service would both benefit from similar promotional activities to those outlined above. As the Express Service is eventually rolled out, a clear message must be communicated to the public as to the rationale for the changes, the different characteristics of the Express Service, and the basis for increased fares (i.e., the added amenity of shorter travel times).

#### ***4.3.2 Brand Positioning***

Strong positioning and understanding of the premium airport train service brand would be extremely important to the Service’s success. For starters, a clear divide must be achieved between the premium airport service and ordinary CTA rail service in order to validate the higher fares. Similar to the differentiators, accentuating the service as direct and reliable would be attractive to potential customers. The convenience of the airport and downtown station locations and focus on premium customer service should also be highlighted.

#### ***4.3.3 Strategic Alliances***

Based on benchmarking of marketing channels adopted by U.S. and international airport rail link services, it is suggested that CTA consider the following potential strategic partners:

- **Airlines** - As has been the case for other airport rail links, establishing relationships with airlines will be crucial in expanding premium airport train distribution and marketing channels. Importantly, airlines have valuable access to potential premium airport train customers. In addition to creating opportunities for promotional distribution, there is an opportunity to partner with airlines for ticket

sales. Airlines have access to most potential premium airport train customers and could encourage their passengers to use the premium airport train through discount arrangements.

As airlines face increasing cost and competitive pressures, they may be reluctant to make large investments, but at the same time they may be more willing to enter into partnerships if they stand to benefit. It is important that there be a financial incentive to airlines in order to benefit from their cooperation, particularly because the premium airport train could lead to lost revenues for the airline. For example, an airline executive explained that the airlines at O'Hare share revenues earned from airport parking, which could possibly be impacted with the implementation of the premium airport train service.

- **Hotels** - An important target market for the premium airport train will be visitors staying at downtown hotels. The majority of hotel occupants will be traveling through Midway or O'Hare and therefore represent potential premium airport train customers. Targeting hotels with multiple downtown locations that attract business travelers could be particularly valuable. A relationship with hotels would allow people to be informed of the service, by ensuring that concierge staff is knowledgeable and able to provide information to customers.

Hotels may be willing to include information about the premium airport train service on their websites when providing customers with transportation information. Hotels may also present an opportunity for ticket sales. Heathrow Express in London and Brisbane's Airtrain in Brisbane, Australia both offer discounted tickets to hotel concierges for them to sell to guests at regular price. Discounts or commission payments for third-party sales typically range from five to 15 percent of the ticket price, and could be coupled with volume agreements.

- **Convention and Tourism Agencies** – A strong relationship with the various convention agencies that work in partnership for Chicago would be extremely valuable for CTA in gaining access to the premium airport train target market. Cooperation with conference agencies could include joint ticket sales. For example, premium airport train tickets could be offered for sale to attendees at the time of registration, or alternatively an advertisement or information could be provided. Joint marketing may include agency logos and website hyperlinks included on their own and related third-party websites.

## 4.4 PRICING

### 4.4.1 Pricing Philosophy

Fares for the Direct Service should, at a minimum, enable the operator to cover direct operating and maintenance costs. Although maximizing revenue is a central concern, pricing should also consider CTA's ridership objectives, especially if the revenue maximizing fare reduces ridership below a threshold where the service is viewed negatively. Section 7 discusses the financing capacity associated with different fare levels in further detail.

Based on other premium international airport rail link services, the suggested base price range for the Express Service is from \$12 to \$17 for the trip from the downtown station to O'Hare airport, and from \$9 to \$13 to Midway airport. The suggested price levels consider the following:

- Price-insensitive business traveler market - A survey of travelers conducted by Wilbur Smith Associates in September 2004 found that approximately 50 percent of the Chicago airports' passengers were business travelers. As business travelers overall tend to be less price-sensitive (further demonstrated in the preference survey by Wilbur Smith), it is important to set a price that will allow the manager of the service to capture higher revenue from this large market. This includes the potential to pay a seat reservation surcharge to ensure accommodation on the train during peak airport travel periods.
- Travelers' perceptions of value - The premium customer services provided at the downtown station will help allow a premium fare to be charged for the rail service to the airport. For example, flight check-in and baggage tagging provide time-saving advantages attractive to travelers on a tight schedule.
- Competitive modes of transportation - The recommended price is set at approximately one-third to one-half of the price of a taxi, which would allow two passengers to travel on the premium airport train for less than the cost of sharing a taxi. The price may also be set lower than the price of the competitive Continental Airport Express shuttle bus, which provides door-to-door service with pickups and drop-offs at major hotels and downtown locations.
- Availability of discounts - Based on the profile for travelers in the Chicago area, a range of discounts could be developed specifically targeted to the more price-sensitive leisure traveler market.

It is suggested that the following range of discounts be considered:

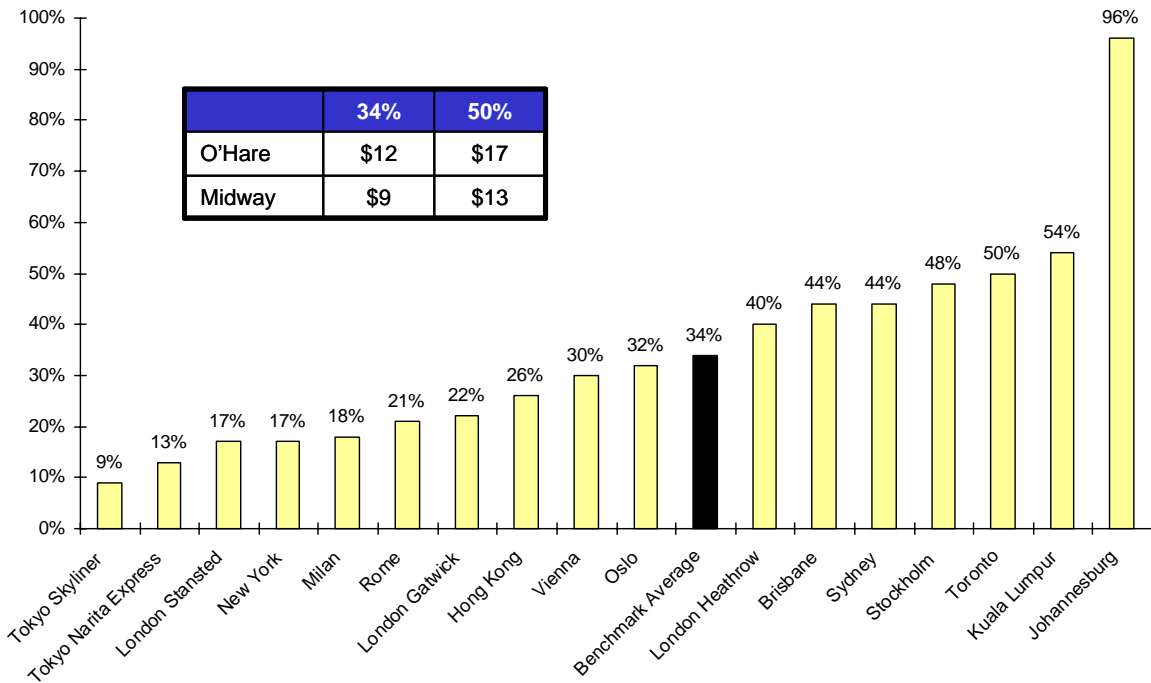
- Multiple trip discounts, designed to lock in the traveler for repeat journeys. For example, the discounts could start when the passenger buys a roundtrip ticket. These discounts are designed to target price-sensitive travelers who prefer to get a discount by buying a ticket in advance.
- Student and senior discounts will attract the most price-sensitive category of travelers. These discounts are usually set at up to 50 percent off the base fare.
- Corporate discounts can be set at a small discount from the base fare (up to five to ten percent, depending on the expected amount of business from that corporation). This would provide a good opportunity to start conversations with major corporations located in Chicago and educate them about the premium service available for business travelers. The goal of this discount is to get buy-in from corporate travelers in the Chicago area. These discounts could potentially be eliminated once the service matures.
- CTA traveler discount could be offered to users of CTA Transit Cards. While the discount could be small, the ability to use one card for the full journey would provide the convenience of a "seamless journey" and potentially attract more Chicago residents familiar with the CTA system.

