

South Bend South Shore Line Downtown Station Feasibility Study

March 2020

DRAFT



Prepared for the City of South Bend by:



Table of Contents

1.0	Introduction.....	1
2.0	Background.....	1
3.0	Downtown Station and Alignment Conceptual Design.....	3
3.1	Existing Data and Design Criteria.....	3
3.2	Rail Infrastructure and Alignment.....	4
3.3	Station Design and Parking.....	11
4.0	Physical and Socio-economic Conditions.....	12
4.1	Socio-Economic and Environmental Resources.....	12
4.2	Proposed Right-of-Way Needs.....	15
4.3	Commuter Access.....	16
5.0	Preliminary Cost Estimation.....	18
5.1	Capital Station Costs.....	20
5.2	Operation & Maintenance Costs.....	20
6.0	Rail Operations.....	21
6.1	Travel Times and Schedules.....	21
6.2	Ridership Forecasts.....	24
6.2.1	2018 Feasibility Study – Ridership Forecasts.....	24
7.0	Potential Economic Development Impacts.....	25
7.1	Development Potential.....	25
7.1.1	Developable Parcels.....	25
7.1.2	Demand and Development Program.....	27
7.2	Economic Development Summary.....	27
7.3	Economic and Fiscal Impacts.....	27
7.3.1	Economic Impacts.....	27
7.3.2	Fiscal Impacts.....	28
7.4	Potential Economic Development Summary.....	28
7.5	Notes on this Economic Development and Impact Analysis Research.....	29
8.0	Summary.....	29

Table of Figures

Figure 2-1:	2018 Feasibility Study – Four Alternative Sites.....	2
Figure 3-1:	Proposed Downtown Alignment Key Map.....	5
Figure 3-2:	Proposed Alignment - Section 1 Map.....	6

Figure 3-3: Proposed Alignment - Section 2 Map..... 7
 Figure 3-4: Proposed Alignment - Section 3 Map..... 8
 Figure 3-5: Proposed Alignment - Section 4 Map..... 9
 Figure 3-6: Proposed Alignment - Section 5 Map..... 10
 Figure 4-1: Schools and Managed Lands..... 14
 Figure 4-2: Businesses within Half-Mile of Downtown Station..... 15
 Figure 4-3: Bike and Transit Access 17
 Figure 6-1: Existing SSL Route with Pine Road Crossing 22
 Figure 7-1: Downtown Station Area Half-Mile Zoning..... 26
 Figure 7-2: Downtown Station Area Developable Parcels..... 26

Table of Tables

Table 3-1: Track and Station Design Criteria..... 3
 Table 4-1: Socio-Economic Characteristics..... 13
 Table 4-2: Summary Impacted Parcels and Acreage 16
 Table 5-1: FTA Standard Cost Categories (SCC) 18
 Table 5-2: Major Infrastructure Elements..... 19
 Table 5-3: Downtown Station Estimated Capital Costs by Category 20
 Table 5-4: Summary of Estimated Annual O&M Costs by Category 21
 Table 6-1: Downtown Station Operations Characteristics..... 22
 Table 6-2: Summary of Time and Distance from Pine Road to Proposed Downtown SSL Station..... 23
 Table 6-3: Downtown Station Proposed Schedule 23
 Table 6-4: Downtown Station Proposed Schedule Progression..... 24
 Table 6-5: South Bend Alternative Station Sites – 2015 Weekday Boardings..... 25
 Table 6-6: South Bend Alternative Station Sites – 2040 Weekday Boardings..... 25
 Table 7-1. Programmed Use in Developable Acres within a Half-Mile 27
 Table 7-2. Estimated New Development Value within a Half-Mile 27
 Table 7-3. Full Time Equivalent Jobs, 10-Year Development Program..... 28
 Table 7-4. Economic Output, 10-Year Development Program 28
 Table 7-5. Property Tax Impacts, 10 Year Development Program 28
 Table 7-6. Summary of 10 Year Development Program and Associated Economic and Fiscal Impacts.. 28
 Table 7-7. Return on Investment Metrics..... 29
 Table 8-1. Summary of Proposed Station Metrics 30

