Feasibility Report of Proposed Amtrak Service

Chicago – Peoria

Amtrak
Policy and Development Department (Central)
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I. Introduction

The Illinois Department of Transportation (IDOT) formally requested Amtrak to conduct a study to analyze the feasibility of initiating inter-city passenger train service between Chicago and Peoria, Illinois. A number of possible alternate routes were identified and reviewed at a high level, and these routes are summarized and discussed in Exhibit 1.

With the successful application by the State of Illinois for federal stimulus funding to upgrade the Chicago- St. Louis corridor (hereinafter referred to as "corridor") to a maximum speed of 110mph, the study request was modified to one route that would provide the Peoria area with connectivity to certain Amtrak corridor trains. After an initial review of the various routes, it became apparent that instead of a complete route feasibility study between Chicago and Peoria, either a rail or bus shuttle between the Peoria area and Normal, Illinois, utilizing the new multi-modal station currently under construction at Normal, would be the most expedient way to meet the State's goal. A decision was made by IDOT that no through-train frequencies between Peoria and Chicago were to be considered. In lieu of Chicago-Peoria through-train service, IDOT directed Amtrak to explore a shuttle "feeder" system that would provide guaranteed corridor train connections at Normal and permit morning and evening departures from both Peoria and Chicago. This report summarizes the analysis of both rail and bus shuttle options, including potential schedules, ridership, revenue, capital requirements, and operating expense for each option.

II. Background, Demographics and Route History

Illinois state–supported Amtrak rail passenger service continues to show impressive gains in both ridership and ticket revenue. For example, for the four-year period 2007-2010, ridership on the Chicago-St. Louis *Lincoln Service* has increased 40% to slightly fewer than 600,000 passengers annually. Over the same time frame, the *Illini/Saluki* service between Chicago and Carbondale has experienced ridership increases of nearly 16%, and the *Illinois Zephyr* service nearly 24%. This success has underscored the importance and future potential of Amtrak's role in the Illinois transportation network. Recent feasibility studies completed by Amtrak at the request of IDOT, (Chicago–Dubuque and Chicago–Quad Cities) give an indication of additional ridership potential and form a basis for continuing discussions on the possibility of future expansions of passenger rail service between Chicago and other cities in Illinois. This study explores the potential for the Peoria route to become a part of those future expansions.

Peoria is the largest city on the Illinois River and the 7th largest city in Illinois, with a 2010 census population of 115,007. In 2008, Peoria's Metropolitan Statistical Area counted a population of 372,487, making it the 3rd largest metro area in the state behind Chicago and St. Louis. Peoria is often said to mirror mainstream mid-western culture as characterized by the old theater adage "Will it play in Peoria?" As such, Peoria is often used as a test market for new products, services and public policy polling. Peoria is home

to Caterpillar, Inc. and several other renowned manufacturing firms. Bradley University, The University of Illinois College of Medicine and other prominent medical centers are located in Peoria, as is the Agricultural Research Lab (USDA's finest research facility). There has been significant economic development along the Illinois River, including hotels, restaurants, marinas, and a casino in the Peoria/East Peoria area. The area has also been a center for music, theatre and sports from its earliest days. It is home to the Peoria Chiefs, a Chicago Cubs minor league team.

Chicago-Peoria Route History for Passenger Rail Service

DATE RANGE	EVENT
September 19, 1937	The original *Peoria Rocket* makes the 161 mile journey between Chicago and Peoria 3 times daily, with trip times of 2 hours and 40 minutes.
July 1973	Illinois Governor Daniel Walker allocates $1.5 million to link Chicago with downstate Illinois via 6 routes, with 2 operated by the Chicago, Rock Island and Pacific railroad, including the *Peoria Rocket* and the *Quad Cities Rocket*.
1972-1975	Ridership on the *Rockets* plummets from 51,500 to 22,200, as on-time performance hovered around 41% due to poor track conditions. Nearly half of the Rock Island's track was under slow orders. The *Peoria Rocket* sometimes operated with no passengers.
1971-1975	Illinois covers deficits of Peoria and Rock Island trains in the amount of $1 million annually.
March 17, 1975	Rock Island declares bankruptcy and requests new state funding agreement, resulting in a state request for Amtrak to operate the *Peoria Rocket*.
July 1976	The Rock Island seeks permission from the Interstate Commerce Commission (ICC) to discontinue the *Rocket* lines.
1977	The *Peoria Rocket* averages 13 riders daily, making the 161 mile journey in 4 hours and 15 minutes at best.
March 21, 1977	Amtrak refuses to operate the *Peoria Rocket* unless the state pays $2 million for track improvements on the Santa Fe Railway between Chillicothe and Peoria.
August 24, 1977	The ICC orders Rock Island's *Quad Cities Rocket* and *Peoria Rocket* service to continue for one year after investing $6 million to improve track conditions between Chicago and Rock Island.
December 6, 1978	Amtrak and IDOT reach tentative agreement for a Chicago to Peoria service expected to lose $60,000 monthly.
December 31, 1978	The *Peoria Rocket* makes its last trip from Chicago, as the Rock Island becomes the first non-Amtrak member railroad to terminate intercity passenger rail service.

August 10, 1980	Amtrak's *Prairie Marksman* begins service between East Peoria and Chicago.
October 4, 1981	The *Prairie Marksman* service is discontinued with patronage averaging 30 passengers daily.

III. Transportation Alternatives

Highways

There are excellent highways between Chicago and Peoria, including portions of Interstate Highways I-55, I-39 and I-80. Internet mapping services indicate a driving time between the two city centers of about 3 hours depending upon the route chosen. Interstate Highway I-74 connects Bloomington/Normal and Peoria. Internet mapping services indicate a driving time between the two city centers of about 45 minutes.

Bus Service

Current bus services along portions of the proposed Chicago – Peoria Amtrak route are operated by Greyhound Lines (GL), Peoria Charter Coach Company (PCC), Burlington Trailways (BTW), and Megabus (MB). GL offers only a single one-way weekday morning bus service northbound from Bloomington to Chicago, with a travel time of 2 hours 40 minutes. This service departs from Bloomington at 6:50 A.M. and arrives in Chicago at 9:30 A.M. Similarly, MB trip time for the single daily round trip between Chicago and Normal is 2 hours 45 minutes. Scheduled bus trip times between Bloomington and Peoria via BTW are between 55 minutes and 1 hour 15 minutes. There are two round trips per weekday. The scheduled bus trip time between Chicago and Peoria via PCC is between 3 hours 30 minutes and 3 hours 45 minutes, with 4 round trip frequencies per day. This PCC service does not begin in downtown Chicago but rather at Chicago's O'Hare Airport and operates via Normal, serving the Illinois State University campus which is located near the Normal Amtrak station. At Peoria, PCC service operates to and from the Bradley University campus, which is located west of the downtown area.

The bus shuttle option considered in this study would provide coordinated connections with certain Amtrak corridor trains at Normal. This shuttle option would most likely utilize buses under a contract arrangement with Amtrak, commonly referred to as Thruway bus service. There would be through ticketing and fares between the buses and corridor trains to make this as seamless an experience for the Chicago-Peoria traveler as possible. This option is evaluated in greater detail in Section V.

