Technical Memorandum #3 – Service Plan Development

Introduction

The purpose of this Technical Memorandum (TM) is to document the development of service plans for the Illinois High-Speed Rail Feasibility Study. Service plans define the operating characteristics of proposed high-speed rail service, including service frequency, operating speeds, travel times, equipment requirements, station locations, and layover and maintenance facilities.

This TM presents service plans for each potentially feasible route identified in TM #2 – Route Options Development. This TM also summarizes preliminary ridership forecasts and financial performance indicators, including operating and maintenance (O&M) costs, revenue, and operating ratios.

Service Plans

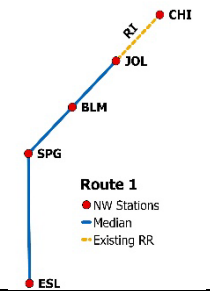
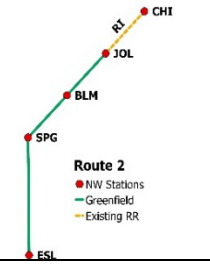
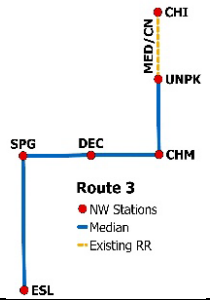
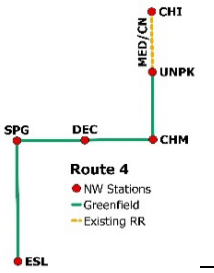
Service plans were developed using a consistent operating framework across all route options to enable direct comparison of performance characteristics. Key planning assumptions include standardized service frequency, uniform fleet configuration, and consistent dwell time allowances at stations.

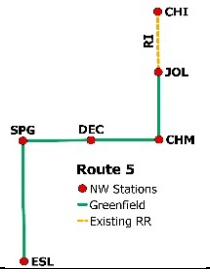
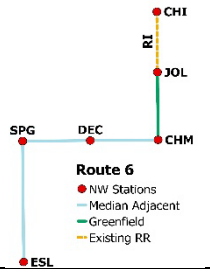
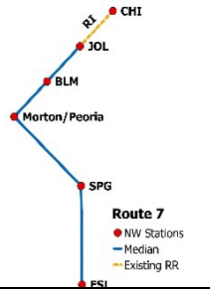
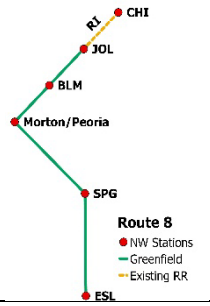
All service plans assume:

- Bi-directional service over an approximately 18-hour operating window
- Maximum authorized operating speeds of up to 220 miles per hour on fully grade-separated segments where horizontal geometry can support the speeds
- Two layover facilities and one heavy maintenance facility

This standardized approach ensures that differences in travel time, ridership, and financial performance reflect corridor geometry and market access rather than variations in operational assumptions.

Service plans were prepared for each of the potentially feasible route options presented in Table 1.

Route Option	Intermediate Station Stops	ROW Type	Route Configuration
1 – I-55 Corridor	Springfield-Bloomington/Normal-Joliet	Interstate Median	
2 – Greenfield via Bloomington and Joliet	Springfield-Bloomington/Normal-Joliet	Greenfield	
3 – I-57/I-72/I-55 Corridor	Springfield-Decatur-Champaign/Urbana-University Park	Interstate Median	
4 – Greenfield via Champaign/Urbana and University Park	Springfield-Decatur-Champaign/Urbana-University Park	Greenfield + County Road	

Route Option	Intermediate Station Stops	ROW Type	Route Configuration
5 – Greenfield and County Road via Champaign/Urbana and Joliet	Springfield-Decatur-Champaign/Urbana-Joliet	Greenfield + County Road	
6 – Interstate Adjacent and County Road via Champaign/Urbana and Joliet	Springfield-Decatur-Champaign/Urbana-Joliet	Interstate Adjacent + County Road	
7 – I-55/I-155/I-74 Corridor	Springfield-Peoria-Bloomington/Normal-Joliet	Interstate Median/Adjacent	
8 – Greenfield via Peoria and Joliet	Springfield-Peoria-Bloomington/Normal-Joliet	Greenfield	