The discounts will be taken from the base fare and will decrease the average revenue per passenger. It is expected that the nominal average revenue per passenger will be lower in the first few years of operation due to the introductory discounts and will gradually level off by year three of the service (based on comments from executives of comparable air rail link services).

**4.4.2 Global Express Service Benchmarks**

Looking to worldwide benchmarks, the average price of a one-way express airport train journey is 34% of the taxi fare. Applying this logic to Chicago yields a chosen range of \$12 to \$17 for O’Hare and \$9 to \$13 for Midway.

**Figure 2: Premium Airport Train Fare as a % of Taxi Fare**



Sources: Company websites; company interviews, www.toandfrom.org, and airport websites.

**4.4.3 Chicago Market Benchmarks**

Taxi is currently the most popular service to/from the Chicago airports, and is also an expensive option. CTA local trains are the least expensive option, by a wide margin. All services, except for the CTA local trains, enable customers to purchase tickets at either a group discount or to add passengers at nominal cost.

**Table 6: Chicago Airport Travel Pricing Benchmarks**

Airport Transportation Option	Approx. Midway Pricing	Approx. O’Hare Pricing
Taxi	\$25 to \$28	\$35 to \$40
Express Bus	\$19	\$24
CTA Local Train	\$2 (cash fare)	\$2 (cash fare)
Private Car	Parking + Fuel	Parking + Fuel
Hired Car Service / Limousine	\$65 to \$85	\$65 to \$85



## 4.5 DEMAND FORECAST

### 4.5.1 *Forecasting Model*

In 2003, the Chicago Department of Transportation (CDOT) engaged Resource Systems Group (RSG) and Wilbur Smith Associates (WSA) to forecast ridership for a premium airport train Service. RSG conducted Origin-Destination (OD) and Stated Preference (SP) surveys for the purpose of understanding air passenger travel patterns and estimating ground access mode choice parameters. WSA used these survey data to develop base and future year trip tables, and refined the parameters estimated by RSG by using more detailed travel time and cost information from the survey data and regional highway and transit travel models. WSA validated these ground access choice models first, ensuring that the airport-bound travel conditions were replicated before the application of the models.

As part of the work completed for the Express Airport Train Service Business Plan, the forecasting model created by WSA was modified in order to improve the accuracy of the forecasts. This effort included development of regression-based airport trip generation models and re-estimation and re-application of the mode choice models.

### 4.5.2 *Key Assumptions*

The following are key assumptions that were used in the forecasting model:

- Non-stop service to and from both airports every 15 minutes.
- No baggage check services at the 108 N. State Street station.
- No free van service available to the 108 N. State Street station.
- Direct Service average one-way travel times:
  - O'Hare – 45 minutes
  - Midway – 30 minutes
- Express Service average one-way travel times:
  - O'Hare – 30 minutes
  - Midway – 20 minutes

### 4.5.3 Ridership Forecast

Demand model forecasts for ridership and revenue in 2010 indicate demand exists for premium rail service at current operating speeds (the Direct Service). As shown below, the service is inelastic with respect to price, indicating strong revenue potential at higher fares assuming there is no competitive pricing response from alternative modes. Fares for the Direct Service are assumed to be the same for trips to either airport. Ridership estimates for several fare levels are displayed below.

**Table 7: Direct Service 2010 Ridership Estimates**

Base One-Way Fare (2006\$)	Est. Annual O'Hare Ridership	Est. Annual Midway Ridership	Est. Annual Total Ridership	Average Riders per Car (% occupied)*
<b>\$5</b>	1.31M	0.59M	<b>1.90M</b>	9.6 (36%)
<b>\$10</b>	1.17M	0.51M	<b>1.68M</b>	8.5 (32%)
<b>\$14</b>	1.02M	0.44M	<b>1.45M</b>	7.4 (27%)

\* Assumes 27 seats per car and two car trains.

Ridership estimates in 2030 for the Express Service are near or above the 3 million mark, although the additional traffic and publicity boost associated with a 2016 Chicago Olympics could provide an opportunity to enhance both ridership and revenue on a sustained basis. Fares for express airport train services in other parts of the world average about 34% of the price of a comparable taxi journey. Analysis in this report pegs the Express Service fare at half of the taxi fare. At the high end of the benchmarked range, this fare is reasonable, given the predicted inelastic demand for the service.

**Table 8: Express Service 2030 Ridership Estimates**

% of Taxi Fare	O'Hare Base One-Way Fare (2006\$)	Midway Base One-Way Fare (2006\$)	Est. Annual O'Hare Ridership	Est. Annual Midway Ridership	Est. Annual Total Ridership
<b>34%</b>	\$12	\$9	2.4M	0.9M	<b>3.3M</b>
<b>50%</b>	\$17	\$13	2.1M	0.8M	<b>2.9M</b>

The Express Train Service is expected to capture 12% of the total airport trips to and from the study area. Roughly 20% of riders are projected to be existing CTA Blue and Orange Line customers. The alternative alignment reduces travel time to and from O'Hare by about five minutes, increasing ridership by 6%.

#### 4.5.4 Key Demand Drivers

Naturally, demand for airport access is driven by underlying airline passenger travel. Choice of access mode, in turn, is driven by factors such as trip origin, mode availability, travel time, travel time reliability, and costs.

##### 4.5.4.1 Airline Passengers

O'Hare is one of the busiest airports in the world. According to the Wilbur Smith study, there were 34.8 million enplanements at O'Hare in 2003. Of this total, 15.6 million originated at O'Hare, the remainder being transfers. The study also reported that there were 9.2 million enplanements at Midway in 2003, of which 6.4 million originated at Midway.

Forecasts predict annual enplanements at O'Hare will grow at a compound annual growth rate (CAGR) of 2.5% through 2020. Midway enplanements are forecast to grow at a CAGR of 2.1% over that same period, with an increasing proportion of originating passengers.

##### 4.5.4.2 Time Savings and Reliability of Travel Time

Total travel time and travel time reliability affect customer mode choices. As roadway congestion increases, options that involve roadway travel will experience greater delays and time variation. As shown in the table below, developed with data from the Wilbur Smith study, travel time for car options are projected to increase by between 10% and 11% from 2009 to 2020. With increasing travel time and greater unreliability, auto options will become less attractive. The demand model takes this trend into account in determining the shifts in mode share over time.

**Table 9: Sample Travel Time to O'Hare for Auto Options (Drop-off)**

Origin	Travel Time (minutes) 2009	Travel Time (minutes) 2020
Sears Tower	56	62
Michigan Avenue (& Superior)	55	61
West Loop (Madison & Clinton)	51	56

Source: Wilbur Smith Associates, 2004.

##### 4.5.4.3 Travel Cost

Another important driver of mode choice is cost. Depending on the mode, different kinds and levels of costs are incurred. Travelers who drive and park will incur airport parking fees, fuel costs, as well as costs related to car ownership and maintenance. Travelers renting cars may also incur parking fees in addition to rental fees. Travelers taking taxis, bus shuttle, or train service pay a single fare. Information on the costs associated with each mode choice was factored into the demand model for mode share forecasts.

#### 4.5.5 Factors Affecting Demand

Certain factors could impact ridership and revenues:

- Competitive alternatives for airport access – As discussed, several viable alternatives exist for air passengers to utilize when traveling to and from Chicago’s airports.
- Continued strength of the Loop – Based on the station location at 108 N. State Street, downtown Chicago must sustain its position as a reliable trip generator.
- Complete dependence on air travel demand – Business and leisure air travel must continue to increase for long-term ridership forecasts to materialize.
- Ability of O’Hare to match capacity with demand – It is necessary for O’Hare Airport to expand operations appropriately in order to meet growing passenger demand.

#### 4.5.6 Market Segments

A Wilbur Smith Associates survey conducted in September 2004 divided airport travelers according to trip purpose and whether or not they were Chicago residents. As shown in the table below, a daily total of 37,458 passengers were estimated to have originated or ended their trip at the two Chicago airports. Approximately 57% of these passengers were identified as business travelers and 43% as non-business travelers. In terms of residency, 35% were identified as Chicago area residents while 65% were identified as visitors.