Airlines

Regional air service between Chicago O'Hare Airport (ORD) and Peoria (PIA), as well as between ORD and Bloomington (BMI) is provided by two principal carriers—United Airlines and American Airlines. No regional air service is available between Bloomington and Peoria. Regional weekday air service along the corridor as of June 2011 consisted of twelve round trips between ORD and PIA, with a scheduled flight time of approximately one hour, and three round trips between ORD and BMI, with a flight time of fifty minutes.

IV. Discussion of Proposed Normal – East Peoria Rail Shuttle via UP, NS and TP&W

General Description

The route begins at the new Normal multi-modal facility currently under construction, located on the Union Pacific Railroad (UP) near Beaufort St. and Constitution Blvd. Normal is the second largest Amtrak train stop in Illinois in terms of ridership, having handled some 209,000 passenger boardings and deboardings in 2010. This provides the opportunity for roundtrip rail service between two major Illinois population centers (Peoria and Normal), as well as connectivity with the new high-speed service on the Chicago-St. Louis corridor.

Description of Route Operations

After leaving the Normal station located on the UP, the rail shuttle would operate over a new connection track through the UP's rail yard at Bloomington to the Norfolk Southern Railway (NS). Currently, the NS operates one local train Sunday through Thursday, one coal train per week and two unit grain trains per week over their portion of the route. The current maximum speed over the NS route is 49mph. As is typical with many Midwest rail operations, there are numerous public at-grade street and highway crossings along the route and, in the more rural areas, private crossings as well. There are presently 34 road crossings with no train-activated gates or flashing light signals, 20 with flashing light signals only, and 9 with both flashing light signals and gates. It is recommended that discussions be initiated with the State of Illinois regarding any additional grade crossing warning devices (gates and/or flashing lights) or closures that may be deemed appropriate for the route, based on a diagnostic analysis that we recommend be conducted by the Illinois Commerce Commission, in cooperation with NS, if this rail shuttle alternative is pursued.

East Peoria to Peoria

The rail route from East Peoria to Peoria presently has a maximum speed of 10-mph. With federally-mandated priority given to maritime rather than rail traffic on the Illinois River, there are often significant periods of time when rail traffic is delayed at the movable-span bridge. The bridge is raised an estimated 10-20 times per day depending on the season of the year, and remains open for about 20 minutes each time before it is again lowered. River traffic thus has serious implications for the consistent reliability and "On Time Performance" (OTP) of potential passenger rail service. Because of the significant infrastructure costs necessary to upgrade this segment for increased passenger train speeds and the serious concerns over river traffic impacts at the bridge, the rail shuttle route is proposed to terminate in East Peoria, just as it did when the Peoria area last had passenger train service in 1981.

Proposed Normal-East Peoria Train Schedules

The proposed Amtrak train schedule shown in Exhibit 2 is dependent upon timeslots which need to be made available to Amtrak by the host railroads. These scheduled timeslots are subject to further discussion based on traffic volumes, operating conditions, and other considerations in existence at the time of actual service commencement. Given likely freight traffic growth and possible future changes to Amtrak schedules, as well as

the possibility of changing operating conditions on the proposed route at the time of service commencement in the future, revisions to the proposed schedules shown in this study may occur.

Using Amtrak's standard methodology and reflecting the maximum authorized operating speeds, provisional schedules (called "strawman" schedules), were developed based on proposed upgraded track conditions reflecting infrastructure improvements to permit maximum operating speeds of 79mph where practicable. These schedules are shown in Exhibit 2. The rail shuttle is designed primarily for providing Peoria area connectivity to/from Chicago, although connections to/from St. Louis are also possible.

General Station Discussion for East Peoria Station Facility

At East Peoria there is a potential station location (see photo Exhibit 3) in the vicinity of E. Washington and Keayes Streets near the site where Amtrak once stopped, but where there is no station building or platform today. There exists more than adequate property at this site for passenger parking and for overnight train storage and servicing of an Amtrak train nearby. This location, however, is not central to the majority of the Peoria/East Peoria population. For purposes of this feasibility study, it is assumed that a new station facility at East Peoria will be provided by parties other than Amtrak, including platforms, parking lot, and waiting areas. Such parties would also have the responsibility for ongoing maintenance, snow and ice removal, and janitorial services. This study assumes no staffing for station personnel and no such employee-related expenses are included in this study.

Station ADA Requirements

Amtrak strives to ensure that the rail stations it serves are in a state of good repair and are readily accessible to, and usable by, passengers with disabilities as required by Section 242(e)(2) of the Americans with Disabilities Act of 1990 (42 U.S.C. 12162(e)(2)) (the "ADA"). In February of 2009, Amtrak submitted to Congress "A Report on Accessibility and Compliance with the Americans with Disabilities Act of 1990," (the "Stations ADA Report") that details Amtrak's plan for making the 481 stations Amtrak currently serves compliant with the ADA.

The ADA precludes Amtrak from "[building] a station for use in intercity rail transportation that is not readily accessible to and usable by person with disabilities, including individuals who use wheelchairs." (42 U.S.C. 12162(e)(1)).

Station Development Process

Station designs are initiated through the application of a conceptual design process. This describes the scope of the project, time frames for implementation, responsibilities for improvements and management of the process for completing design and construction.

This conceptual design phase is followed by preliminary design, final design and construction phases. The nature and duration of this process depends upon both the size and nature of facilities desired at the station. These projects can follow a design-build approach, in which a single contractor would handle both the design and the construction phases. Based on Amtrak's experience, the duration for this type of project, from

conceptual design to construction completion, could be approximately 24-48 months, depending on how design and construction contracts are structured.

Arrangements for adding and maintaining in-station ticketing kiosks (Quik-Trak℠) and passenger information display systems (PIDS) and other elements of the delivery system for service, if desired, require additional discussions with the station owner. It is the expectation that the costs of PIDS and Quik-Trak℠ would be borne by parties other than Amtrak as part of the proposed new state-supported service. Amtrak would expect to enter into an appropriate agreement with the entity owning the station, which would provide for Amtrak's usage of the station facility and delineate the responsibility for the day-to-day station maintenance.

An important consideration in establishing the proposed station stop at East Peoria is the identification of a funding source for the facility. No estimate of capital cost required for a station at East Peoria is included in this study since it is unknown what type of station facility would be desired by the local community. As a placeholder, an "order-of-magnitude" estimate for such a station may be in the range of $3-4 million. For illustrative purposes, a large facility at Normal with a multi-story parking garage is $47 million, while a roughly 300-foot platform with a small temperature-controlled waiting room could be built for less than $1 million.

Layover Facility

Regardless of where the Normal-East Peoria service terminates in the East Peoria area, an overnight train storage track location will need to be identified. In this study it is presumed that the layover facility will be at East Peoria. In addition, a small building facility will be needed for use by train crew personnel as an on/off duty point, as well as for storage of cleaning equipment and for communications facilities.

A standby 480 volt power unit and a potable water source would need to be provided. A mobilization line item of $500,000 is recommended for the layover facility. It may be possible to utilize existing trackage on the TP&W under a contractual agreement and that option should be explored.