1.0 Introduction

The Northern Indiana Commuter Transportation District (NICTD) currently operates five daily South Shore Line (SSL) trains in each direction between the South Bend International Airport (SBIA) and Millennium Station in downtown Chicago. Travel time to connect these destinations across approximately 90 miles varies from just under 120 minutes to 160 minutes. This service schedule attracts about 190 boardings a day at the SBIA Station based on counts from a NICTD ridership survey conducted in November 2015.

NICTD's programmed Double-Track Northwest Indiana (NWI) project, which involves the addition of a second track between Gary and Michigan City, will enable the operation of more trains at a faster rate. This project is currently in final design and is anticipated to begin revenue operations in 2024. These improvements will benefit all users of the SSL east of Gary, including South Bend. Following the implementation of the NWI project, additional trains will be able to operate in each direction between South Bend and Millennium Station and not be required to share extended sections of single track. The significant reduction in travel times are anticipated to make the SSL service a more attractive option for both commuters and visitors, alike.

The current SSL station at the South Bend International Airport (SBN) has been in operation since 1992. Prior to 1992, the eastern terminal station of the SSL in South Bend was located at the southwest corner of Meade Street and Washington Street, which currently functions as the South Bend Amtrak Station. The existing track routing SSL service to the Airport from the SSL Mainline east of Grandview Avenue involves a circuitous three-mile section of track, with multiple at-grade roadway crossings, and curves in the track's alignment. Overall, this "backtracking" alignment adds roughly two miles in service length and requires trains to operate at slow speeds and accounts for more than ten minutes in travel time between Grandview Avenue and the airport station.