**Table 10: Market Segments by Trip Purpose and Residency**

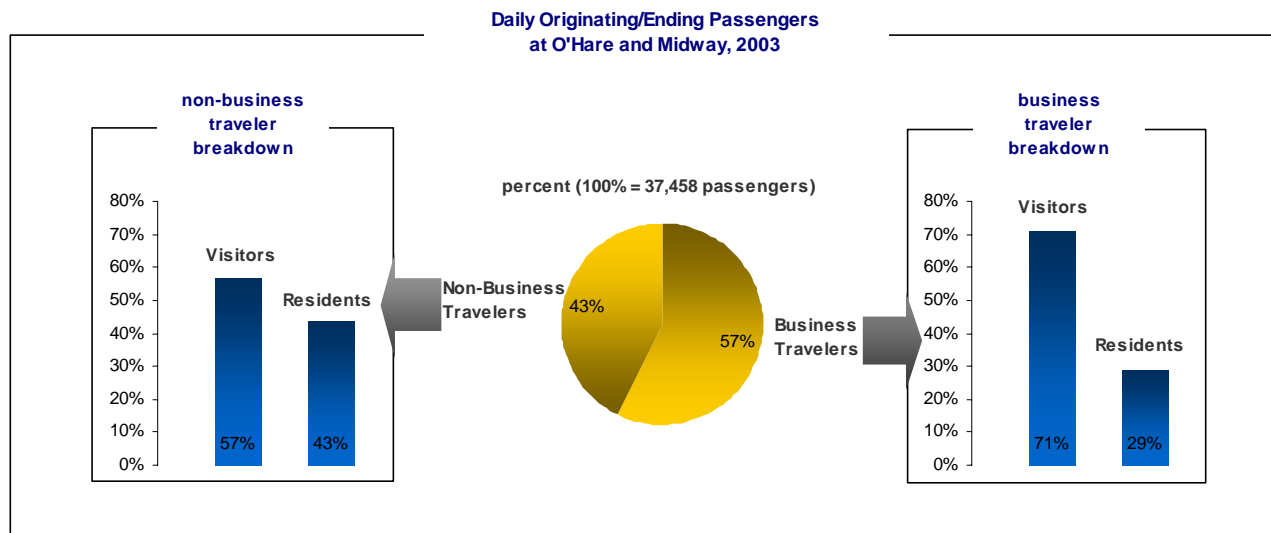
	Business	Non-Business	Total
<b>Resident</b>	6,236	6,950	<b>13,186</b>
<b>Visitor</b>	15,230	9,042	<b>24,272</b>
<b>Total</b>	<b>21,466</b>	<b>15,992</b>	<b>37,458</b>

	Business	Non-Business	Total
<b>Resident</b>	17%	19%	<b>35%</b>
<b>Visitor</b>	41%	24%	<b>65%</b>
<b>Total</b>	<b>57%</b>	<b>43%</b>	<b>100%</b>

Source: Wilbur Smith Associates, 2004.

The overlap among the two major dimensions provides a further segmentation of the potential market for premium airport services. 57% of non-business travelers are visitors, with 43% being residents. A more substantial majority (71%) of business travelers are visitors, leaving 29% identified as residents.

**Figure 3: Daily Originating and Ending Passengers - 2003**



Source: Wilbur Smith Associates, 2004.

**Market Segments and Mode Choice:**

Analysis of data from the Wilbur Smith study revealed mode choice tendencies across the market segments discussed above. For all segments except residents, taxi is the most used option. Visitors and business travelers display very similar choices, suggesting that when residents travel on business they tend to behave more like visitors. CTA service is the third most used option for each of the four segments, recording 20% usage among residents; 16% among non-business; and 11% each for visitors and business travelers.

- **Residents** - Residents as a group are more knowledgeable of local airport access options, prices, and trade-offs. In the long term, their choices reflect more complete information into their decision-making. They will be able to make access choices that incorporate time of day, seasonality, local construction, and pricing changes. This group may also hold strong perceptions for or against a certain mode. Additionally, those who have cars will have the option to drive and park at the airport.

According to the Wilbur Smith study, 27% of residents drove and parked at the airport; 22% took a taxi; 20% used CTA service; and 16% were dropped off. Other means of private and public transportation accounted for the remaining 15%, with no residents using rental cars. These statistics are represented in Figure 4 below.

- **Visitors** - Non-residents are less familiar with local options and are often less able to make a fully informed decision. They are inclined to make choices for which they have a reference point. For example, a visitor who is from a city that does not have a rail system is less likely to consider a rail option when in a new city.

Figure 4 shows that 42% of visitors used taxis for airport access. Twenty-four percent used some form of private transportation. Another 30% split their options roughly even between renting, being

dropped off and taking “other” public transportation. As expected, no visitors were observed as driving and parking.

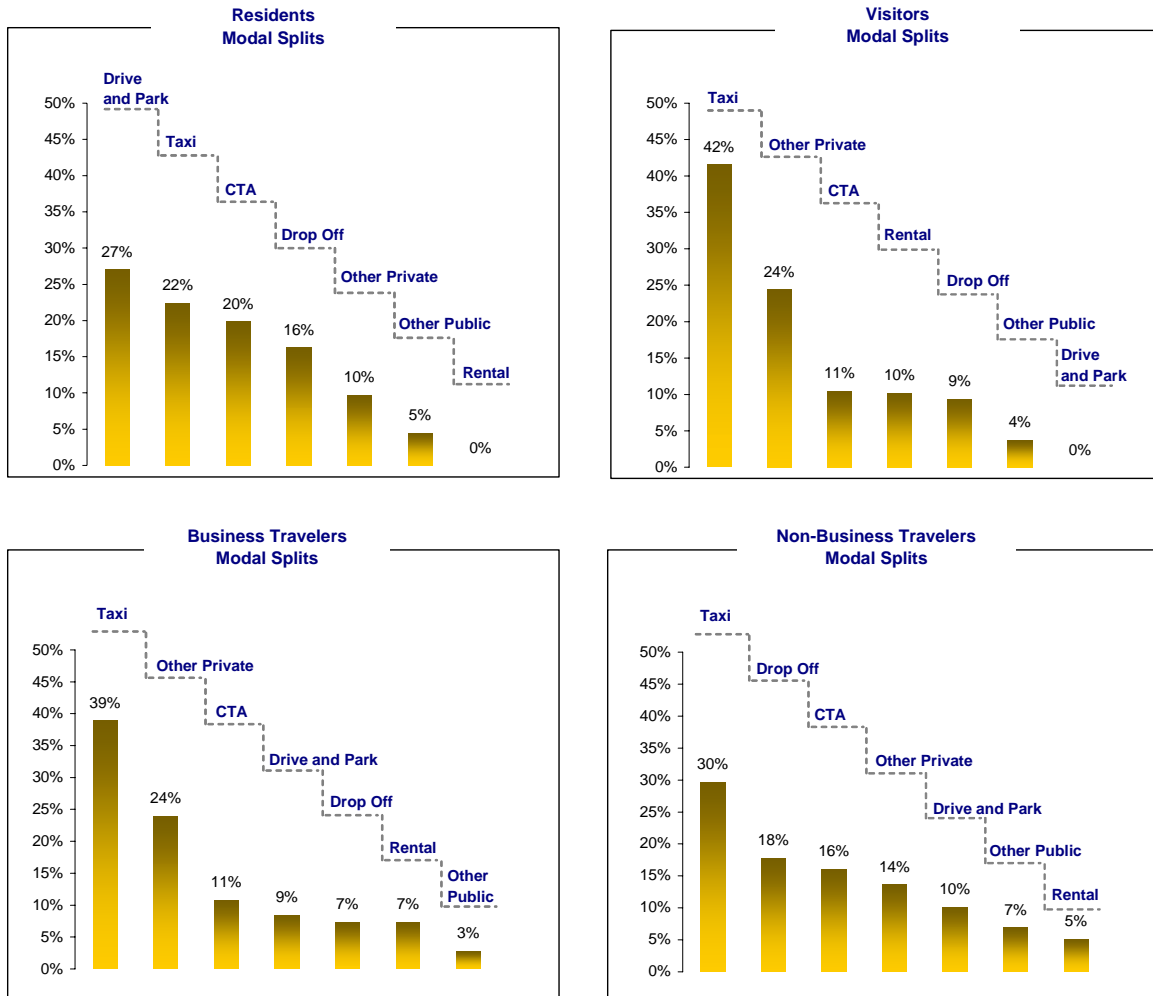
- **Business Travelers** - Passengers traveling on business behave differently than those not traveling on business. Several factors could explain this distinct behavior. Business travelers usually have set schedules to meet and travel expenses are often reimbursable. These travelers tend to travel in teams and spend time in transit having work-related discussions with colleagues. They also tend to travel with less baggage than people on other types of trips.