UP-NS Connection Track at Bloomington-Normal

In order to operate the proposed rail shuttle service between the new Normal, Illinois passenger station and the proposed new station stop at East Peoria, a new connection track is required between the UP and NS railroads at Bloomington - Normal. The proposed connection track would connect the NS with the UP near the south end of the UP's rail yard at Bloomington (see Exhibit 4 & 5). The connection would be designed to by-pass most rail operations in the UP's Bloomington rail yard, thereby minimizing conflicts with UP freight operations. The new connection track does not bring passengers all the way to the main line platform of the new Normal station but to a location immediately south of the station parking garage, requiring a walk of approximately 600 feet to reach the main track station/platform.

The preliminary estimate for constructing the connection track includes the following cost elements as developed by IDOT. These are order-of-magnitude numbers only and require further field verification and detailed estimating.

Phase I Environmental and Preliminary Engineering	$1,300,000
Phase II Final Engineering, utility and right of way costs (includes closing University Avenue)	$3,750,000
Phase III Construction costs including 5 bridges, 25,000 ft of track, 16 turnouts and required retaining walls.	$69,602,000
TOTAL	**$74,652,000**

Proposed Infrastructure Improvements on NS

Although no formal capacity modeling was conducted for the NS segment of the corridor between Bloomington and East Peoria, certain infrastructure improvements were deemed to be needed by NS to assure operational fluidity and to permit the rail shuttle to operate without freight interference. If it is decided to proceed with the rail option, a further analysis of these infrastructure proposals is warranted. NS recommends the following:

1. Extension of the Crandall siding from 3,882 ft. to 12,000 ft. to the east.
2. Installation of a 12,000 ft. passing siding near the Yuton elevator siding.
3. Elimination of the Crandall interlocking and the permanent 20-mph speed restriction at this location. This would require installation of a connection track in the southwest quadrant from the NS main track to the TP&W main, thereby eliminating the diamond and associated signals.

There is currently only one siding between Bloomington and East Peoria at Crandall, about eight miles east of Peoria. The Crandall interlocking, in conjunction with TP&W trackage rights over NS, provides the TP&W with access to an insular remnant of track to service an industry at Morton, IL. This interlocking is used by the TP&W twice weekly and at least twice daily by NS. Due to the terrain, extending the Crandall siding to the west is not practical (steep downhill grade in a cut). Extending it east to straddle the crest of a hill is best operationally, but would require adding more signals and a second diamond at Crandall if the current configuration for TP&W access to their insular line segment is maintained. The best option is to retire the existing crossing diamond and its related interlocking signals and to add a connection track in the southwest quadrant to connect the NS main track with the TP&W line segment. This would then establish a suitable meeting point, reduce the long-term maintenance cost of the interlocking, and eliminate the 20-mph speed restriction.

The proposed new siding near the Yuton elevator track would create a second meeting point for the line segment. Located seven miles from Bloomington, the proposed placement and length would be compatible with meets for coal and grain trains and as a staging point for Decatur, Illinois shuttle traffic which, account lack of other track space,

is currently allowed to hold the main track for extended periods before and after the Peoria shuttle is operated.

The "order-of-magnitude" cost of these infrastructure improvements is $21 million. Detailed engineering plans and cost estimates have yet to be developed.

Other Infrastructure Improvements

The NS trackage currently has a maximum authorized speed of 49mph and the line is non-signaled ("dark") territory. It appears that approximately 30 miles could be upgraded to speeds between 60mph and 79mph, based on the existing curve geometry. In developing the proposed shuttle train schedules, it was assumed that the higher speeds would be implemented.

In the segments to be upgraded, a tie renewal and overall surfacing program is recommended, as well as raising the superelevation on curves. In addition, 34 public road crossings currently have crossbucks only, and it is recommended that they be equipped with automatic train-activated warning devices. Furthermore, the NS line would have to be signalized.

The total cost of these improvements is estimated at $20 million. Further analysis and engineering is required to refine this estimate, but it provides an indication of the order-of-magnitude of the infrastructure improvements associated with the speed upgrading initiative. In summary, these are the key elements of the improvements:

Install grade crossing warning devices	$6,800,000
Elevate and surface curves, crosstie renewal and associated surfacing	$3,500,000
Install signal system	$8,000,000
Remove and resurface public crossings	$1,400,000

Positive Train Control

In addition to the above costs, requirements for installation of Positive Train Control (PTC) equipment must be considered. PTC is a system designed to prevent train-to-train collisions, train operations above authorized speeds, train operations in maintenance of way work zone limits, and the movement of a train through a switch left in the wrong position. The Rail Safety Improvement Act of 2008 mandates that, by December 31, 2015, PTC be installed on those lines of Class-1 railroads that carry over five million gross tons of traffic annually and have toxic-by-inhalation hazardous materials (TIH) traffic and/or passenger trains. The Act also gives FRA authority to require PTC installation on other rail lines. FRA has issued proposed regulations that would require PTC on virtually all rail lines over which scheduled passenger trains operate. At this time,

the scope, costs and funding requirements for PTC are still to be determined, and no such costs were developed for this report.

Projected Shuttle Train Revenue/Ridership

In accordance with the timeline envisioned for the commencement of operations, annual ridership and ticket revenue projections for fiscal year 2014 were developed for the proposed Normal to East Peoria shuttle train service. These projections were developed at Amtrak's request by the firm AECOM and are based upon the hypothetical 12-month operation of the schedule developed for the proposed service and presented in Exhibit 2 of this report. Based upon this schedule and the assumed operation of service for the full 12-month 2014 period, it is anticipated that incremental annual ridership and ticket revenue from the operation of the proposed shuttle train service would aggregate 75,300 one-way rider trips and $375,000 in ticket revenue.

The ridership and ticket revenue estimates presented above reflect the additional or "incremental" annual 2014 ridership and ticket revenue that would be expected to be realized on a "stand-alone" basis from the operation of the proposed shuttle train service. As such, the results projected above do not include any ancillary traffic that could be realized by any other Amtrak services due to the enhanced levels of connectivity associated with the proposed operation of the shuttle train service.

In addition to the proposed schedules developed for operation of the shuttle train service, the projected ridership and ticket revenue results presented above are also based upon an assessment of several other key service parameters including (1) population size and demographics of the geographic area to be served; (2) the proposed level of daily service, i.e., the number of daily train frequencies; (3) the length of scheduled trip duration; and (4) competing modes of alternative transportation.

Rolling Stock

It is proposed that each trainset required to provide this service will be operated in "push-pull" mode, with either two locomotives or the combination of one locomotive and one non-powered control unit (NPCU). Based on projected ridership, the Rolling Stock requirements are summarized in the following table:

	Per Unit Price $millions	Units Required	Purchase Price ($millions)
Locomotives or NPCU units	$5	4	$20
Coaches	$4	2	$8
Total			$28

Capital costs for equipment are based upon the additional or "incremental" units of equipment that would be required for the operation of each service alternative and the fact that most likely all of the equipment required for the proposed service would have to

be purchased new since the availability of Amtrak-owned equipment may be limited at the time this service would be initiated.

The purchase of new equipment for this proposed service, which would take approximately three years for procurement and assembly, would preferably be part of a larger equipment order. The high upfront design and tooling costs associated with building passenger rail cars make it uneconomical to construct them in small quantities. In addition to passenger cars, locomotives in the current Amtrak fleet may also be in short supply, necessitating new purchases.