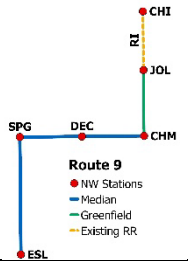
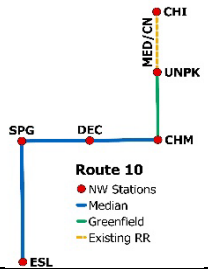
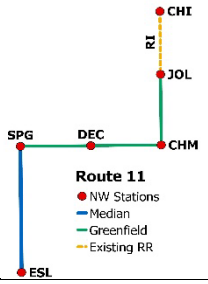
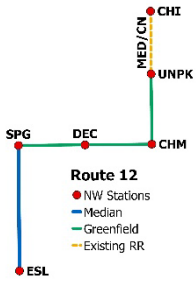
Route Option	Intermediate Station Stops	ROW Type	Route Configuration
9 – Interstate Median and County Road via Champaign/Urbana and Joliet	Springfield-Decatur-Champaign/Urbana-Joliet	Interstate Median + County Road	
10 - Interstate Median and Greenfield via Champaign/Urbana and University Park	Springfield-Decatur-Champaign/Urbana-University Park	Interstate Median + Greenfield	
11 - Interstate Median and Greenfield/County Road via Champaign/Urbana and Joliet	Springfield-Decatur-Champaign/Urbana-Joliet	Interstate Median + Greenfield + County Road	
12 - Interstate Median and Greenfield via Champaign/Urbana and University Park	Springfield-Decatur-Champaign/Urbana-University Park	Interstate Median + Greenfield	

Table 1- Range of Potentially Feasible Routes

Route Option 1 – I-55 Corridor Service Plan

Route Option 1 utilizes an alignment primarily within the I-55 interstate median, serving Springfield, Bloomington/Normal, and Joliet prior to entering the Chicago terminal area.

Station-to-station distances, travel times, and average operating speeds are presented in Table 2. The total corridor length of approximately 295 miles results in an end-to-end travel time of approximately

174 minutes (2 hours 54 minutes), inclusive of station dwell time. The travel time between stations is 168 minutes plus 6 minutes of dwell time. Average systemwide operating speed is approximately 101 MPH, reflecting speed constraints associated with urban approaches and interstate geometric limitations.

Station-Station	Distance (miles)	Travel Time Between Stations (minutes)	Average Speed (MPH)
East St. Louis – Springfield	96	45	125
Springfield-Bloomington/Normal	66	37	110
Bloomington/Normal-Joliet	93	51	109
Joliet-Chicago	40	35	70
Total	**295**	**174**	**102**

Table 2 - Distances, Travel Times, and Speeds for Route Option 1

Note: the travel time between stations includes pad time but excludes dwell time. The total travel time and total average speed include dwell time.

Operating Plan

Service is assumed at 32 trains per day, consisting of 16 northbound and 16 southbound trains, providing approximately hourly all-day service in each direction. The assumed 32 trains per day service level is consistent with initial operating frequencies implemented on comparable international high-speed rail corridors connecting major metropolitan areas with secondary regional markets. International experience indicates that hourly all-day service in each direction represents a practical startup level that supports ridership growth while maintaining operational efficiency, with opportunities for future frequency expansion as corridor demand matures.

Maximum authorized operating speed is assumed to be 220 miles per hour on compliant segments. Dwell times of 2 minutes at each station were incorporated into total corridor travel times to reflect passenger boarding volumes, accessibility requirements, and schedule recovery margins. The Route Option 1 schedule is presented in Attachment 1.

Equipment and Fleet Requirements

Each electric trainset is assumed to consist of one power unit and eight passenger coaches with a mix of business-class and high-capacity coaches to support passenger needs, providing up to 500 seats per consist. Twelve total trainsets, including four spares, are required to support daily operations at one-hour headways, scheduled maintenance cycles, and operational resiliency.

Station Locations

Stations at East St. Louis, Springfield, Bloomington-Normal, Joliet, and Chicago provide access to regional transit networks and surface transportation systems. Co-location with existing transit facilities at East St. Louis and Joliet supports multimodal connectivity and enhances ridership capture. Station locations are discussed in Technical Memorandum #9 – Station Access Development.

Layover/Maintenance Facilities

Layover Facilities

Layover facilities are required to support overnight train storage, spare train storage, daily inspections, light maintenance activities, interior servicing, and early morning train service, and have the capacity to store all the trainsets. These facilities are distinct from heavy maintenance facilities, which perform periodic overhauls and major component replacement.

For planning-level analysis, layover facilities are assumed to accommodate:

- Secure overnight storage for multiple trainsets
- Daily pre-service inspections and brake testing
- Light mechanical servicing and minor repairs
- Interior cleaning and restocking
- Crew reporting and support functions

Facilities are designed to support high service reliability while minimizing non-revenue equipment movements.

For fleet circulation efficiency, layover facilities are assumed at both terminal ends of the corridor:

- Chicago metropolitan terminal area
- East St. Louis region terminal area

These locations minimize deadhead movements, support early morning departures in both directions, and provide operational resiliency in the event of service disruptions.

Final site selections will be determined during subsequent engineering and environmental phases.

Heavy Maintenance Facility

In addition to the layover facilities, a Heavy Maintenance Facility (HMF) is also proposed in the East St. Louis area. An HMF is required to support periodic inspections, major component overhauls, system upgrades, and corrective maintenance beyond the scope of daily servicing activities performed at layover facilities.