According to Figure 4, 39% of business travelers used taxis for airport access. 24% used some form of private transportation. Eleven percent took the CTA; 9% drove and parked; 7% were dropped off; and another 7% rented a car.

- **Non-Business Travelers** - Passengers in this group include vacationers and people visiting family and friends. Unlike business travelers, they are generally less time constrained. Most expenses are out-of-pocket, making them more conscious of the financial impact of expenditures. They also carry more luggage and are more likely to have someone pick them up at the airport.

As shown in Figure 4, 30% of non-business travelers took a taxi to the airport. 18% were dropped off; 16% used CTA service; 14% used other private; 10% used drive and park; 7% used “other” public; and 5% rented a car.

Figure 4: Model Shares by Market Segment



[1] Other private modes include limousine, hotel van and airport van

[2] Other public modes include Metra rail and bus

Source: Wilbur Smith Associates, 2004

## 5.0 Project Delivery Strategy

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### 5.1 PROJECT OBJECTIVES

The following objectives were considered when evaluating delivery structures for both the Direct and Express Services:

- Leverage private sector expertise as appropriate.
- Use existing infrastructure effectively.
- Mitigate negative impacts on existing customers.
- Achieve appropriate risk allocation between CTA and the private sector partner.
- Maintain procurement flexibility.
- Achieve an efficient combination of CTA and private sector resources and capabilities.
- Present opportunities to enhance CTA's operating budget.
- Realize effective risk management throughout project lifecycle.
- Maximize funding on a stand alone basis.
- Achieve efficient financing of capital improvements.



## 5.2 PROJECT DELIVERY STRUCTURES

The premium airport train service (Direct or Express) could be delivered via a number of combinations of public sector and private sector participation. The left column in Table 11 represents a new line of CTA service where CTA is responsible for all aspects of delivery and operations. Movement from left to right in the table leads to scenarios where a dividing line is created between the current CTA organization and the premium airport train service by forming a new operating entity (“Enterprise”) and increasing private sector involvement.

**Table 11: Continuum of Delivery Options**

	<b>CTA Development &amp; Operations as New Line</b>	<b>CTA Development &amp; Operations as Enterprise</b>	<b>Private Development &amp; Operations Using Some CTA Services</b>	<b>Full Private Development &amp; Operations</b>
<b>Pros</b>	<ul style="list-style-type: none"> <li>• Uses existing management structures and organization.</li> </ul>	<ul style="list-style-type: none"> <li>• Promotes focus on new mission.</li> <li>• Recruit trained CTA staff.</li> <li>• Can be quickly established.</li> </ul>	<ul style="list-style-type: none"> <li>• Opportunity for outside investment.</li> <li>• Better risk allocation between CTA and partner.</li> <li>• Utilizes CTA O&amp;M expertise.</li> <li>• Leverages private sector expertise in management of premium services.</li> </ul>	<ul style="list-style-type: none"> <li>• Outside investment.</li> <li>• Full economic incentives for performance.</li> <li>• Suboptimal use of CTA assets.</li> <li>• Leverages private sector expertise in management of premium services.</li> </ul>
<b>Cons</b>	<ul style="list-style-type: none"> <li>• No outside investment.</li> <li>• Requires new mindset.</li> <li>• CTA pays operating costs.</li> <li>• CTA retains risk.</li> </ul>	<ul style="list-style-type: none"> <li>• No outside investment.</li> <li>• CTA responsible for operating costs.</li> <li>• Needs flexibility in collective bargaining agreements.</li> <li>• CTA retains most risks.</li> </ul>	<ul style="list-style-type: none"> <li>• Potential higher cost of capital.</li> </ul>	<ul style="list-style-type: none"> <li>• Potential higher cost of capital.</li> <li>• Risk premium for full transfer of risks to partner.</li> </ul>

Evaluating the spectrum of organizational and delivery options using key decision criteria results in a logical progression towards public/private partnership options (shaded).

**Table 12: Business Goal Screening**

	<b>CTA - Internal</b>	<b>CTA - Enterprise</b>	<b>Private with CTA Services</b>	<b>Fully Private</b>
<b>Delivery Options</b>	1) Traditional Design-Bid-Build – CTA Ops 2) Design-Build – CTA Ops	1) Traditional Design-Bid-Build – CTA Ops 2) Traditional Design-Bid-Build – Contract Ops 3) Design-Build – CTA Ops 4) Design-Build-Operate-Maintain	1) Design-Build – CTA Ops 2) Design-Build-Operate-Maintain	1) Design-Build-Operate-Finance
<b>Business Goal</b>				
<b>Efficient Combination of CTA and Private Sector Resources and Capabilities</b>	Does not effectively access private sector expertise.	Private sector expertise could be used under contract.	CTA expertise could be used under contract.	May not effectively use CTA resources and expertise.
<b>Opportunities for Revenue and Profit Sharing for CTA</b>	High level of CTA control of revenue upside.	High level of CTA control of revenue upside.	Only by agreement and at a cost.	Only by agreement and at a cost.
<b>Effective Risk Management Throughout Project Lifecycle</b>	Limited risk transfer from CTA to partners.	CTA allocated high level of risk but transfers risk through contracts.	CTA allocated risks it is well suited to handle.	Risk premium would be paid for risks under CTA control that are allocated to partner.
<b>Maximize Funding on a Stand Alone Basis</b>	Revenue segregated from core operations.	Finance segregated from core operations.	Finance segregated from core operations.	Segregated from CTA.
<b>Efficient Financing of Capital Improvements</b>	Tax-exempt CTA revenue bonds.	Could use either CTA or special purpose issuer for tax-exempt bonds.	Could use either special purpose issuer for tax-exempt bonds or concessionaire financing.	Concessionaire financing.

In what is referred to as the CTA Enterprise Model, CTA would control premium airport train service revenues and have ultimate responsibility for performance, but premium airport train service management would be separated from CTA's core services. The premium airport train service Enterprise would buy certain services from the core CTA transit services departments. This model contemplates a complement of CTA staff, but the premium airport train service Enterprise would be able to contract with the private sector for services such as sales and customer services (including station and train attendant

staffing). This model would require work rule flexibility in the area of staffing selections and disciplinary actions would be required to ensure consistently high service levels.

The recommended alternative to the CTA Enterprise model that utilizes more private sector involvement is the Private Model with CTA Services. Here, the management company develops the project, operates the system, and buys certain services from CTA's transit services departments; such as train operations and rail car maintenance. It may be noted that CTA's rail employee union has agreed to CTA's contracting of premium or specialty rail services. However, CTA may not outsource train operation, repair, or switching under the current agreement.

### 5.3 IMPLEMENTATION PLAN

The following summarizes the recommendation for key steps in the implementation of the airport train service from the 108 State Street Station to Midway and O'Hare airports.

1. Focus on providing Direct Service with rehabilitated CTA railcars customized to provide comfort and amenities for air travelers running closed door service at current Blue and Orange line running times.

Rationale: CTA's agreement with The Mills Corporation stipulates that CTA must provide airport service when the 108 N. State Street station opens in 2008. The Express Service would not be ready in time for the opening; however, a Direct Service can be initiated by that time.

2. Contract with the private sector for (1) a long-term Direct Service management contract (referred to above as the Private Model with CTA Services structure), (2) finish upgrades to the three stations, and (3) refurbishment of a fleet of 30 cars. The concession agreement would include all customer service operations related to the service including customer assistance, reservations, telephone system, information technology, sales, marketing, fare collection, and car cleanliness.