Trainset Maintenance and Services

Existing Amtrak locomotives and cars are maintained at several facilities across the Amtrak Network. Chicago is potentially the closest major service center in the Amtrak system capable of performing all of the required mechanical services necessary to support the proposed Normal to East Peoria shuttle operation.

If the shuttle cars and locomotives were to be positioned at Normal for pick-up/drop-off by a scheduled train operating on the corridor for delivery to Chicago shops, schedule impacts on the corridor trains of 30 minutes or more per event would be anticipated.

As an alternative to the above, a preliminary discussion was held with the TP&W, which agreed it would be willing to perform all scheduled maintenance to the shuttle locomotives and cars to Amtrak standards at their East Peoria shops under a contractual arrangement.

Although TP&W has indicated that it is willing to perform these services, no agreement terms or payment schedules have been discussed. In this feasibility study, order-of-magnitude servicing costs have been included based on Amtrak's own internal costing methodology.

Consideration of DMU Equipment

Consideration might be given to the use of Diesel Multiple Unit (DMU) equipment in place of traditional locomotives and cars normally used on Amtrak trains. A DMU is a self-propelled railcar which can be run in multiple combinations of unpowered and powered cars. A DMU provides both locomotive propulsion and seating capacity and does not require a separate locomotive. Because of the unique design and service requirements of DMU equipment, appropriate shop facilities and servicing equipment would be required. A turn-key arrangement including the DMU's equipment and coaches, complete shop facilities on site, and all required servicing may be available from a manufacturer.

Projected Annual Operating Expenses

Projected annual direct operating costs associated with the proposed 2014 operation of the Normal - East Peoria shuttle train service were developed by Amtrak and are presented below. These projections are also presented on a stand-alone basis and reflect costs associated with the operation of the proposed schedule for shuttle train operations shown in Exhibit 2. Consistent with the methodology used for ridership and ticket

revenue, these cost projections exclude any projected operating expenses applicable to any other Amtrak short or long distance route that might result from the operation of the proposed shuttle train service. Among the key determinants of projected annual operating costs are: (1) the number of daily frequencies proposed for operation; (2) the projected types and quantities of equipment required to support operations; (3) equipment rotation; (4) crew base requirements and scheduling synergies; and (5) the desired level of service amenities.

Estimated Annual Incremental Operating Expenses (In Dollars)

Projected Total Direct Train Costs (Train & Engine Labor, Fuel, Host Railroad Costs, Maintenance of Equipment, etc.)	$1,829,000
Other Projected Direct & Shared Costs	$757,000
Total Projected Incremental Operating Expenses	**$2,586,000**

Mobilization Costs of Shuttle Train Service (one-time expense)

There are a number of up-front expenses that would be incurred by Amtrak should the proposed route be funded. These include personnel recruitment and training, radio equipment, uniforms for on-board personnel, etc. A summary of significant items in connection with the Normal to East Peoria route alternative is presented below.

Prior to commencing operation of the proposed shuttle train service, Amtrak would need to hire, train and qualify the employees needed to operate the service. The number of additional staff required by position is projected as follows.

Required Additional Personnel

Train and Locomotive Staffing	4
On-Board-Service Staffing	None
Mechanical Staffing	None
Station Staffing	None
Total Additional Personnel Required	4

The majority of this cost is driven by the lengthy classroom and on-the-job training required of new locomotive engineers and conductors, and regulations that require they be qualified on the operating rules and physical characteristics of the routes over which they will be operating trains. In addition to classroom training, engineer-trainees are required to complete a minimum of 240 hours of locomotive engine operation and 480 hours of on-the-job training to obtain certification; the qualification process requires engineers to make as many as 36 round trips, accompanied by a qualified engineer, on each line staffed by the crew base where they are employed.

Summary-Proposed Shuttle Train Service: Normal - East Peoria

No. Rail Carriers:	3 – UP/NS/TP&W
Proposed Schedule:	0 hrs: 51 minutes
Estimated Infrastructure Capital Cost:	$106 million
Estimated Equipment Capital Cost:	$28 million
Estimated Annual Ridership:	75,300 trips
Estimated Annual Revenue:	$375,000
Estimated Annual Operating Expense:	$2,586,000
Estimated Annual Operating Subsidy:	$2,211,000

As noted on page 8, a layover facility cost of $500,000 is recommended to be included as a line item mobilization cost. This cost is reflected in the table below.

Mobilization Costs

Training, Qualification, and Other	$350,000
Layover Facility	$500,000
Total Estimated Mobilization Costs	$850,000

Host Freight Railroads' Perspective

Although there have been general operational discussions, field inspections, and review of preliminary capacity analyses with the host freight railroads, the freight railroads have not agreed to the introduction of passenger rail services on the Normal-Peoria line segment, nor the terms and conditions of that introduction. Neither have they agreed to the specific infrastructure improvement proposals, draft schedules and other freight railroad-related comments in this report. Instead, this report reflects only the findings to date and best judgment recommendations of the study team. Detailed discussion and initiation of formal negotiations with the host freight railroads are required if IDOT decides to proceed with implementation of rail shuttle service. Implementation of rail shuttle service is also subject to availability of rolling stock, to completion of a package of infrastructure improvements, which is ultimately agreed to by the host freight railroads, to recruitment and training of Amtrak passenger service personnel, and to equipment maintenance arrangements.

All potential train schedules shown in this feasibility study are dependent upon time slots made available by the host freight railroads. Time slots are subject to further discussion based on traffic volumes, operating conditions and other considerations in existence at the time of actual service commencement on the route.

Given likely freight growth following the current recession and the possibility of changing operating conditions on the route at the time of service commencement, revisions to the potential schedules shown in this study may be required.

V. Proposed Thruway Bus Shuttle Alternative: Normal – East Peoria - Peoria

Due to the significant capital costs and operating expenses associated with a train shuttle, the possibility of operating a bus shuttle between Normal – East Peoria – Peoria was investigated. The bus trip times are very close to those of the train and would utilize I-74

for most of the route. At Normal, the buses would service the new multi-modal facility and connect with the same Chicago – St. Louis corridor trains as the train shuttle. Other pertinent information follows:

Normal – Peoria Thruway Bus Schedule

The proposed bus schedule showing connectivity with the Chicago – St. Louis corridor trains is shown in Exhibit 6.

Projected Shuttle Bus Revenue/Ridership

In accordance with the proposed schedule, Amtrak requested AECOM to develop projected ridership and revenue numbers for the bus shuttle utilizing similar methodology to that assumed in the development of projected shuttle train results. The projected ridership and revenue estimates for Thruway bus operations are based upon the hypothetical 12-month operation of service for the year 2014. Based upon these parameters, it is estimated that incremental annual ridership and ticket revenue from the operation of the proposed bus service would generate 39,200 passenger trips and $194,000 in ticket revenue. Further, and consistent with the presentation of projected results for shuttle train service, the projected 2014 ridership and revenue from the bus operations is presented on a "stand-alone" basis and accordingly does not include any amounts associated with any ancillary traffic that might be projected to be realized by other Amtrak services.