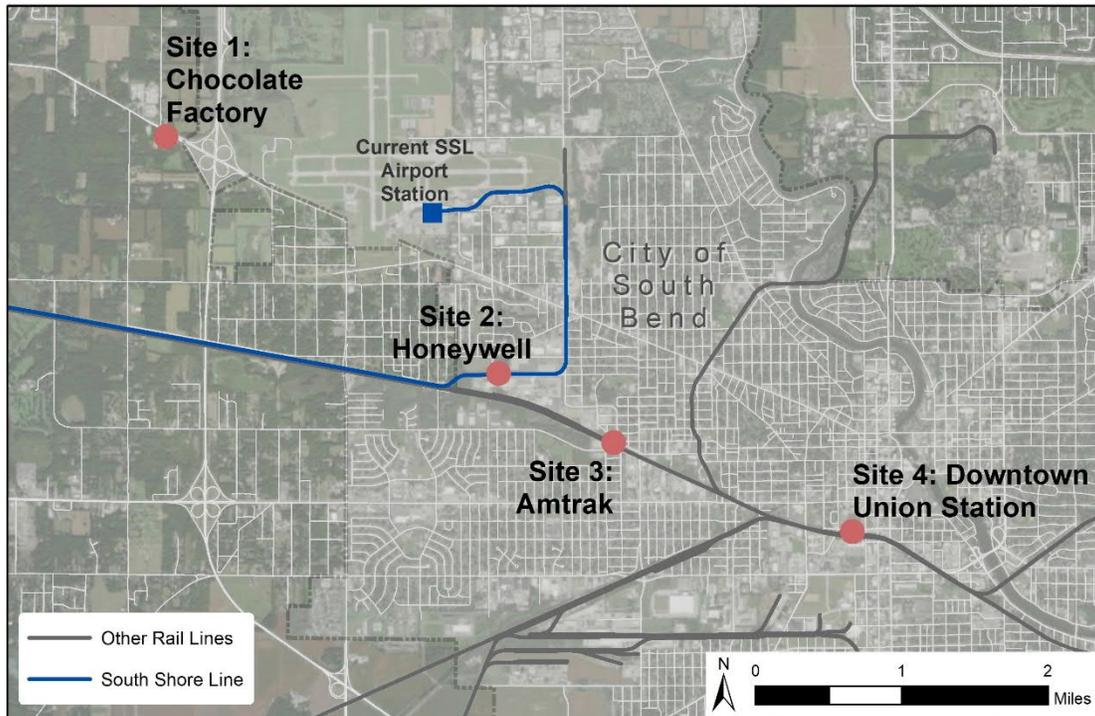
2.0 Background

In 2018, the City of South Bend ("City") completed the South Bend SSL Station Alternatives Feasibility Study ("2018 Feasibility Study"), identifying alternative locations for the eastern terminal station of the South Shore Line (SSL) within South Bend. The 2018 Feasibility Study sought to reduce overall travel time between Chicago's Millennium Station and the City of South Bend and identify feasible station locations to accomplish that goal. Four primary locations were evaluated:

1. **Site 1: Chocolate Factory.** A new station near the site of a proposed tourist destination southwest of US 31 and US 20.
2. **Site 2: Honeywell.** A new station using the current tracks at Westmoor Street, west of Bendix Drive.
3. **Site 3: Amtrak.** A joint Amtrak/SSL station at Washington and Meade Streets.
4. **Site 4: Downtown South Bend.** A new station in downtown South Bend near the Union Station Technology Center, along the existing Canadian National Railway (CN) and Norfolk Southern Railway (NS) freight tracks.

Figure 2-1 illustrates the locations of alternative station sites on an overview map of the area.

Figure 2-1: 2018 Feasibility Study – Four Alternative Sites



The 2018 study assessed construction feasibility, potential impacts to rail operations and economic development in order to compare the advantages and disadvantages of each site. Following a review of the 2018 Feasibility Study, the City initiated further investigation of the Downtown South Bend option (Site 4) in Spring 2019.

The current Feasibility Study built upon the work completed in the 2018 Feasibility Study, and the Downtown Station concept was further refined from an engineering and operational perspective. This detailed analysis of the Downtown Station design involved reassessment of the socio-economic and environmental resources, in addition to the site's economic impact.

New and updated information for the Downtown Station site focused on the following criteria:

1. **Design Elements:** This section discusses the standards, constraints, and descriptions of the conceptual design elements. This task further refined the conceptual layout of the Downtown Station site from the 2018 Feasibility Study, including placement of platform(s), station building, parking, and customer access.
2. **Community Impacts:** As the Downtown station option would require new track, specifics on items impacting the community such as the track's alignment, right-of-way (ROW) ownership, and at-grade roadway crossings were identified and evaluated for their socio-economic and environmental effects.
3. **Capital / Operation & Maintenance (O&M) Cost Estimation:** Capital and O&M costs were further refined from those presented at the "concept level" within the 2018 Feasibility Study.
4. **Potential Rail Operations Impacts:** Current SSL schedules were analyzed and updated to address the proposed changes in service length and travel time of the Downtown termini. The schedule updates include the assumption that the Double-track NWI project is complete. Following this assessment, the 2018 service information was

reviewed to determine if updates to the forecast ridership for the Downtown station site were needed.

5. **Potential Economic Development Impacts:** Potential economic development was estimated within a ½-mile radius of the proposed Downtown station. This appraisal included an economic impact analysis, in addition to potential redevelopment capacity based on an understanding of permissible localized land uses, physical and contextual features of sites, as well as market trends.

Appendix A presents a summary of each of the criteria analyzed for the Downtown Station option for both the prior (2018) and current studies.

3.0 Downtown Station and Alignment Conceptual Design

The Downtown station and alignment consist of developing a new track alignment to connect the existing SSL to a proposed terminus located between the Union Station Technology Center building (on the south) and the Four Winds Field at Covaleski Stadium (on the north). The refined design is based on additional existing conditions data collected and the applicable design criteria. This section describes the development of this design concept as well as detailed information on the design.