Rationale: Private sector players can provide management, marketing, and development expertise to optimize revenues and service levels. Additionally, serving as the customer interface would further differentiate the airport service from CTA's rail offerings. CTA procurement should be structured in a flexible manner to allow for evolution to the full Express Service, including the delivery of the infrastructure.

3. Begin immediately with preparation of specifications for rail car systems and performance specifications for car interiors. Cars would receive an interior overhaul to add new seating, baggage racks, and other premium customer amenities before they would go into service in 2008. Outsourcing of the rehabilitation of the rail cars to be used for the Direct Service is necessary given the tight timeframe to the desired start-up of the service, as well as the need to have significant design expertise involved to achieve the desired premium results.

Ideally, the service would run with 15 minute headways. However, headways may need to be longer at first if all 30 cars are not available at the time of the station opening. For service every 30 minutes, approximately six sets of trains would be necessary instead of 12.

Once service is up and running, cars would begin to be cycled through a mechanical overhaul process. A certain number of cars would be removed from service to receive the overhaul while the

rest of the fleet provides airport service. As with the interior overhaul, these mechanical improvements would not be done by CTA. Under favorable schedule conditions all cars could receive a mid-life overhaul by mid to late 2009.

Rationale: With only two years until the downtown station is scheduled to open, CTA must quickly begin the process of preparing premium rail cars for use in the service. While the cycling process is not preferred for car rehabilitation, it appears to be necessary to meet The Mills Corporation deadline.

4. CTA should contract with the private sector management company to be the provider of train operations and maintenance services for the service.

Rationale: A management company would purchase operating and maintenance functions from CTA since CTA employees are already trained to operate the cars that will be used for the Direct Service and CTA currently has facilities to accommodate rail car maintenance. For example, operating a dedicated maintenance facility for the relatively small number of airport train rail cars would be highly inefficient.

5. Begin providing Direct Service using partially rehabilitated rail cars when the 108 N. State Street station opens in 2008. Running times would be the same as a trip on a local Blue or Orange Line train. The concessionaire will have full authority to set fares for the premium rail service and will integrate its fare policies with CTA's existing and future fare policies in a manner to be mutually agreed upon.

Rationale: Rolling out the Direct Service at this time primarily allows CTA to comply with its contractual obligation, but also begins to establish a market for the service and familiarizes residents and visitors with the downtown station and transit as an improved option for airport trips.

Strong positioning and understanding of the airport train service brand will be extremely important to the Service's success. For starters, a clear divide must be achieved between the airport service and existing CTA local service in order to validate the higher fares. Similar to the differentiators, accentuating the service as direct and reliable would be attractive to potential customers. The convenience of the airport and downtown station locations and focus on customer service should also be highlighted.

6. Develop a long-term risk sharing and financial partnership with the Chicago Airport System, the business community and other stakeholders to improve the viability of a long-term management agreement for the Express Airport Train Service.

Rationale: These partnerships are necessary since delivery of the Express Service requires substantial investment in capital improvements. Other stakeholders, and in particular the airports, would receive substantial benefits from the implementation of an airport service and should share in the costs and risk. Contributed capital or funding to guarantee certain revenue levels would greatly help attract consortia of private sector companies to build and operate the Express Service.

7. Exercise the contract option for the new express rail cars in 2011 for delivery in 2015 and introduce these cars into the service as they become available.

Rationale: As it is currently written, in 2011 CTA will have its last chance to exercise the option for express cars in the AC rail car procurement. Purchasing cars at this time will allow for deployment when the Express Service comes online in 2015 and leverages the substantial work that has been completed on the current car procurement.

8. Begin Express Service in 2015, with travel times as short as 30 minutes to/from O'Hare and 20 minutes to/from Midway. Actual travel times will depend on the capital investments that have been completed by that time.

Rationale: Allows the Express Service to start-up after a market for airport service has been established by the Direct Service and ahead of a potential Chicago Summer Olympics in 2016. A clear message must be communicated to the public as to the rationale for the changes to the service, the different characteristics of the Express Service, and the basis for increased fares.

9. Build long-term improvements as funding becomes available that support the full implementation of the Express Service.

Rationale: CTA and its private sector partner may decide that it is not necessary to build all anticipated improvements by the time the Express Service is started in 2015. Phasing these improvements in over time could allow time for revenues to grow and prove sufficient demand exists for additional investment to be warranted.

A preliminary project implementation schedule is available in Appendix F.

## **5.4 COST ESTIMATES**

### ***5.4.1 Cost Estimating Approach***

CTA unit prices for track, structures, systems elements, and stations were developed from work done previously by Parsons Brinckerhoff, escalated to 2006 dollars. In addition, our extensive cost database for national and international transit projects was tapped where costs for items not currently used on CTA'S rapid transit system were required. Liaison with CTA-Real Estate provided input for land acquisition costs and for the easements over the UP-Northwest Line at Addison Street and north of Jefferson Park. Field investigations, review of aerial images and use of CTA 1600-Series Drawings provided the source information to determine quantities, involved parcels/buildings and other areas of concern to the estimating process.

In the case of the Orange Line passing tracks, a meeting with CREATE project management was held to determine plans for the paralleling rail rights-of-way and any special provisions that would be required to ensure that rail capacity was not adversely impacted as a result of widening CTA right-of-way. Our database of mainline railroad unit prices was used to develop any changes/improvements required to railroad physical plant in this area.

For the cost of modifications to the Kennedy Expressway to accommodate a four-track CTA right-of-way, we turned to our highway engineering staff, who have been doing extensive, recent work for IDOT on projects including the "Hillside Strangler" on I-290, the widening of I-55 in the Plainfield-Joliet area and the planning work associated with the Prairie Parkway project.

In the case of the cost estimates for the Direct and Express Service car fleets, two different approaches were required. The Direct Service fleet is based on the use of existing CTA rolling stock rehabbed and re-equipped to provide an attractive environment suitable for this premium service. The most recent CTA experience with car overhaul work was the 2600-series overhaul completed by Alstom. The average price per car for this effort was used as the basis for the Direct Service rehab, escalated to 2006 dollars. It was also necessary to adjust the 2600 rehab price to reflect a much smaller quantity of cars being involved for the Direct Service. When these adjustments were made, the per-car overhaul price was estimated at \$975,000. Recognizing that a different interior layout and grade of seats and other features was required, a further "adder" of \$160,000 per car was incorporated.

Parsons Brinckerhoff has been assisting CTA in the specification and procurement of the AC-propulsion railcars, including the third option for Airport Express cars. As part of that assignment, we estimated the price for the Express Service cars to be around \$1.4 million per car, which was then applied to this project.

At this early point in the process, a conservative cost estimating philosophy was applied for the both the Direct and Express Services. In the absence of any engineering work having been done, a conservative approach was deemed to be the best course, in order to avoid any future "negative surprises" for any of the stakeholders. In addition, a fairly high contingency (30%) is used, which can be reduced as the project advances.

#### ***5.4.2 Cost Estimates***

The Direct Service can be implemented at an estimated cost of \$64 million. This figure includes station improvements to segregate airport service customers from local customers at O'Hare and Midway (preferably before customers reach the fare gates) and additional finishes at the 108 N. State Street station. The alternative alignment to O'Hare via I-90 and the Union Pacific railroad right-of-way is estimated to cost \$1.5 billion, or \$725 million more than the Blue Line passing alternative.

#### ***5.4.3 Key Drivers and Contingencies***

The unit prices for track, traction power and communications equipment are derived directly from the work Parsons Brinckerhoff has done on other recent assignments for CTA and other organizations/governmental units (IDOT or suburban towns), where CTA was a key supporting player to the overall process. In the case of the structures costs, there was considerable debate over the unit pricing for the Kennedy Expressway-UP alignment. On the one hand, the relatively level and straight alignment was felt to warrant a lower unit price than the typical CTA structure. However, it was also recognized that this alignment, paralleling the UP-Northwest Line might need to be at a higher elevation than the typical CTA structure, in order to ensure that signal sight lines for UP crews (most of the signals are on overhead bridges) were not impinged. In addition, this line section would include some long-span, high crossings (at Addison both the UP line and the entire I-90 right-of-way [local and express lanes], plus the double-track CTA Blue Line in the median). In the end it was agreed that the conventional structure unit pricing would be appropriate at this point in the process.