The HMF provides the core technical infrastructure necessary to ensure fleet safety, reliability, and long-term asset performance over the life of the system.

For planning-level analysis, the HMF is assumed to support:

- Scheduled heavy inspections and overhaul cycles
- Traction system maintenance
- Wheel truing and replacement
- High-voltage systems servicing
- Major interior refurbishments
- Structural and body repairs

Feasibility level planning assumes that the location of the HMF is in the East St. Louis regional area due to:

- Availability of industrial land suitable for rail facilities
- Strong freight rail connectivity for component delivery
- Lower land acquisition and development costs relative to the Chicago metropolitan area

- Proximity to terminal layover operations

The HMF is assumed to be designed to support the full fleet requirement of approximately 12 trainsets at initial system opening, with physical expansion capability to accommodate future fleet growth associated with service frequency increases.

Typical capacity elements include:

- Multiple heavy maintenance shop tracks
- Dedicated overhaul bays
- Storage tracks for out-of-service equipment
- Material handling and component staging areas

Final site selection will be determined during subsequent engineering and environmental phases.

Route Option 2 – Greenfield via Bloomington/Normal and Joliet Service Plan

Route Option 2 follows a predominantly greenfield alignment providing improved horizontal geometry and higher sustained operating speeds between East St. Louis, Springfield, Bloomington/Normal, and Joliet.

Table 3 indicates a total corridor length of approximately 282 miles with end-to-end travel time of 146 minutes (2 hours 26 minutes), and an average operating speed of approximately 116 MPH. The travel time between stations is 140 minutes plus 6 minutes of dwell time.

Station-Station	Distance (miles)	Travel Time Between Stations (minutes)	Average Speed (MPH)
East St. Louis – Springfield	92	39	148
Springfield-Bloomington/Normal	61	24	148
Bloomington/Normal-Joliet	93	38	137
Joliet-Chicago	40	39	62
Total	**286**	**146**	**116**

Table 3 - Distances, Travel Times, and Speeds for Route Option 2

Note: the travel time between stations includes pad time but excludes dwell time. The total travel time and total average speed include dwell time.

Operating Plan

The service frequency of 32 trains per day mirrors Route Option 1, providing hourly all-day service. The improved geometry allows a greater proportion of the corridor to operate at or near maximum authorized speeds. The Route Option 2 schedule is presented in Attachment 1.

Equipment and Fleet Requirements

Fleet configuration and total trainset requirements are consistent across all route options to maintain operational comparability and cost consistency.

Station Locations

Station locations mirror Route Option 1, maximizing continuity of market access while benefiting from

faster performance. Station locations are discussed in Technical Memorandum#9 – Station Access Development.

Layover/Maintenance Facilities

Layover and maintenance facilities are consistent across all route options to maintain operational comparability and cost consistency.

Route Option 3 – I-57/I-72/I-55 Corridor Service Plan

Route Option 3 utilizes a multi-interstate median alignment serving Springfield, Decatur, to Champaign/Urbana, and University Park prior to reaching Chicago.

Table 4 presents a corridor length of approximately 306 miles with total travel time of approximately 175 minutes (2 hours 55 minutes) and an average operating speed of 104 MPH. The travel time between stations is 167 minutes plus 8 minutes of dwell time.

Station-Station	Distance (miles)	Travel Time Between Stations (minutes)	Average Speed (MPH)
East St. Louis – Springfield	96	46	125
Springfield-Decatur	37	22	98
Decatur-Champaign/Urbana	44	23	115
Champaign/Urbana-University Park	101	52	117
University Park -Chicago	28	24	68
Total	**306**	**175**	**104**

Table 4 - Distances, Travel Times, and Speeds for Route Option 3

Note: the travel time between stations includes pad time but excludes dwell time. The total travel time and total average speed include dwell time.

Operating Plan

Service is provided at 32 trains per day, consistent with systemwide assumptions. The Route Option 3 schedule is presented in Attachment 1.

Equipment and Fleet Requirements

Trainset configuration remains consistent across route options.

Station Locations

Stations are assumed to be located in the following cities:

- East St. Louis, IL
- Springfield, IL
- Decatur, IL
- Champaign/Urbana, IL
- University Park, IL
- Chicago, IL

This option expands market reach through Decatur and Champaign-Urbana, capturing significant

university and employment travel demand. The University Park station provides direct interface with Metra commuter rail services into Chicago.

Station locations are discussed in Technical Memorandum #9 – Station Access Development.

Layover/Maintenance Facilities

Layover and maintenance facilities are consistent across all route options.

Route Option 4 – Greenfield via Champaign/Urbana and University Park Service Plan

Route Option 4 utilizes predominantly greenfield alignments to serve Springfield, Decatur, Champaign/Urbana, and University Park with optimized high-speed geometry.