3.1 Existing Data and Design Criteria

Preliminary design guidance for the mainline track and station layout was taken from NICTD's Double-Track (NWI) *Project Design Criteria*, dated May 12, 2017, in conjunction with the standards included in the American Railway Engineering and Maintenance-of-Way Association's (AREMA) Manual for Railway Engineering. These documents informed the design criteria represented in Table 3-1 which was used to refine the Downtown station option.

Table 3-1: Track and Station Design Criteria

Item	Design Criteria
Passenger Maximum Design Speed	79 miles per hour (mph)
Freight Maximum Design Speed	50 mph
Minimum Track Centers	14'-0"
New Track Weight of Rail	115#
Tie Material Type	Wood
Turnouts - Passenger	NICTD No. 20
Turnouts - Freight	NICTD No. 10
Minimum Horizontal Clearance	9'-0"
	8'-0" at High-Level Platforms
Minimum Vertical Clearance	22'-0"
High Level Platforms	
Platform Length	720 feet (8-car train)
Horizontal Distance from Centerline	5'-6"
Vertical Distance from Top-of-Rail	4'-3"
Speed Limit Restriction at Platforms	50 mph

Source: NICTD Double Track Design Criteria (2017-05-12)

A table containing the project's complete design criteria is included in **Appendix B**.

Topographic survey was collected at the Downtown station site in conjunction with accessible areas within the proposed alignment limits. This survey data was utilized to refine the horizontal and vertical design of the track and station and to determine grading and right-of-way impacts associated with the proposed improvement.

3.2 Rail Infrastructure and Alignment

Service to the Downtown Station would involve a new three-mile stretch of SSL main line track from the SSL Main Line / Airport Branch Junction near Grandview Avenue. A minimum clearance of 25-feet was maintained between the centerline of the proposed SSL track and the existing NS ROW on the south and the proposed SSL ROW on the north.