The level of contingency (30%), discussed previously, was also considered. The percentage can be adjusted as further engineering investigations are undertaken. Other allocations that were applied to all cost estimates include: 12% for design and construction management and 12% for agency costs. Once

again, these allocations are based on our experience with prior CTA and other public-sector planning projects.

Each cost estimate also includes a project-specific allocation for “temporary operations and staging.” The exact dollar amount was adjusted by project to reflect proximity of work to an operating railroad, etc.

#### ***5.4.4 Delivery Complexities***

A number of complexities exist that could affect the delivery of the airport train service. These risks include:

- Ability to transfer risks of planning, development, and construction to private sector is limited because of the risks associated with construction within CTA’s operating railroad environment.
- Reliance on reconstruction of the Kennedy Expressway in the median section between Jefferson Park and Cumberland.
- Development of a new terminal at Midway Airport.
- Integration with existing operations on Blue, Red, Orange Lines.
- Integration of Blue Line and Direct/Express train operations at the existing O’Hare station.
- Due to track congestion, Blue Line local trains are susceptible to peak period delays on approach to the O’Hare Terminal. Operations control attention will be needed to prevent this situation from being aggravated when either the Direct or Express trains are added to the daily schedule.
- Cost and timing of environmental assessment, mitigation, permits.
- Market conditions at date of construction.
- Rights-of-way acquisition costs and schedule.
- Reliance on or coordination with highway and airport and other agencies.

## 6.0 Operational Strategy

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### 6.1 SUMMARY OF OPERATING PLAN

#### *6.1.1 Express Service Summary*

The CTA Express Airport Train Service would be expected to be operated between the hours of 5:20AM and 10:40PM (departure times from 108 N. State Street), with trains departing every 15 minutes in both directions during the operating day. The schedule is based upon memory timetable departure times from 108 N. State Street to both Midway and O'Hare. The same schedule would be in effect seven days per week. 70 one-way trips would be made each way each day. As all trains will start their operating day from Midway Yard/Shop, some of the earliest trips (those arriving downtown before 6:00AM) would be operated as deadhead trips to get trains in place to carry early-morning riders to the airports.

Use of Midway to handle all express train maintenance/storage is necessary, due to capacity constraints at the Rosemont facility. The track arrangement at 108 N. State Street is such that the northbound deadhead trains must pass through 108 N. State Street (intermixed with the in-service trains continuing to O'Hare). The deadheads proceed to Hubbard/Milwaukee crossover on the Blue Line where they would change ends to return to 108 N. State Street and be placed in service southbound.

Accordingly, Hubbard/Milwaukee crossover must be equipped either with route selectors or for remote control to facilitate these moves under signal protection. To conserve timetable paths, the deadhead trains may be made up of two 4-car consists which could be split into two trains at 108 N. State Street. A similar approach could be used at the end of the operating day to return the trains to Midway.

Nine trainsets are required in service to cover this schedule. Preliminary demand forecasts indicate that the initial year demand can be handled by 4-car trains at all hours of the day and for all days of the week. As demand grows some 6-car trains will be required. Providing spare trains (ready for service) at each terminal, as well as considering maintenance requirements, only 48 cars would be required. Therefore, the initial order for express cars could be reduced from the 84 now envisioned in Options 3A and 3B to the CTA AC car procurement.

Servicing on the express train fleet will be done at the Midway shop. Providing additional cars for maintenance during the midday will ease the workload on the shop by allowing some maintenance work to occur during the day when most of the shop's senior repair staff is on duty.

There are a couple of possibilities for how to get the spare consist to/from Rosemont. The first train going to O'Hare each day could operate as an 8-car train, with the spare 4-car consist included. Dedicated switchmen at Rosemont could then take the 4-car train to the yard (unless track space can be provided either in the platform at O'Hare or on the center track in the approach tunnel). Alternatively, the 4-car spare train could be kept in Rosemont Yard overnight. However, this consist would have to be cycled to/from Midway (assuming it is not put in express service during the day) for routine maintenance.

Two alignments between 108 N. State Street and O'Hare were considered in this analysis. One alignment would operate via the existing Blue Line elevated with passing tracks at Damen and California stations and express tracks from Foster to Cumberland Avenue in the Kennedy Expressway median. The estimated running time via this alignment is 28 minutes one-way, with a range of zero to five minutes



being added to the free-running time to account for railroad congestion due to the volume of Blue Line trains in operation. Therefore, the scheduled running time via this alignment would vary between 28 and 33 minutes depending on the time of day.

The other alternative is a new, dedicated, double-track alignment which would follow the Kennedy Expressway (I-90/94) and Union Pacific Railroad right-of-way from Chicago Avenue to north of Foster Avenue. On its north end, the new tracks would join the Kennedy Expressway median express tracks that extend out to Cumberland Avenue as described above. This line has the advantage of significantly reducing the amount of interference with ordinary Blue Line trains, which is reflected in an estimated free-running time of 26 minutes. A further measure of the reduced interference is that a range of only zero to two minutes is expected to be added to the free-running time to account for Blue Line train traffic the expresses would encounter only on relatively short track segments between O'Hare and Cumberland and between Chicago/Milwaukee and 108 N. State Street.

Although this Kennedy Expressway-UP alternative would have significantly higher capital costs, the added track capacity it would bring could open the possibility for some ordinary (regular fare) Blue Line trains to also use this new track in "limited stop" service between downtown and Jefferson Park-Rosemont. In this manner, the benefits of the express track infrastructure could directly extend to ordinary CTA Blue Line customers—particularly those making relatively long work trips from Chicago's South, Southwest, and West Sides—who would see transit travel times to jobs in the O'Hare area reduced significantly. The benefits of the extra track to ordinary CTA customers could also provide rationale for leveraging a major private sector capital contribution with some public support to pay for the necessary infrastructure.

The estimation of the running times were developed using schedule "snapshots" that incorporated actual CTA train performance data. However, it is recommended that computer-based capacity modeling be done for the entire express route (from O'Hare to 108 N. State Street to Midway) for the complete operating day. In particular, capacity of the O'Hare terminal and of the shared sections of the double-track Blue Line should be studied further. Also of interest is the capacity of affected portions of the State Street Subway and the south side elevated tracks shared with the Green and Orange Lines.

One issue with the possibility of longer peak period Express Service running times if the Blue Line elevated alignment alternative is developed is the adequacy of equipment layovers. This may preclude clock-face departures (:00, :15, etc.) at all times, and may also require extremely short layover times at O'Hare. This is another reason why the Kennedy Expressway-UP alignment may be preferred to the Blue Line elevated alignment alternative.

Dwell times at 108 N. State Street may be short in several instances throughout the operating day. For example, at the peak of the PM train flow, some trains may get only four minutes' dwell at 108 N. State Street. This will limit in-service attention (trash pick up, etc.) on those trips. However, this was done in the preliminary schedules to allow sufficient time at both the O'Hare and Midway terminals for light cleaning of the consists.

Another concern particularly associated with the Blue Line elevated alignment alternative is the overall reliability of the Express Service, particularly as it might be affected by the operation of the ordinary Blue and Red Line trains, in addition to the effect the express trains may have on the local services. CTA train performance data used in the production of the schedule "snapshots" indicates that there is a degree of variability in the local train operation from one day to the next. Some of the causes of this variability may not be under CTA's control, while other aspects may be. If the Express Service relies on manual

train control, there is a limited capability to provide instruction to the express train operator on how to achieve smooth operation and overtake the local trains with a minimum of delay.

Eliminating the variability of much of the train operation by upgrading to Automatic Train Operation (ATO) seems desirable from the standpoint that the central computer would now determine the optimum and safe speed profile for an express following a local train. However, ATO is not a cure-all, as there are several things that can occur in the course of an operating day that are beyond CTA's control. Further, ATO or any major control technology upgrade would require significant additional capital investment. Equipping the entire Blue Line, 706 ordinary service AC rail cars, and 596 2600-series rail cars with ATO equipment could cost approximately \$120 million (in 2006 dollars). This concern is not as significant if the Kennedy Expressway-UP alignment alternative is used, because the express and local train operations would then be largely segregated and the potential for interference between the two services is greatly reduced.