As shown in Table 5, this option achieves the fastest end-to-end travel time at approximately 142 minutes (2 hours 22 minutes), with an average operating speed of approximately 131 MPH. The travel time between stations is 134 minutes plus 8 minutes of dwell time.

Station-Station	Distance (miles)	Travel Time Between Stations (minutes)	Average Speed (MPH)
East St. Louis – Springfield	92	38	148
Springfield-Decatur	33	16	128
Decatur-Champaign/Urbana	38	17	134
Champaign/Urbana-University Park	113	39	180
University Park -Chicago	28	24	68
Total	**304**	**142**	**131**

Table 5 - Distances, Travel Times, and Speeds for Route Option 4

Note: the travel time between stations includes pad time but excludes dwell time. The total travel time and total average speed include dwell time.

Operating Plan

Service is provided at 32 trains per day, consistent with systemwide assumptions. The Route Option 4 schedule is presented in Attachment 1.

Equipment and Fleet Requirements

Trainset configuration remains consistent across route options.

Station Locations

Stations are assumed to be located in the following cities:

- East St. Louis, IL
- Springfield, IL
- Decatur, IL
- Champaign/Urbana, IL
- University Park, IL

- Chicago, IL

This option expands market reach through Decatur and Champaign-Urbana, capturing significant university and employment travel demand. The University Park station provides direct interface with Metra commuter rail services into Chicago.

Station locations are discussed in Technical Memorandum #9 – Station Access Development.

Layover/Maintenance Facilities

Layover and maintenance facilities are consistent across all route options.

Route Option 5 – Greenfield and County Road via Champaign-Urbana and Joliet Service Plan

Route Option 5 combines greenfield and county roadway corridors to serve Springfield, Decatur, Champaign-Urbana, Joliet, and Chicago.

Table 6 shows a total corridor length of approximately 304 miles and end-to-end travel time of approximately 147 minutes (2 hours 27 minutes), with an average speed of 125 MPH. The travel time between stations is 139 minutes plus 8 minutes of dwell time.

Station-Station	Distance (miles)	Travel Time Between Stations (minutes)	Average Speed (MPH)
East St. Louis – Springfield	92	35	158
Springfield-Decatur	33	14	141
Decatur-Champaign/Urbana	40	16	146
Champaign/Urbana-Joliet	100	39	155
Joliet-Chicago	39	35	70
Total	**304**	**147**	**125**

Table 6 - Distances, Travel Times, and Speeds for Route Option 5

Note: the travel time between stations includes pad time but excludes dwell time. The total travel time and total average speed include dwell time.

Operating Plan

Service is provided at 32 trains per day, consistent with systemwide assumptions. The Route Option 5 schedule is presented in Attachment 1.

Equipment and Fleet Requirements

Trainset configuration remains consistent across route options.

Station Locations

Stations are assumed to be located in the following cities:

- East St. Louis, IL
- Springfield, IL
- Decatur, IL

- Champaign/Urbana, IL
- Joliet, IL
- Chicago, IL

This option combines strong university market access with direct Joliet commuter interface into the Chicago region. Station locations are discussed in Technical Memorandum #9 – Station Access Development.

Layover/Maintenance Facilities

Layover and maintenance facilities are consistent across all route options.

Route Option 6 – Interstate Adjacent and County Road via Champaign-Urbana and Joliet Service Plan

Route Option 6 follows a mix of interstate-adjacent and county roadway corridors to connect Springfield, Decatur, Champaign/Urbana, Joliet, and Chicago.

Table 7 indicates a total corridor length of approximately 304 miles and end-to-end travel time of approximately 159 minutes (2 hours 39 minutes), with an average speed of 120 MPH. The travel time between stations is 151 minutes plus 8 minutes of dwell time.

Station-Station	Distance (miles)	Travel Time Between Stations (minutes)	Average Speed (MPH)
East St. Louis – Springfield	96	43	134
Springfield-Decatur	36	17	131
Decatur-Champaign/Urbana	43	17	148
Champaign/Urbana-Joliet	102	39	155
Joliet-Chicago	39	35	70
Total	**316**	**159**	**120**

Table 7 - Distances, Travel Times, and Speeds for Route Option 6

Note: the travel time between stations includes pad time but excludes dwell time. The total travel time and total average speed include dwell time.

Operating Plan

Service is provided at 32 trains per day, consistent with systemwide assumptions. The Route Option 6 schedule is presented in Attachment 1.

Equipment and Fleet Requirements

Trainset configuration remains consistent across route options.

Station Locations

Stations are assumed to be located in the following cities:

- East St. Louis, IL
- Springfield, IL

- Decatur, IL
- Champaign/Urbana, IL
- Joliet, IL
- Chicago, IL

Station locations are discussed in Technical Memorandum #9– Station Access Development.

Layover/Maintenance Facilities

Layover and maintenance facilities are consistent across all route options.