Projected Annual Operating Expenses of Thruway Bus Service

Projected annual direct operating costs associated with the proposed 2014 operation of Thruway bus service between Normal and Peoria were developed by Amtrak and are presented below. These projections are also presented on a stand-alone basis and reflect costs associated with the operation of the proposed schedule presented in Exhibit 6.

Estimated Annual Incremental Operating Expenses (In Dollars)

Projected Direct Costs of Thruway Bus Service	$ 370,000
Other Projected Direct & Shared Costs	$97,000
Total Projected Incremental Operating Expenses	$ 467,000

Mobilization Costs of Thruway Bus Service (one-time expense) – Not applicable

Summary-Proposed Thruway Bus Service - Bloomington-Normal to Peoria, IL

Proposed Schedule:	1hrs: 0 minutes
Estimated Infrastructure Capital Cost:	Not applicable
Estimated Equipment Capital Cost:	Not applicable
Estimated Annual Ridership:	39,200 trips
Estimated Annual Revenue:	$194,000
Estimated Annual Operating Expense:	$467,000
Estimated Annual Operating Subsidy:	$273,000

EXHIBITS

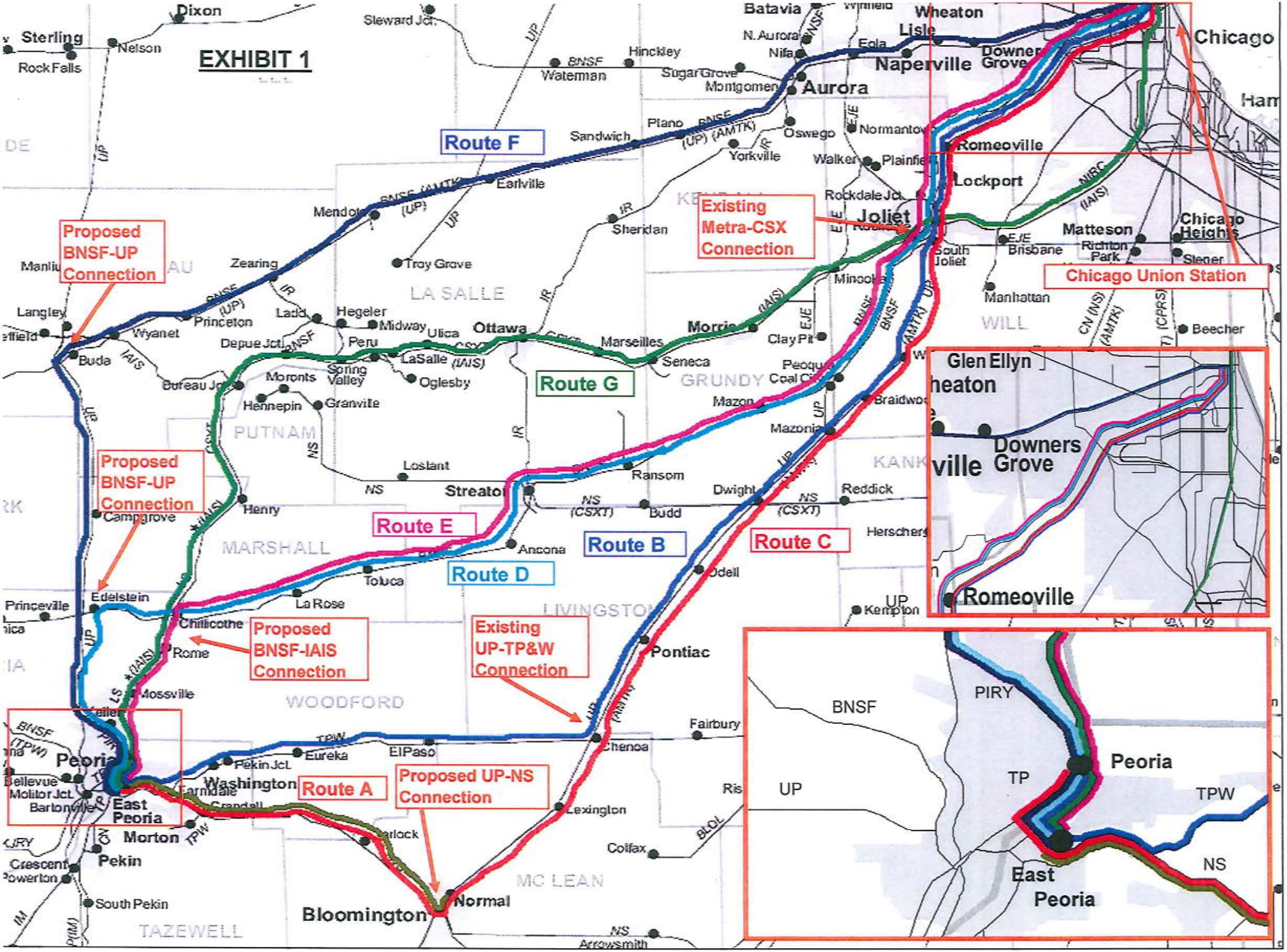
EXHIBIT 1
Route F
Route G
Route E
Route D
Route B
Route C
Route A
Proposed BNSF-UP Connection
Proposed BNSF-UP Connection
Proposed BNSF-IAIS Connection
Existing UP-TP&W Connection
Proposed UP-NS Connection
Existing Metra-CSX Connection
Chicago Union Station
Sterling
Rock Falls
Dixon
Nelson
Sleward Jct.
Waterman
Hinckley
Sugar Grove
Batavia
N. Aurora
Nifa
Fox
Wheaton
Lisle
Naperville
Downers Grove
Chicago
Aurora
Montgomery
Plano
Sandwich
Oswego
Yorkville
Normantown
Romeoville
Lockport
Joliet
Rockdale Jct.
Walker
Plainfield
Earlville
Mendota
Sheridan
Troy Grove
Zearing
Manlius
Langley
Princeton
Wyanet
Buda
Depue Jct.
Bureau Jct.
Ladd
Hegeler
Midway
Ulica
Ottawa
Peru
LaSalle
Spring Valley
Oglesby
Marseilles
Morris
Seneca
Minooka
Clay Pit
Peoquot
Coal City
Mazon
Braidwood
Mazonia
Ransom
Dwight
Reddick
Herscher
Streator
Loslant
Budd
Odell
Kempton
Pontiac
Fairbury
Chenoa
Lexington
Colfax
Normal
Bloomington
Arrowsmith
Moronts
Hennepin
Granville
Henry
Campgrove
Ancona
Toluca
La Rose
Chillicothe
Rome
Mossville
Edelstein
Princeville
Peoria
Bellevue
Molitor Jct.
Bartonville
East Peoria
Morton
Pekin
Crescent
Powerton
South Pekin
Pekin Jct.
Eureka
Washington
Farmdale
Grandell
El Paso
Carlock
Manhattan
Beecher
Matteson
Richton Park
Chicago Heights
Sleger
Brisbane
South Joliet
LA SALLE
GRUNDY
PUTNAM
MARSHALL
WOODFORD
LIVINGSTON
MC LEAN
TAZEWELL
WILL
KANKAKEE
Glen Ellyn
Downers Grove
Romeoville
BNSF
PIRY
UP
TP
TPW
NS
Peoria
East Peoria

EXHIBIT 1

Routes reviewed in this study:

Upon receipt of the initial feasibility study request from IDOT, the study team identified a number of possible rail routes between Chicago and Peoria for review at a high level. Brief descriptions of each are included in this exhibit. Ultimately, the rail shuttle option connecting East Peoria with Chicago – St. Louis corridor trains, identified as "Route A", was studied in-depth, and details are covered elsewhere in this study.