Existing service restoration and maintenance practices on the portions of the express route shared with local trains may require revision prior to the inception of the Express Service. Service restoration practices (holding of trains mid-line, etc.), which are commonly employed today on the Blue, Orange, or Red Lines, may adversely affect the premium express train service. In a similar context, midday and weekend single-track/work/slow zones could also subject the Express Service trains to unacceptable delays. Where dedicated express tracks are to be provided, work on the local tracks might occur without significant impact on the express (other than the requirement to slow while passing workers on the right-of-way). Work on the express tracks could occur during the period when the premium service is not operating. As above, this concern is not as significant if the Kennedy Expressway-UP alignment alternative is used, because the express and local train operations would then be largely segregated and the potential for interference between the two services greatly reduced.

A more limited means of addressing reliability and service restoration issues (using either the Blue Line elevated or Kennedy Expressway-UP alignments) would be to implement more remote control of interlockings along the express route. On a preliminary basis, implementing this system over the entire express route is estimated to cost approximately \$10 million.

Preliminary estimates of the staffing required at the start of the Express Service are summarized in Table 13.

**Table 13: Estimate of Express Service Staffing Requirements – Full-time Employees**

Job Classification	Required per Shift	Total Required	Comments
Train Operator	9	30	
Terminal Supervisor	3	11	O'Hare, 108 N. State Street, and Midway
Line Manager	1	4	In Central Control
Switchman	2	8	Two at Rosemont
Servicer - Platform	3	12	At Midway, 108 N. State Street, and O'Hare
Servicer – Yards	6*	10	Midnight shift only at Midway
Repairer	5	12	Five positions (half inspection team at Midway on days), two positions, midnight shift only at Midway
Customer Assistant	3	12	O'Hare, 108 N. State Street, and Midway
Janitor	3	12	O'Hare, 108 N. State Street, and Midway
<b>TOTAL</b>	<b>35</b>	<b>111</b>	

Notes: "Total Required" considers limitations on length of work shift, report time and turn-in allowance (where applicable), seven days per week coverage requirements and the likely attraction of high-seniority staff to many of the positions associated with the premium service.

\*Number of positions per car estimated from 2006 CTA Budget Proposal; Yard Servicers are one shift per day, seven days per week.

### 6.1.2 Phasing Options

The Direct Service would have a round-trip time of around 170 minutes, including layovers and dwells. Therefore, to provide a 15-minute headway throughout the day would require 12 trainsets. Initially, it is anticipated that these would be 2-car consists, so a total of 24 cars are required to operate the scheduled service. As with the Express Service, three spare consists are also required; one each at Midway and Rosemont; with the third one being cycled through inspection at Midway Shop. In nearly every other respect, the Direct Service will parallel the operations and approach of the Express Service, as described more fully above. A detailed, complete operating-day schedule for the Direct Service should be developed, as the longer running time will impact available layover and dwell times.

Balancing of the headways to provide for equipment cleaning and schedule recovery throughout the operating day is even more necessary with this service. Also, staffing requirements specific to the Direct Service should be considered. In particular, car miles on a daily basis will be different from those accumulated under the Express Service schedule, and this change may result in revised staffing for the repairmen classification, among others.

It is possible that the transition from Direct to Express Service could proceed in a phased manner. For example, the improvements on the Blue Line (passing tracks and express tracks) would produce the greatest benefit in reducing running time (15 minutes), as well as serving the higher-demand market. Doing this work incrementally may also have benefits for the investment partners. From an operational

standpoint, it would allow the dedicated Express cars to be phased into service alongside the Dedicated Service fleet (though this could be done under most any transition scenario).

Regarding the phase-in of the dedicated Express cars, it is possible that once the prototypes have been accepted, these cars could be introduced to the peak period services to/from O'Hare, with successive deliveries being assigned to other trips to the point that the transition to full operation with the new cars is accomplished.

### ***6.1.3 Key Assumptions***

Adherence to existing CTA operating practices with regard to, among others, layover times, use of drop-back train operators, etc., were basic factors considered in the development of the operating plan. In addition, current union agreements were reflected in the staffing plan. It is possible that with contract operations, some aspects of this situation might change.

Minimum desirable headways between future Express Service trains and existing demands for train service on the Blue, Orange, and Red Lines were a major concern as the schedule was developed. While the assignment did not include simulation of operations, it quickly became apparent that manual analysis of peak period operations for both the shared Blue Line and dedicated express alignment operations were essential in determining the workability of the proposed operations. These analyses could only be done for the peak-of-the-peak, but they showed the extent of potential delays to both the express and local trains, as leader trains were caught and then overtaken. The results of these exercises demonstrated the need to ultimately conduct computer-based simulations of the intermixed operations through the State Street Subway and on the south side elevated in particular.

### ***6.1.4 Operating Complexities***

A number of complexities exist that could effect the operation of the airport train service. These risks include:

- Travel time and headway - Short dwell and layover times for peak period Express Service trains may limit operational flexibility.
- Delays to local trains - During peak periods, Express Service train journeys to/from O'Hare may regularly take up to five minutes longer than during non-peak periods on the Blue Line Elevated alignment.
- Delays to Express trains - The manual operations analyses indicated that the peak period Express Service trains on the Blue Line Elevated alignment may actually take greater delay than they cause to local trains. This is due to having to run slow after catching the leading train, waiting for signals/switches once the local is in the clear, etc.
- Increased demand for local CTA services - Systemwide, rail ridership has been increasing steadily for more than ten years. The O'Hare Branch of the Blue Line, the Red Line, and the Orange Line have all been experiencing ridership growth, making peak period track space a more limited resource.
- Acceptability of contract-operations by unionized CTA employees – CTA's current collective bargaining agreement with Amalgamated Transit Union Local 308 prohibits the outsourcing of train operations, repair, and switching.

Several operational complexities require further study:

- O'Hare terminal operations and capacity, already constrained, and with increasing ridership (see above) effective operations control of this facility will continue to be critical.
- Operational implications of potentially intermixing Express Service and local train flows along the Blue Line requires additional analysis by computer-based simulations.
- Additional simulation will also be helpful for developing future control strategies for State Street subway operations, as well as the merge/diverge moves with the Green and Orange Lines south of the Loop.

## **6.2 OPERATING AND MAINTENANCE COST ESTIMATE**

### ***6.2.1 Cost Estimating Model***

Annual operating and maintenance costs of the Direct Service were estimated at \$11.7M in 2010 using the CTA cost allocation model calibrated on 2004 cost and level of service variables. Model assumptions were customized to produce an estimate for costs for the airport train service. Contingencies have been factored in to account for potential upward fluctuations in labor or materials costs. Actual payments for O&M services made by a concessionaire to CTA would be negotiated and finalized in a concession agreement.

### ***6.2.2 Key Assumptions***

The current CTA cost structure was assumed for the new airport trains. A management company would likely purchase most services from CTA since, for example, operating a dedicated maintenance facility for the relatively small number of airport train rail cars would be highly inefficient. While the cost structure is the same, the premium nature of the new service leads to higher cost in nearly every category. Rail cars and stations would need to be cleaned more frequently and with greater diligence than standard CTA cars and facilities. Likewise, airport cars and stations would require additional maintenance to produce a higher level of reliability and comfort.

### ***6.2.3 Key Drivers and Contingencies***

Operating and maintenance costs are dependent on the number of operational variables. The number of cars per train has a significant effect on costs, since it ties into total car miles. 2-car trains were assumed for the Direct Service, while 4-car consists were used in Express O&M cost estimates. Staffing levels, hours of operation, ridership, and the airport train's share of costs associated with running on CTA's lines also drive cost.