Route Option 7 – I-55/I-155/I-74 Corridor via Peoria/Morton Service Plan

Route Option 7 serves Springfield, Peoria/Morton, Bloomington/Normal, and Joliet primarily within interstate corridors.

Table 8 presents a corridor length of approximately 317 miles and a travel time of 190 minutes (3 hours 10 minutes), with average operating speed of approximately 100 MPH. The travel time between stations is 182 minutes plus 8 minutes of dwell time.

Station-Station	Distance (miles)	Travel Time Between Stations (minutes)	Average Speed (MPH)
East St. Louis – Springfield	96	45	127
Springfield-Peoria/Morton	64	37	104
Peoria/Morton-Bloomington/Normal	26	14	111
Bloomington/Normal -Joliet	92	51	108
Joliet-Chicago	39	35	70
Total	**317**	**190**	**100**

Table 8 - Distances, Travel Times, and Speeds for Route Option 7

Note: the travel time between stations includes pad time but excludes dwell time. The total travel time and total average speed include dwell time.

Operating Plan

Service is provided at 32 trains per day, consistent with systemwide assumptions. The Route Option 7 schedule is presented in Attachment 1.

Equipment and Fleet Requirements

Trainset configuration remains consistent across route options.

Station Locations

Stations are assumed to be located in the following cities:

- East St. Louis, IL
- Springfield, IL
- Peoria (Morton), IL
- Bloomington/Normal, IL

- Joliet, IL
- Chicago, IL

Station locations are discussed in Technical Memorandum #9– Station Access Development.

Layover/Maintenance Facilities

Layover and maintenance facilities are consistent across all route options.

Route Option 8 – Greenfield via Peoria/Morton and Joliet Service Plan

Route Option 8 combines greenfield geometry with Peoria market access. Table 9 shows an end-to-end travel time of approximately 164 minutes (2 hours 44 minutes), a length of approximately 315 miles, and an average speed of 112 MPH. The travel time between stations is 156 minutes plus 8 minutes of dwell time.

Station-Station	Distance (miles)	Travel Time Between Stations (minutes)	Average Speed (MPH)
East St. Louis – Springfield	92	39	148
Springfield-Peoria/Morton	57	25	132
Peoria/Morton-Bloomington/Normal	27	14	107
Bloomington/Normal -Joliet	90	39	138
Joliet-Chicago	39	39	62
Total	**315**	**164**	**112**

Table 9 - Distances, Travel Times, and Speeds for Route Option 8

Note: the travel time between stations includes pad time but excludes dwell time. The total travel time and total average speed include dwell time.

Operating Plan

Service is provided at 32 trains per day, consistent with systemwide assumptions. The Route Option 8 schedule is presented in Attachment 1.

Equipment and Fleet Requirements

Trainset configuration remains consistent across route options.

Station Locations

Stations are assumed to be located in the following cities:

- East St. Louis, IL
- Springfield, IL
- Peoria (Morton), IL
- Bloomington/Normal, IL
- Joliet, IL
- Chicago, IL

Station locations are discussed in Technical Memorandum #9 – Station Access Development.

Layover/Maintenance Facilities

Layover and maintenance facilities are consistent across all route options.

Route Option 9 – Interstate Median and County Road via Champaign/Urbana and Joliet

Route 9 is a hybrid interstate median and county road route option connecting to Chicago via Champaign/Urbana and Joliet. Table 10 shows an end-to-end travel time of approximately 173 minutes (2 hours 53 minutes), a length of approximately 318 miles, and an average speed of 110 MPH. The travel time between stations is 165 minutes plus 8 minutes of dwell time.

Station-Station	Distance (miles)	Travel Time Between Stations (minutes)	Average Speed (MPH)
East St. Louis – Springfield	96	46	125
Springfield-Decatur	36	22	98
Decatur-Champaign/Urbana	45	23	115
Champaign/Urbana -Joliet	102	39	155
Joliet-Chicago	39	35	70
Total	**318**	**173**	**110**

Table 10 - Distances, Travel Times, and Speeds for Route Option 9

Note: the travel time between stations includes pad time but excludes dwell time. The total travel time and total average speed include dwell time.

Operating Plan

Service is provided at 32 trains per day, consistent with systemwide assumptions. The Route Option 9 schedule is presented in Attachment 1.

Equipment and Fleet Requirements

Trainset configuration remains consistent across route options.

Station Locations

Stations are assumed to be located in the following cities:

- East St. Louis, IL
- Springfield, IL
- Decatur, IL
- Champaign/Urbana, IL
- Joliet, IL
- Chicago, IL

Station locations are discussed in Technical Memorandum #9 – Station Access Development.

Layover/Maintenance Facilities

Layover and maintenance facilities are consistent across all route options.

Route Option 10 - Interstate Median and Greenfield via Champaign/Urbana and University Park

Route 10 is a hybrid interstate median and greenfield route option connecting to Chicago via Champaign/Urbana and University Park. Table 11 shows a total corridor length of approximately 307 miles and end-to-end travel time of approximately 165 minutes (2 hours 45 minutes), with an average speed of 116 MPH. The travel time between stations is 157 minutes plus 8 minutes of dwell time.