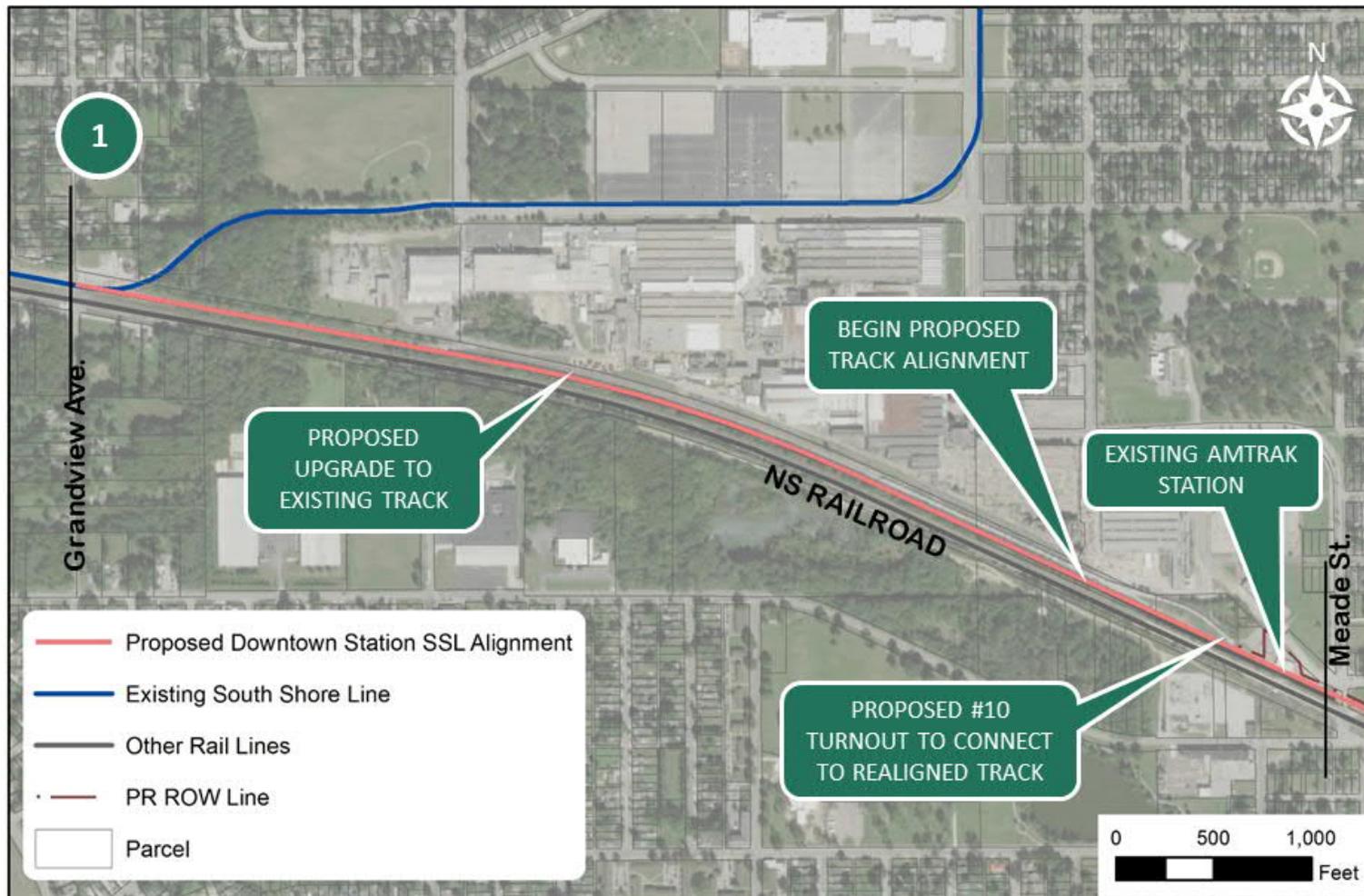
In general, the proposed SSL rail alignment parallels the existing NS tracks on the south. A description of the improvements is described across five segments as identified in the overall key map and enlargement plans in Figure 3-1 through Figure 3-6.