Route A	Normal-East Peoria rail shuttle via UP, NS and TP&W
Route B	Chicago-Joliet-Chenoa-East Peoria-Peoria via Amtrak, CN, UP, TP&W, and T&P
Route C	Chicago-Joliet-Normal-East Peoria-Peoria via Amtrak, CN, UP, NS, TP&W, and T&P
Route D	Chicago-Joliet-Edelstein-Radnor-Peoria-East Peoria via Amtrak, CN, BNSF, UP, PRR, T&P, and TP&W
Route E	Chicago-Joliet-Chillicothe-Peoria-East Peoria via Amtrak, CN, BNSF, IAIS, T&P, and TP&W
Route F	Chicago-Naperville-Princeton-Radnor-Peoria-East Peoria via Amtrak, BNSF, UP, PRR, T&P, and TP&W
Route G	Chicago-Joliet-Morris-Ottawa-LaSalle-Chillicothe-Peoria-East Peoria via Amtrak, Metra, CSX, IAIS, T&P, and TP&W
Route H	Chicago-Kankakee-Gilman-East Peoria via Amtrak, CN, and TP&W

Host Railroad Acronyms:

Amtrak	National Railroad Passenger Corporation
BNSF	Burlington Northern Santa Fe Railway
CN	Canadian National Railway
CSX	CSX Transportation
IAIS	Iowa Interstate Railroad
METRA	Commuter Rail Division of the Regional Transportation Authority
NS	Norfolk Southern Railway
PRR	Pioneer Railroad
T&P	Tazwell and Peoria Railroad
TP&W	Toledo, Peoria and Western Railroad
UP	Union Pacific Railroad

Alternate Route General Descriptions

Route A:
See detailed information in this feasibility study.

Route B:
Chicago-Joliet-Chenoa-East Peoria-Peoria via Amtrak, CN, UP, TP&W, and T&P

The Amtrak portion of this route is the immediate area of the Amtrak south train shed and includes lead tracks to Chicago Union Station. The route continues over the South Branch Bridge (Chicago River) and on to the CN over the same route followed by Amtrak's state- supported train service between Chicago and St. Louis via Summit and on to Joliet Union Depot. At Joliet, the route connects with the UP and continues through Pontiac toward St. Louis. The route connects with the TP&W at Chenoa for the westward move to East Peoria/Peoria. Unlike the CN and UP, traffic over the TP&W is relatively light, averaging at most 3 trains per day.

To continue movement from East Peoria to Peoria, the route transitions to the T&P, then crosses over the Illinois River Bridge to the Peoria riverfront area where two former Rock Island stations are located approximately 1 mile apart. Needed infrastructure improvements, especially over the T&P, will be significant. The "order-of-magnitude" estimated cost to raise the line speed to 79-mph between Chenoa and East Peoria on the TP&W is $52 million, which covers track, bridge, signal and crossing warning devices and a powered switch at Chenoa. To increase speeds to 110-mph where possible on the TP&W between Chenoa and East Peoria would require an estimated infrastructure expenditure totaling nearly $100 million.

Route C:
Chicago–Joliet–Normal–East Peoria–Peoria via Amtrak, CN, UP, NS, TP&W, T&P

This alternative follows the same route from Chicago as route B over Amtrak, CN, and UP to a new proposed connection track with the NS at Bloomington. Normal is a major station stop for the state-supported Chicago-St. Louis trains, as well as on the long distance train "*Texas Eagle*" between Chicago and Los Angeles. The NS operation is described elsewhere in this study. This route may be considered as a through route alternative in the future. This alternative was not chosen for implementation at this time since UP capacity modeling for the high-speed Chicago-St. Louis corridor has been completed and, as directed by IDOT, no additional through-train services are to be considered on the applicable portion of this corridor.

Route D:
Chicago-Joliet-Edelstein-Radnor-Peoria-East Peoria via Amtrak, CN, BNSF, UP, Pioneer RR, T&P, and TP&W.

This alternative follows the same trackage as in Route C between Chicago and Joliet. The route then continues on the BNSF through Chillicothe and would require construction of a new connection at Edelstein with the UP. Traffic on the BNSF segment

is quite heavy, with more than 100 freight trains operating on portions of the line per day. The route could be connected with the Pioneer RR via a new track connection, then continue to East Peoria via the T&P and the TP&W. Because of required track improvements (including two new track connections), and the very heavy freight traffic that would be encountered, this route is not recommended.

Route E:
Chicago-Joliet-Chillicothe-Peoria-East Peoria via Amtrak, CN, BNSF, IAIS, T&P, and TP&W

Route E follows the same route as described in Route D from Chicago to Chillicothe. At Chillicothe a new connection track would be required between the BNSF and the IAIS and a reversal of the train's direction of travel would be required. The segment on the IAIS between Chillicothe and Peoria averages 3 trains per week and up to 3 coal trains per month. The last five miles of the segment approaching Peoria runs closely parallel to State Route 29 and immediately adjacent to homes. Residential ingress/egress activities, along with the presence of many private and public grade crossings with no train activated gates or flashers and current track conditions results in maximum operating speeds of 10 mph. The IAIS connects in Peoria with the T&P and the route from there to the TP&W to East Peoria is the same as is described in Route D. Because of the proximity to the highway, numerous driveways, and slow speeds on the IAIS portion of the route, as well as the reversal of the direction of travel at Chillicothe, the route is not recommended for further consideration.

Route F:
Chicago–Naperville–Princeton–Buda-Radnor-Peoria-East Peoria via Amtrak, BNSF, UP, Pioneer RR, T&P, and TP&W.

The Amtrak portion of this route alternative begins at the south train shed of Chicago Union Station. This portion of the route then transitions onto the BNSF and continues westward to Aurora. The BNSF route is very well-maintained and its 94 weekday commuter trains (47 in each direction) serve many communities between Chicago and Aurora. Amtrak operates morning and evening trains as well in each direction to Quincy on this route, in addition to two long distance trains via Galesburg: the California Zephyr and Southwest Chief. The route also carries a very high volume of freight to and from Chicago, approaching 100 Million Gross Tons (MGT) annually, much of it time-sensitive intermodal traffic. Freight speeds generally range from 50-60-mph and the maximum passenger train speed is 79-mph. This route is mostly double and triple track with some quadruple track, is signalized, and is under centralized traffic control from BNSF's dispatching center in Ft. Worth, Texas. The physical plant condition is excellent.

The route proceeds to a potential new connection track with the UP at Buda. The UP portion would then proceed via a new connection at Radnor with the Pioneer RR. The Pioneer RR is owned by the City of Peoria. There is no rail service on the line at this time. Several alternatives for use on the line are under consideration by the city. Although there has been no discussion regarding abandonment, there are many issues that would require resolution. Given the issues surrounding the Pioneer Railroad, Amtrak's use of

this route seems unlikely and impractical and is therefore not recommended for consideration at this time. This comment also applies to Route D.