### 6.3 PROJECT DELIVERY STRUCTURE

Utilizing the public-private partnership models described in Section 5.2, a private sector management company could be contracted to be responsible for administering, operating, and maintaining the Direct or Express Service. Given the airport service’s relatively small scale, the most efficient method of delivering service would be for the management company to purchase most functions from CTA. The table below describes a recommended approach to providing Direct and Express Airport Train Service.

**Table 14: Recommended Structure of Management Contract**

<b>Service</b>	<b>CTA</b>	<b>Management Company</b>
<b>Administrative</b>	Internal CTA Oversight Staffing	Primary Management of Service
<b>Train Operations and Control</b>	Provider of Service	Contracted Back to CTA
<b>Rail Car Appearance</b>	Heavy, External Cleaning Contracted Back to CTA	Performs Internal Cleaning
<b>Customer Services</b>	-	Provider of Service
<b>Rail Car Maintenance</b>	Provider of Service	Contracted Back to CTA
<b>Station Appearance</b>	Shared Facilities Contracted Back to CTA	Performs Janitorial Functions
<b>Systems Maintenance</b>	Provider of Service	Contracted Back to CTA
<b>Power, Signals, and Track</b>	Provider of Service	Contracted Back to CTA

Operating under a management agreement would require CTA to dedicate resources to overseeing the Express Service. This commitment could require significant time from CTA staff and executive management. It should not be underestimated and should be adequately compensated by the management company.

## 7.0 Financial Projections

### 7.1 PROJECT CAPITAL COSTS

As detailed in preceding sections, capital expenditures for the Express Service are estimated to total approximately \$771 million for the Blue Line Elevated Passing Track Plan and rise to \$1.5 billion if the Kennedy Expressway-UP alignment is chosen. Costs associated with implementation of the initial Direct Service are estimated at \$64 million for vehicle refurbishment and upgrades and modifications at the three stations.

**Table 15: Express Service Preliminary Capital Cost Estimate Summary**

Element	Blue Line Elevated Alignment (2006\$ millions)	Kennedy Expressway-UP Alignment (2006\$ millions)
108 N. State Street Station & Tunnels (1)	\$188	\$188
Kennedy Expressway Modifications & Tracks	\$243	\$243
Blue Line Passing Tracks and Two Renovated Stations	\$169	-
New Midway Approach Tracks and Station (2)	\$109	\$109
Vehicles (3)	\$69	\$69
Orange Line Passing Tracks (2)	\$71	\$71
Centralized Traffic Control	\$10	\$10
Alternative O'Hare Alignment (2)	-	\$843
<b>Subtotal</b>	<b>\$671</b>	<b>\$1,345</b>
Property Acquisition	\$100	\$151
<b>Total (4)</b>	<b>\$771</b>	<b>\$1,496</b>

Notes: (1) Not included in totals; funded separately. (2) Includes design, construction management, and agency costs. (3) Vehicles assumed to cost \$1.4M each. (4) The addition of Automated Train Operations would add approximately \$120M to the Blue Line Alignment.

Contingency of 30% or 35% included in line item estimates except vehicles, which are currently under procurement. Estimate excludes signal system upgrades from Logan Square to Jefferson Park, which were previously identified as cost to be paid for as express airport train service CAPEX. Allowances for developer costs, operator mobilization, environmental assessment and mitigation excluded in the above table but included in the financial analysis. Capital reinvestment excluded from financial analysis. Assumes all IDOT right-of-way is valued at zero cost. Does not include \$64M in capital costs that would be necessary to start Direct Service.

### 7.2 REVENUES AND OPERATING COSTS

Fares and other annual revenues for the Direct Service would be dictated by the structure of the concession agreement that is formed between CTA and a private sector management company. Passenger revenues were derived by starting with a base fare and reducing that fare to capture assumed discounts for students, senior citizens, corporate partners, and roundtrip customers. Approximately 70% of the passenger revenue is generated from the O'Hare segment of the airport train service. Non-passenger revenues, accounting for advertising and other ancillary revenues that could be generated, were estimated to be \$0.25 per passenger (\$2006).

A preliminary estimate of annual revenue and operating and maintenance expenses for the Direct Service is displayed in Table 16. Upfront capital investment and other corporate expenses such as insurance, legal, marketing, management labor and benefits, and other general and administrative expenses will also factor into the airport train service's annual financial position.

**Table 16: Preliminary Estimate of 2010 Revenue and O&M Cost (Direct Service)**

(millions, \$2006)	Direct Service (\$10 Fare)
Passenger Revenues	\$18.1
Non-Passenger Revenues	\$0.5
<b>Total Revenues</b>	<b>\$18.6</b>
<b>Total O&amp;M Costs</b>	<b>(\$11.7)</b>
<b>Earnings before CAPEX and Other Corp. Exp.</b>	<b>\$6.9</b>

Note: All O&M cost categories include 5% contingencies.

Assuming the Blue Line Elevated Passing Track Plan is selected, by 2030, total annual revenues for the Express Service could climb to \$92.6 million with annual operating and maintenance and corporate expenses totaling \$42.9 million. After adding interest revenue, a portion of the remaining earnings would be used to cover depreciation charges and to pay interest expense on substantial capital investments that were made to upgrade to full Express Service functionality. While net income is projected to be positive in 2030, losses in the early years of service lead a funding shortfall.

**Table 17: 2030 Express Service Financial Estimate**

(millions, \$2006)	2030
Passenger Revenues	\$91.1
Non-Passenger Revenues	\$1.5
<b>Total Revenues</b>	<b>\$92.6</b>
<b>Total O&amp;M and Corporate Expenses</b>	<b>(\$42.9)</b>
<b>Income Before Interest and Depreciation</b>	<b>\$49.7</b>
Interest Revenue	\$11.0
Depreciation and Interest Expense	(\$56.9)
<b>Net Income</b>	<b>\$3.8</b>

Note: All O&M cost categories include 5%.



### **7.3 FINANCING STRATEGY**

Along with project delivery and organization, financing the major capital expenditures for the Express Airport Train Service is one of the dimensions of the ultimate project structure. Three options are available to access the capital markets to fund project costs: tax-exempt bonds issued by CTA, tax-exempt debt issued by a single purpose entity serving as a conduit (separate from CTA), or taxable financing arranged by CTA's private sector partner. Of these three options, under most circumstances, tax-exempt financing utilizing either CTA's or a Single Purpose Issuer's tax-exempt status would result in lower project financing costs due to longer tenors and lower interest rates when compared to private finance.

Public-private partnerships can marry public sector financing options with private sector expertise and innovation. Structuring a transaction requires a risk allocation process to determine the returns that flow to each entity. Well-crafted transactions could bring private parties to the table without requiring higher-cost equity at risk. For instance, CTA's private partners could still subscribe to subordinated debt. To attract "true" private investment, the project must be capable of paying equity returns (perhaps as high as 15% to 25% per annum), as well as servicing its debt.

The maximum financial capacity of the project was analyzed using a long-term financial model that combines the revenue and cost projections with a tax-exempt financing strategy that leverages revenues to the maximum extent through the use of back-loaded debt structures and subordinated debt.

### **7.4 FINANCIAL SUMMARY**

With preliminary estimates of operating costs coming in at \$11.7 million, revenues from the Direct Service are projected to cover these costs at a one-way base fare of \$10. Investments related to providing Direct Service total \$64 million and include rail cars, downtown station additions, service planning, and fare collection. Other corporate expenses that a concessionaire would incur must also be factored into the equation.

Revenues from the Express Service project are forecast to cover operating costs, but not all capital costs. The Blue Line Passing Track Plan can only support 35% to 45% of capital costs. Other funding sources would be needed to cover the balance of project costs. The actual funding shortfall is dependent on the type of project delivery method chosen, which in turn dictates the financing options available.

### **7.5 SHORTFALL FUNDING OPTIONS**

Reaching the goal of full Express Service to both airports will require new sources of capital to close the gap between total projects costs and revenue-backed financing capacity. Potential options CTA should consider include contributions from other stakeholders including businesses, airports, the city, or the state. With the support of government sponsors, new revenue streams to leverage additional debt could include dedication of related property tax-increments, fees paid by hotel visitors or airline passengers, or other transportation related revenues such as parking taxes. All of these sources have been used to support transportation investments in Chicago and other metropolitan areas.