Figure 3-1: Proposed Downtown Alignment Key Map



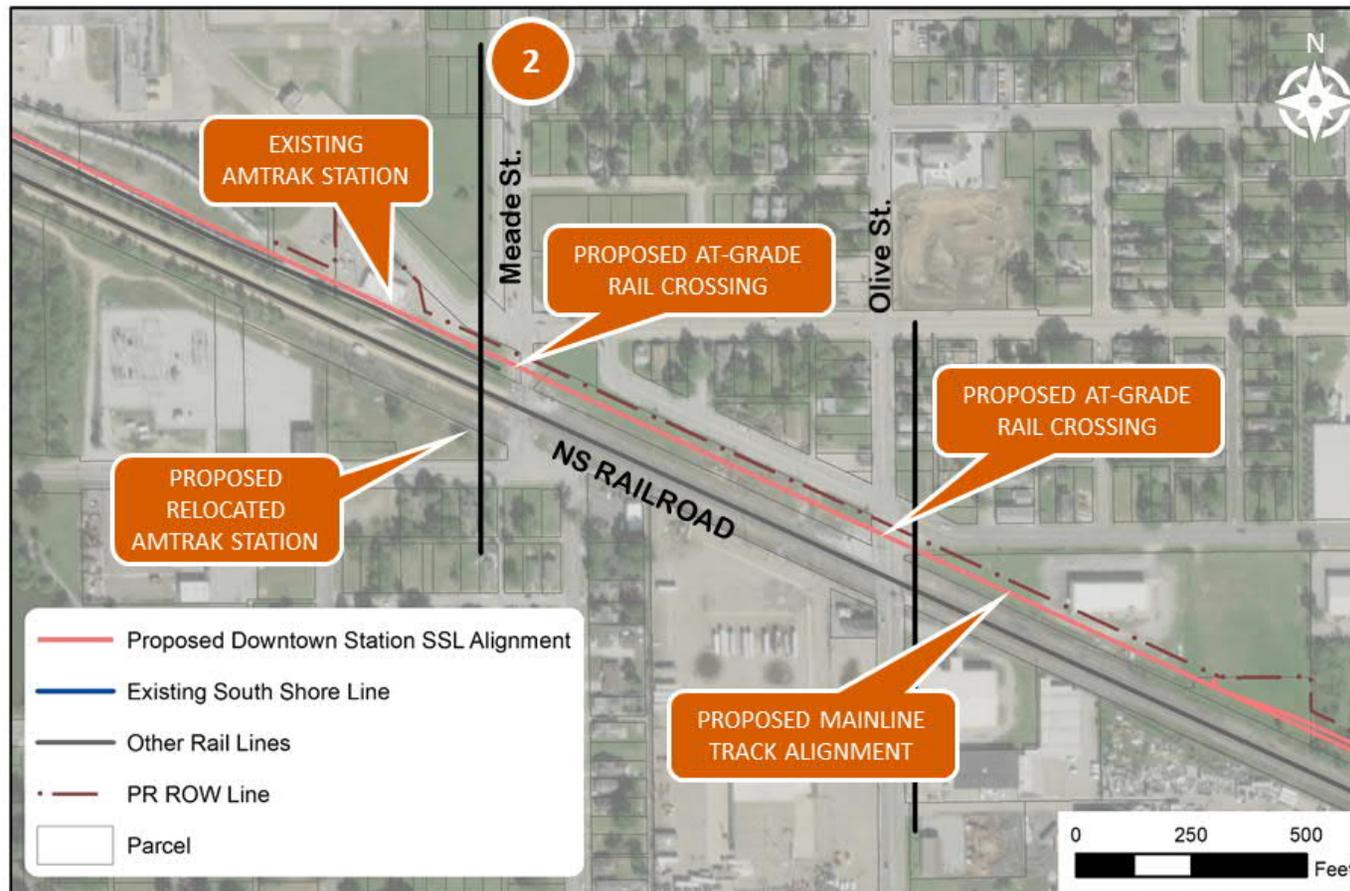
The overall key map shows Airport Branch Junction / Grandview Avenue to the South Bend Downtown Station (South Street and Lafayette Boulevard), approximately three miles.