Route G:
Chicago–Joliet–Morris–Ottawa–LaSalle–Chillicothe–Peoria–East Peoria, via Amtrak, Metra (Rock Island District), CSX, IAIS, T&P, and TP&W

The short Amtrak portion of this route is the immediate area of the south train shed and includes lead tracks at Chicago Union Station. This routing duplicates the move utilized to reach the St. Charles Air Line for today's operation of Amtrak's service between Chicago, Carbondale and New Orleans as it continues eastward to Metra's Clark St. Tower. There it turns south over a connection track onto Metra's Rock Island District toward Joliet. There are 78 daily commuter trains (39 trains each way) on this Chicago-Joliet route. The Metra line segment from Clark Street to Joliet is double track under CTC control and Cab signals, with a top speed of 79-mph. There is some freight traffic on the Metra Rock Island District as well. Just beyond Joliet Union Depot, which is the south end of the commuter district, the route crosses the Des Plaines River drawbridge and transitions onto the CSXT Railroad for the next 54 miles. The CSXT portion of the route is dispatched from their Calumet City center using TWC and DTC dispatcher authorizations for train movement. The current maximum speed on the CSXT segment is 40-mph, with more than half of the route restricted to 25-mph or less. Freight traffic on the CSXT consists of one through CSXT train in each direction and one through IAIS train in each direction over the route, and three local trains that serve various industries.

Traffic from several new ethanol plants, primarily located on the west end of the IAIS, continues to increase across the route as the new plants have come on line. The route continues from Ottawa to LaSalle and then on to Chillicothe – Peoria. The segment from Chillicothe to Peoria is the same as described in Route E.

Route H:
Chicago-Kankakee-Gilman-East Peoria via Amtrak, CN and TP&W

The Amtrak portion of this route is the immediate area of Chicago Union Station and follows the first leg of Route G over the St. Charles Airline and onto the CN. This is the same routing as utilized by the state-supported Carbondale Service and the long-distance train "City of New Orleans." At Gilman, Illinois this route alternative would connect with the TP&W and follow that railway westward to East Peoria. The CN route has relatively heavy freight traffic with maximum passenger train speeds of 79-mph, while the TP&W between Gilman and East Peoria has up to 3 freight trains daily, with maximum authorized speeds of 25-mph. An order-of-magnitude cost to upgrade the Gilman to East Peoria trackage to a top speed of 79-mph is $94 million, including track, bridges, signals, and grade crossing warning devices. To bring the track up to a top speed of 110-mph is estimated to cost about $170 million. In addition, a detailed capacity analysis would have to be conducted on the CN to determine what additional infrastructure requirements would arise on that railway.

Lincoln Service	Lincoln Service	Texas Eagle	Lincoln Service	Lincoln Service	◄ Train Name ►					Lincoln Service	Lincoln Service	Texas Eagle	Lincoln Service	Lincoln Service
301	303	21	305	307	◄ Train Number ►					300	302	22	304	306
Daily	Daily	Daily	Daily	Daily	◄ Normal Days of Operation ►					Daily	Daily	Daily	Daily	Daily
Read Down					Mile	▼		▲	Mile	Read Up				
700A	925A	145P	515P	700P	0	DP	Chicago, IL (CT)	AR	284	920A	1125A	152P	840P	1015P
	948A		542P	727P	12		Summit, IL		272	829A	1034A		751P	924P
750A	1015A	240P	608P	753P	37		Joliet, IL		247	803A	1008A	1256P	726P	858P
	1049A		637P	822P	74		Dwight, IL		210	734A	939A		641P	829P
	1106A	327P	651P	836P	92		Pontiac, IL		192	720A	925A	1139A	623P	815P
853A	1139A	404P	712P	857P	124	AR	Normal, IL	DP	160	659A	904A	1108A	556P	759P
908A			727P			DP	Normal, IL	AR			849A		541P	
959A			818P			AR	East Peoria, IL	DP			758A		450P	
758A			450P			DP	East Peoria, IL	AR			959A		818P	
849A			541P			AR	Normal, IL	DP			908A		727P	
858A	1144A	409P	717P	902P	124	DP	Normal, IL	AR	160	654A	859A	1103A	551P	754P
	1210P	437P	741P	926P	157		Lincoln, IL		127	630A	835A	1025A	524P	725P
941A	1250P	514P	804P	949P	185		Springfield, IL		99	607A	812A	955A	456P	702P
	148P	549P	834P	1019P	224		Carlinville, IL		60	537A	742A	915A	414P	632P
1034A	159P	622P	904P	1049P	258		Alton, IL		26	507A	712A	843A	345P	602P
1130A	300P	721P	1000P	1145P	284	AR	St. Louis, MO (CT)	DP	0	435A	640A	755A	300P	530P

Exhibit 2

Proposed Normal-East Peoria Rail Shuttle Connecting to Chicago-St. Louis Corridor Trains

EXHIBIT 3

Proposed station site at East Peoria near Washington Street

EXHIBIT 4

Overhead view of Union Pacific Bloomington Yard
Two tracks on extreme right are Chicago – St. Louis main Tracks