Station-Station	Distance (miles)	Travel Time Between Stations (minutes)	Average Speed (MPH)
East St. Louis – Springfield	96	46	125
Springfield-Decatur	36	22	98
Decatur-Champaign/Urbana	45	26	102
Champaign/Urbana-University Park	102	39	180
University Park -Chicago	28	24	68
Total	**307**	**165**	**116**

Table 11 - Distances, Travel Times, and Speeds for Route Option 10

Note: the travel time between stations includes pad time but excludes dwell time. The total travel time and total average speed include dwell time.

Operating Plan

Service is provided at 32 trains per day, consistent with systemwide assumptions. The Route Option 10 schedule is presented in Attachment 1.

Equipment and Fleet Requirements

Trainset configuration remains consistent across route options.

Station Locations

Stations are assumed to be located in the following cities:

- East St. Louis, IL
- Springfield, IL
- Decatur, IL
- Champaign/Urbana, IL
- University Park, IL
- Chicago, IL

This option combines strong university market access with direct Joliet commuter interface into the Chicago region. Station locations are discussed in Technical Memorandum #9 – Station Access Development.

Layover/Maintenance Facilities

Layover and maintenance facilities are consistent across all route options.

Route Option 11 - Interstate Median and Greenfield/County Road via Champaign/Urbana and Joliet

Route 11 is a hybrid interstate median, greenfield, and county road route option connecting to Chicago via Champaign/Urbana and Joliet. Table 12 shows an end-to-end travel time of approximately 160 minutes (2 hours 40 minutes), a length of approximately 308 miles, and an average speed of 116 MPH. The travel time between stations is 152 minutes plus 8 minutes of dwell time.

Station-Station	Distance (miles)	Travel Time Between Stations (minutes)	Average Speed (MPH)
East St. Louis – Springfield	96	46	125
Springfield-Decatur	33	15	132
Decatur-Champaign/Urbana	38	17	138
Champaign/Urbana -Joliet	102	39	155
Joliet-Chicago	39	35	70
Total	**308**	**160**	**116**

Table 12 - Distances, Travel Times, and Speeds for Route Option 11

Note: the travel time between stations includes pad time but excludes dwell time. The total travel time and total average speed include dwell time.

Operating Plan

Service is provided at 32 trains per day, consistent with systemwide assumptions. The Route Option 11 schedule is presented in Attachment 1.

Equipment and Fleet Requirements

Trainset configuration remains consistent across route options.

Station Locations

Stations are assumed to be located in the following cities:

- East St. Louis, IL
- Springfield, IL
- Decatur, IL
- Champaign/Urbana, IL
- Joliet, IL
- Chicago, IL

Station locations are discussed in Technical Memorandum #9 – Station Access Development.

Layover/Maintenance Facilities

Layover and maintenance facilities are consistent across all route options.

Route Option 12 - Interstate Median and Greenfield via Champaign/Urbana and University Park

Route 12 is a hybrid interstate median and greenfield route option connecting to Chicago via Champaign/Urbana and University Park. Table 13 shows a total corridor length of approximately 307 miles and end-to-end travel time of approximately 150 minutes (2 hours 30 minutes), with an average speed of 125 MPH. The travel time between stations is 142 minutes plus 8 minutes of dwell time.

Station-Station	Distance (miles)	Travel Time Between Stations (minutes)	Average Speed (MPH)
East St. Louis – Springfield	96	46	125
Springfield-Decatur	36	16	98
Decatur-Champaign/Urbana	45	17	102
Champaign/Urbana-University Park	102	39	180
University Park -Chicago	28	24	68
Total	**307**	**150**	**125**

Table 13 - Distances, Travel Times, and Speeds for Route Option 12

Note: the travel time between stations includes pad time but excludes dwell time. The total travel time and total average speed include dwell time.

Operating Plan

Service is provided at 32 trains per day, consistent with systemwide assumptions. The Route Option 12 schedule is presented in Attachment 1.

Equipment and Fleet Requirements

Trainset configuration remains consistent across route options.

Station Locations

Stations are assumed to be located in the following cities:

- East St. Louis, IL
- Springfield, IL
- Decatur, IL
- Champaign/Urbana, IL
- University Park, IL
- Chicago, IL

This option combines strong university market access with direct Joliet commuter interface into the Chicago region. Station locations are discussed in Technical Memorandum #x – Station Access Development.

Layover/Maintenance Facilities

Layover and maintenance facilities are consistent across all route options.

Ridership Forecasting

Ridership modeling produced a range of forecasts for each potentially feasible route option. Ridership was assumed to ramp up, starting with 40% in year 1 of operations, 80% in year 2, and 80% in year 3, with full ridership anticipated in year 4. Table 14 presents the range of ridership for year 4 of operations.