Figure 3-2: Proposed Alignment - Section 1 Map



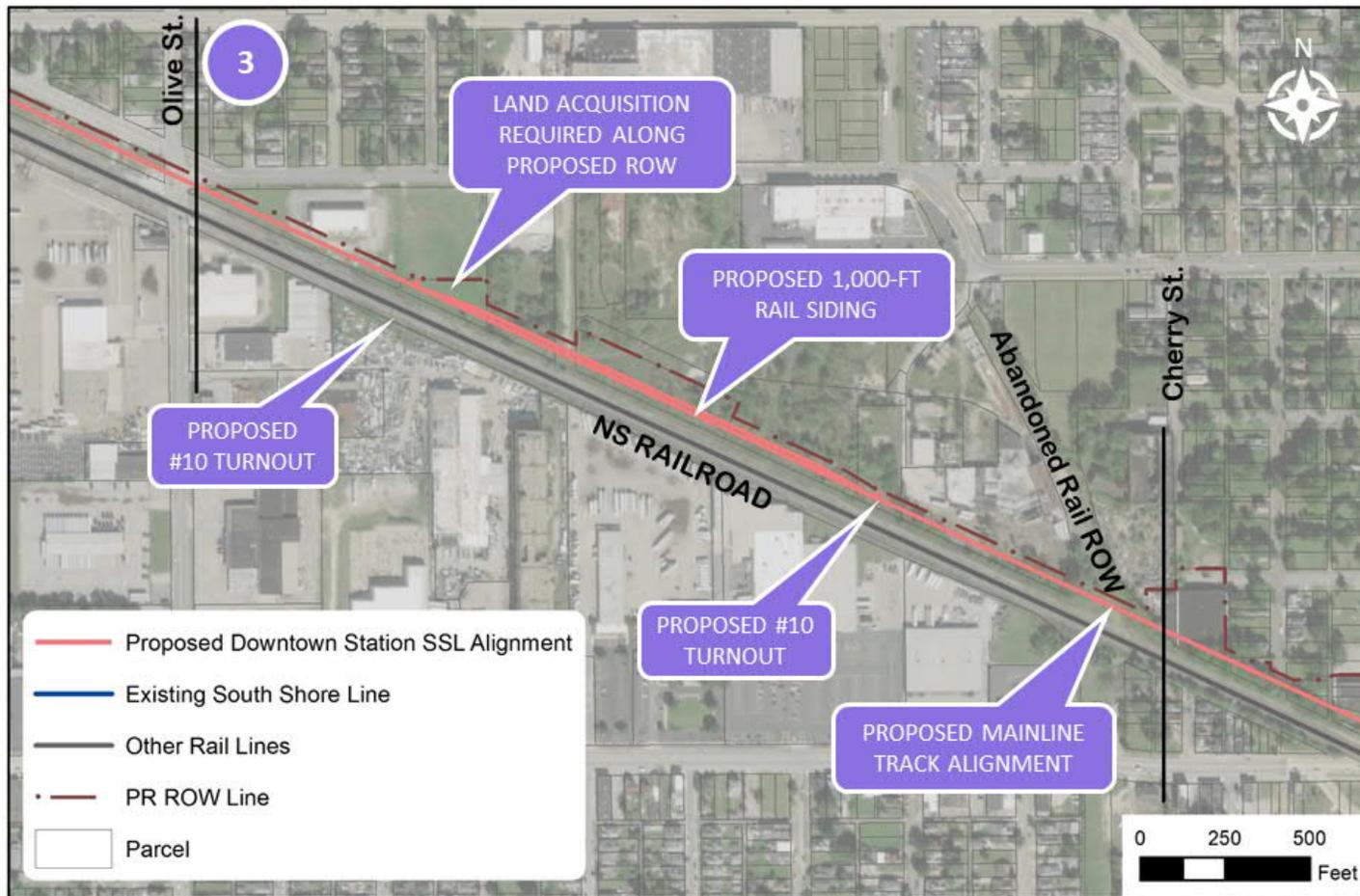
Section 1: The proposed new alignment begins at Airport Branch Junction / Grandview Avenue and extends approximately 5,600' west near the existing Amtrak station. The proposed improvements include upgrading existing track which is located on NICTD and Chicago South Shore and South Bend Railroad (CSSSB) ROW and providing a new east end #10 turnout connection to the realigned SSL.