Peoria – Bloomington Shuttle

Joliet Sub Mitigation

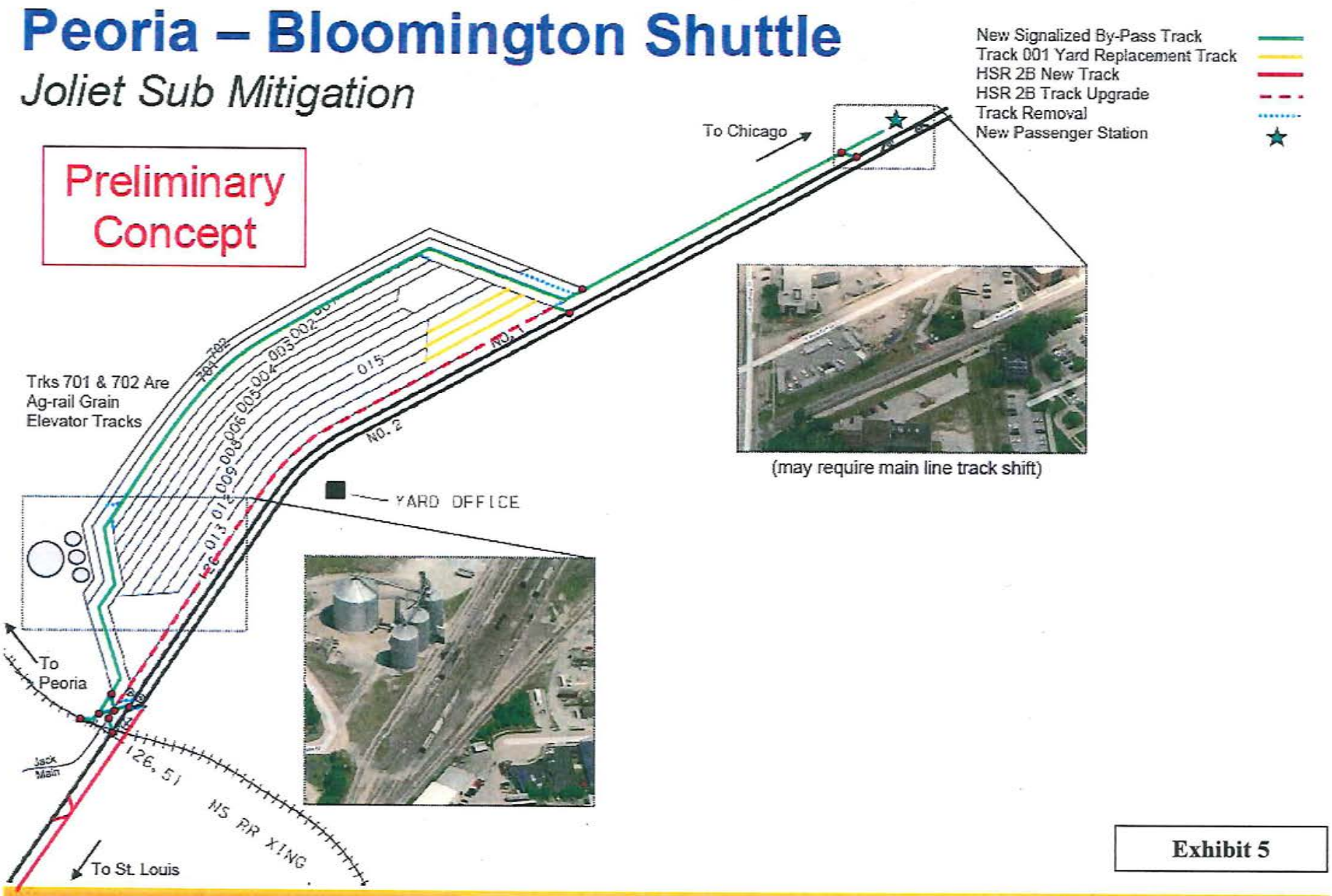

Exhibit 5

Lincoln Service	Lincoln Service	Texas Eagle	Lincoln Service	Lincoln Service	◄ Train Name ►					Lincoln Service	Lincoln Service	Texas Eagle	Lincoln Service	Lincoln Service
301	303	21	305	307	◄ Train Number ►					300	302	22	304	306
Daily	Daily	Daily	Daily	Daily	◄ Normal Days of Operation ►					Daily	Daily	Daily	Daily	Daily
Read Down					Mile	▼		▲	Mile	Read Up				
700A	925A	145P	515P	700P	0	DP	Chicago, IL (CT)	AR	284	920A	1125A	152P	840P	1015P
	948A		542P	727P	12		Summit, IL		272	829A	1034A		751P	924P
750A	1015A	240P	608P	753P	37		Joliet, IL		247	803A	1008A	1256P	726P	858P
	1049A		637P	822P	74		Dwight, IL		210	734A	939A		641P	829P
	1106A	327P	651P	836P	92		Pontiac, IL		192	720A	925A	1139A	623P	815P
853A	1139A	404P	712P	857P	124	AR	Normal, IL	DP	160	659A	904A	1108A	556P	759P
915A			735P			DP	Normal, IL	AR			845A		535P	
1005A			825P			DP	East Peoria, IL	DP			755A		445P	
1015A			835P			AR	Peoria, IL	DP			745A		435P	
745A			435P			DP	Peoria, IL	AR			1015A		835P	
755A			445P			DP	East Peoria, IL	DP			1005A		825P	
845A			535P			AR	Normal, IL	DP			915A		735P	
858A	1144A	409P	717P	902P	124	DP	Normal, IL	AR	160	654A	859A	1103A	551P	754P
	1210P	437P	741P	926P	157		Lincoln, IL		127	630A	835A	1025A	524P	725P
941A	1250P	514P	804P	949P	185		Springfield, IL		99	607A	812A	955A	456P	702P
	148P	549P	834P	1019P	224		Carlinville, IL		60	537A	742A	915A	414P	632P
1034A	159P	622P	904P	1049P	258		Alton, IL		26	507A	712A	843A	345P	602P
1130A	300P	721P	1000P	1145P	284	AR	St. Louis, MO (CT)	DP	0	435A	640A	755A	300P	530P

Exhibit 6

Proposed Normal-East Peoria-Peoria Thruway Bus Shuttle Connecting to Chicago-St. Louis Corridor Trains

EXHIBIT 7
Acronyms/Definitions

ADA - Americans with Disabilities Act

BMI - Bloomington International Airport

BTW - Burlington Trailways

CTC - Centralized Traffic Control – A term applied to a system of railroad operation by means of which the movement of trains over routes and through blocks on a designated section of track or tracks is directed by signals controlled from a designated control point.

DMU - Diesel Multiple Unit is a multiple unit train consisting of multiple carriages powered by one or more on-board diesel engines.

DTC - Direct Traffic Control – A block or series of blocks or sections of track where a train dispatcher authorizes track occupancy.

FRA - Federal Railroad Administration

GL - Greyhound Lines

IDOT - Illinois Department of Transportation

NPCU - Non-Powered Control Unit is a generic term for a non-powered railroad vehicle that can control operation of a train from the end opposite to the position of the locomotive. They can be used with diesel or electric motive power, allowing push-pull operation without the use of an additional locomotive.

ORD - O'Hare International Airport

OTP - On-Time Performance – A train is considered "late" if it arrives at its endpoint terminal more than 10 minutes after its scheduled arrival time for trips up to 250 miles. Source PRIIA metrics and standards published by FRA May 2010.

PCC - Peoria Charter Coach Company

PIA - Peoria International Airport

PTC - Positive Train Control is a system designed to prevent train-to-train collisions, train operation above authorized speeds, train operations in maintenance of way work zone limits, and the movement of a train through a switch left in the wrong position.

TWC - Track Warrant Control – A method to authorize train movement to protect men or machines on a main track within specified limits in a territory designated by the timetable.

USDA - United States Department of Agriculture

EXHIBIT 8
References

1. Employee Timetables: BNSF, CN, CSX, IAIS, NS, T&P, TP&W, UP.

2. Amtrak System Timetable Spring/Summer 2011.

3. Railroad Track Charts: CSX, IAIS, NS, T&P, TP&W, UP.

4. East Peoria Community Profile and Resource Guide, 2008.

5. City of Peoria Official Statement, Selected Places, 2008.

6. Keller Branch Railroad, Current Progress Towards Peoria's Recreation Trail, Recreational Trail Advocates, 2007.

7. Keller Branch – Rock Island/Pimiteoui Trail Extension, Alternatives for Trail Development, Peoria Park District, 2007.

8. Keller Branch – Rock Island/Pimiteoui Trail Extension, Alternatives For Trail Development: "Trail Next To Rail," Alternative Alignment, Peoria Park District Planning, Design, And Construction Division, December 3, 2007.

9. Chronological History Of The Recreational Trail Advocates And The Conversion Of The Keller Branch, 2008.

10. City of Peoria, City Services Directory, May 2007.

11. "Amtrak in the Heartland," Craig Sanders, Indiana University Press, 2006.

12. Feasibility Study Of Alternative Regional Transportation Connections Between Peoria And Bloomington/Normal, Illinois, R. L. Banks & Associates, Inc., March 2000.