Route Option	Range of Ridership, Year 4 of Operations
1 – I-55 Corridor	1.68 – 2.04 million
2 – Greenfield via Bloomington and Joliet	1.80 – 2.31 million
3 – I-57/I-72/I-55 Corridor	2.09 – 2.50 million
4 – Greenfield via Champaign/Urbana and University Park	2.16 – 2.65 million
5 – Greenfield and County Road via Champaign/Urbana and Joliet	2.11 – 2.61 million
6 – Interstate Adjacent and County Road via Champaign/Urbana and Joliet	2.09 – 2.52 million
7 – I-55/I-155/I-74 Corridor	2.09 – 2.39 million
8 – Greenfield via Peoria and Joliet	2.20 – 2.65 million
9 – Interstate Median and County Road via Champaign/Urbana and Joliet	2.05 – 2.42 million
10 - Interstate Median and Greenfield via Champaign/Urbana and University Park	2.09 – 2.46 million
11 - Interstate Median and Greenfield/County Road via Champaign/Urbana and Joliet	2.10 – 2.55 million
12 - Interstate Median and Greenfield via Champaign/Urbana and University Park	2.15 – 2.60 million

Table 14 – Ridership Forecasts, Year 4

Financial Considerations

Operating and Maintenance Costs

Operating and Maintenance (O&M) costs are the costs for staff, labor, and materials required to operate the HSR system and perform required maintenance in accordance with the service plan. O&M costs include operating and maintaining trainsets, maintaining infrastructure, operating and maintaining stations, general and administrative activities, and insurance. O&M costs were calculated based on annual train miles traveled.

O&M costs for this study are based on the O&M costs developed for the California High-Speed Rail project, presented in its Supplemental Project Update Report for 2025[1], and O&M costs developed for

[1] 2025 Supplemental Project Update Report

the Colorado Interregional Connectivity Study. The O&M costs are based on the following cost categories:

- Equipment maintenance
- Energy and fuel
- Train and engine crews
- Onboard service crews
- Insurance
- Track and ROW maintenance
- Station operations
- System overhead

The California High-Speed Rail project included a range of O&M costs for the year 2033 in 2033 dollars: $155.0 to $175.6 million for the Bakersfield to Merced segment. The Colorado Interregional Connectivity Study calculated a range of O&M costs for the year 2017 in 2017 dollars: $74.6 to $97.9 million for Alternative 1. The high end of the range of Colorado O&M costs and the low end of the range of California O&M costs were used to calculate the O&M cost per annual train miles for this study. To determine the annual O&M costs for each of the Illinois HSR route options, the California O&M cost per annual train mile and the Colorado O&M cost per annual train mile were inflated to 2025 dollars in Illinois, averaged, and multiplied by the annual train miles for each of the route options. The annual O&M costs for 16 round trips are presented in Table 15.

Route Option	Annual O&M Cost (2025$, millions)
1 – I-55 Corridor	$434
2 – Greenfield via Bloomington and Joliet	$413
3 – I-57/I-72/I-55 Corridor	$445
4 – Greenfield via Champaign/Urbana and University Park	$454
5 – Greenfield and County Road via Champaign/Urbana and Joliet	$463
6 – Interstate Adjacent and County Road via Champaign/Urbana and Joliet	$448
7 – I-55/I-155/I-74 Corridor	$466
8 – Greenfield via Peoria and Joliet	$448
9 – Interstate Median and County Road via Champaign/Urbana and Joliet	$466
10 - Interstate Median and Greenfield via Champaign/Urbana and University Park	$450
11 - Interstate Median and Greenfield/County Road via Champaign/Urbana and Joliet	$451
12 - Interstate Median and Greenfield via Champaign/Urbana and University Park	$450

Table 15 - Annual O&M Costs, 16 Round Trips

Revenue

Revenue refers to the total income generated from high-speed rail operations. It includes ticket sales and ancillary revenue. Ancillary revenue is all income generated from non-ticket sales. The California High-Speed Rail project includes the following in their ancillary revenue estimates:

- Advertising
- Baggage fees
- Excess land sales
- Parking fees
- Retail at stations
- Sponsorship – station and system naming
- Fiber optics
- Telecommunication towers
- Ground leasing to utilities
- EV charging
- Food and beverage
- Express cargo
- Track access charges

Table 16 presents the range of annual revenue, including ancillary revenue, for year 4 of operations in 2025 dollars for the twelve route options.

Route Option	Total Annual Revenue, Year 4 of Operations (2025$, millions)
1 – I-55 Corridor	$137- $157
2 – Greenfield via Bloomington and Joliet	$141 - $174
3 – I-57/I-72/I-55 Corridor	$156- $173
4 – Greenfield via Champaign/Urbana and University Park	$170 - $194
5 – Greenfield and County Road via Champaign/Urbana and Joliet	$163 - $189
6 – Interstate Adjacent and County Road via Champaign/Urbana and Joliet	$165 - $186
7 – I-55/I-155/I-74 Corridor	$166- $176
8 – Greenfield via Peoria and Joliet	$170 - $193
9 – Interstate Median and County Road via Champaign/Urbana and Joliet	$162 - $177
10 - Interstate Median and Greenfield via Champaign/Urbana and University Park	$167 - $182
11 - Interstate Median and Greenfield/County Road via Champaign/Urbana and Joliet	$163 - $185
12 - Interstate Median and Greenfield via Champaign/Urbana and University Park	$168 - $190

Table 16 – Total Annual Revenue, Year 4

Operating Ratio ($ Revenue/$ O&M)

The operating ratio is defined as total annual revenue divided by annual O&M costs. Subsidy is the amount of money that would be required for the state to pay for operations costs greater than revenues. Table 17 presents the range of operating ratios and subsidy for year 4 of operations for the twelve route options.

Route Option	Operating Ratio, Year 4 of Operations	Subsidy, Year 4 of Operations (2025$, millions)
1 – I-55 Corridor	32% - 36%	$277 - $297
2 – Greenfield via Bloomington and Joliet	34% - 42%	$239 - $272
3 – I-57/I-72/I-55 Corridor	35% - 39%	$272 - $289
4 – Greenfield via Champaign/Urbana and University Park	37% - 43%	$260 - $284
5 – Greenfield and County Road via Champaign/Urbana and Joliet	35% - 41%	$274 - $300
6 – Interstate Adjacent and County Road via Champaign/Urbana and Joliet	37% - 42%	$262 - $283
7 – I-55/I-155/I-74 Corridor	36% - 38%	$290 - $300
8 – Greenfield via Peoria and Joliet	38% - 43%	$255 - $278
9 – Interstate Median and County Road via Champaign/Urbana and Joliet	35% - 38%	$289 - $304
10 - Interstate Median and Greenfield via Champaign/Urbana and University Park	37% - 40%	$268 - $283
11 - Interstate Median and Greenfield/County Road via Champaign/Urbana and Joliet	36% - 41%	$266 - $288
12 - Interstate Median and Greenfield via Champaign/Urbana and University Park	37% - 42%	$260 - $282

Table 17 - Operating Ratio and Subsidy, Year 4 of Operations

The operating ratio provides an indicator of financial sustainability by comparing annual revenue to annual operating and maintenance costs. An operating ratio approaching or exceeding 1.0 indicates full operating cost recovery, while lower ratios reflect the level of ongoing public operating support required.

Summary

Table 18 summarizes the comparative performance of the twelve route options across ridership, revenue generation, operating and maintenance costs, and operating ratio. While differences in operating cost are primarily a function of corridor length and train-miles, ridership and revenue vary based on alignment geometry, travel time competitiveness, and market access. Routes providing the most direct high-speed geometry and serving major population and employment centers demonstrate better financial and ridership performance.

Route Option	Ridership	Revenue (2025$, millions)	Annual O&M Cost (2025$, millions)	Operating Ratio
1 – I-55 Corridor	1.68 – 2.04 million	$137- $157	$434	32% - 36%
2 – Greenfield via Bloomington and Joliet	1.80 – 2.31 million	$141 - $174	$413	34% - 42%
3 – I-57/I-72/I-55 Corridor	2.09 – 2.50 million	$156- $173	$445	35% - 39%
4 – Greenfield via Champaign/Urbana and University Park	2.16 – 2.65 million	$170 - $194	$454	37% - 43%
5 – Greenfield and County Road via Champaign/Urbana and Joliet	2.11 – 2.61 million	$163 - $189	$463	35% - 41%
6 – Interstate Adjacent and County Road via Champaign/Urbana and Joliet	2.09 – 2.52 million	$165 - $186	$448	37% - 42%
7 – I-55/I-155/I-74 Corridor	2.09 – 2.39 million	$166- $176	$466	36% - 38%
8 – Greenfield via Peoria and Joliet	2.20 – 2.65 million	$170 - $193	$448	38% - 43%
9 – Interstate Median and County Road via Champaign/Urbana and Joliet	2.05 – 2.42 million	$162 - $177	$466	35% - 38%
10 - Interstate Median and Greenfield via Champaign/Urbana and University Park	2.09 – 2.46 million	$167 - $182	$450	37% - 40%
11 - Interstate Median and Greenfield/County Road via Champaign/Urbana and Joliet	2.10 – 2.55 million	$163 - $185	$451	36% - 41%
12 - Interstate Median and Greenfield via Champaign/Urbana and University Park	2.15 – 2.60 million	$168 - $190	$450	37% - 42%

Table 18 - Comparative Performance of Route Options, Year 4 of Operations

Attachment 1 – High-Speed Rail Schedules