Figure 3-3: Proposed Alignment - Section 2 Map



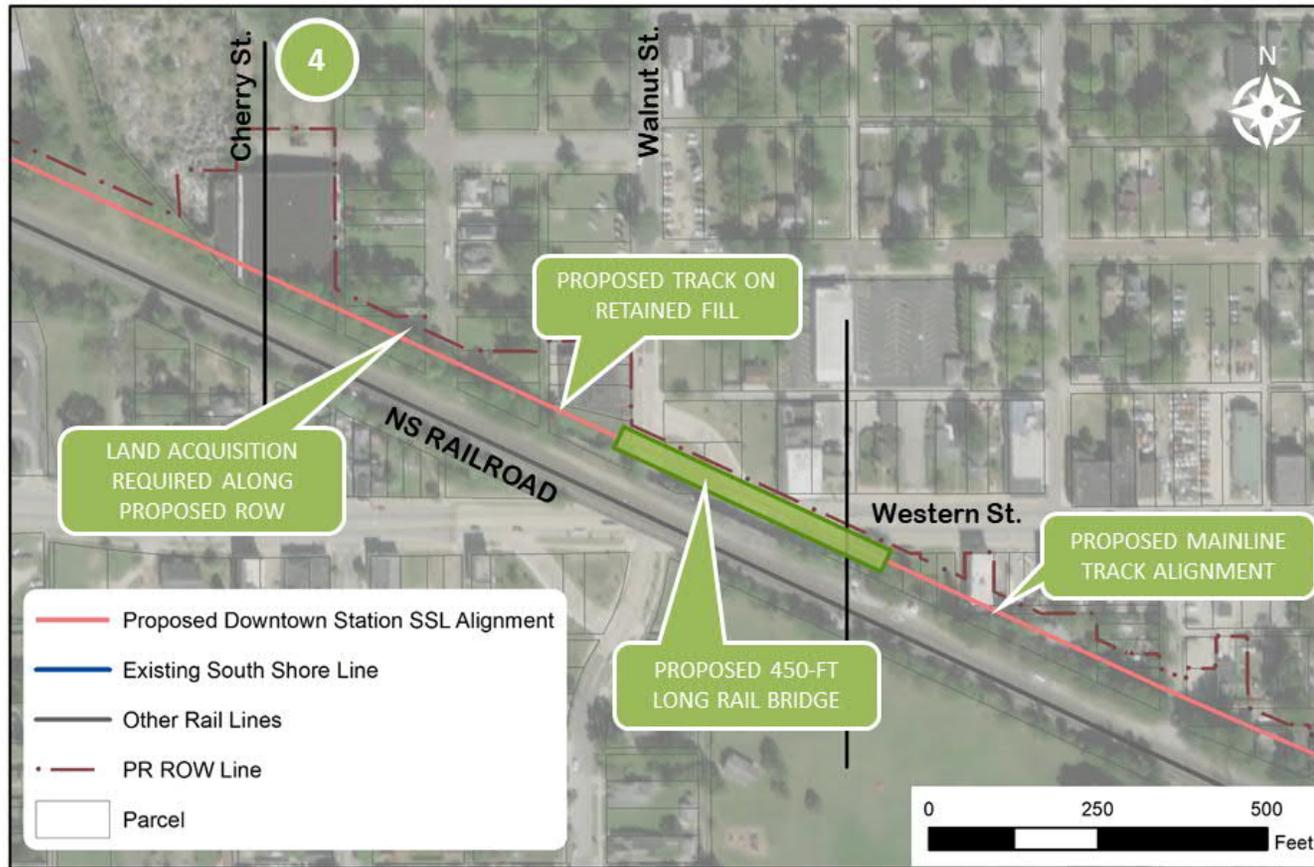
Section 2: From the Amtrak station to Olive Street is approximately 2,100' and is also located on NICTD, CSSSB, and City of South Bend ROW. Proposed improvements include the removal of approximately 1,050' of existing track and the construction of new SSL mainline track. The proposed track would be at-grade and the existing railroad at-grade crossings at Meade Street and Olive Street would need to be expanded to accommodate the new SSL alignment. The proposed realignment impacts the existing Amtrak station and parking facility at the northwest corner of Meade Street and Washington Street, requiring both to be relocated to the south side of the NS railroad along Colfax Avenue, west of Meade Street (additional plan detail can be found in Appendix C).

Figure 3-4: Proposed Alignment - Section 3 Map



Section 3: This section extends at-grade approximately 3,100' from Olive Street to the abandoned railroad ROW west of Cherry Street. It would require the acquisition of land adjacent to the northern ROW line of the NS. Proposed improvements in this section include two #10 turnouts with a 1,000' siding for SSL trains serving special events, staging or passing.

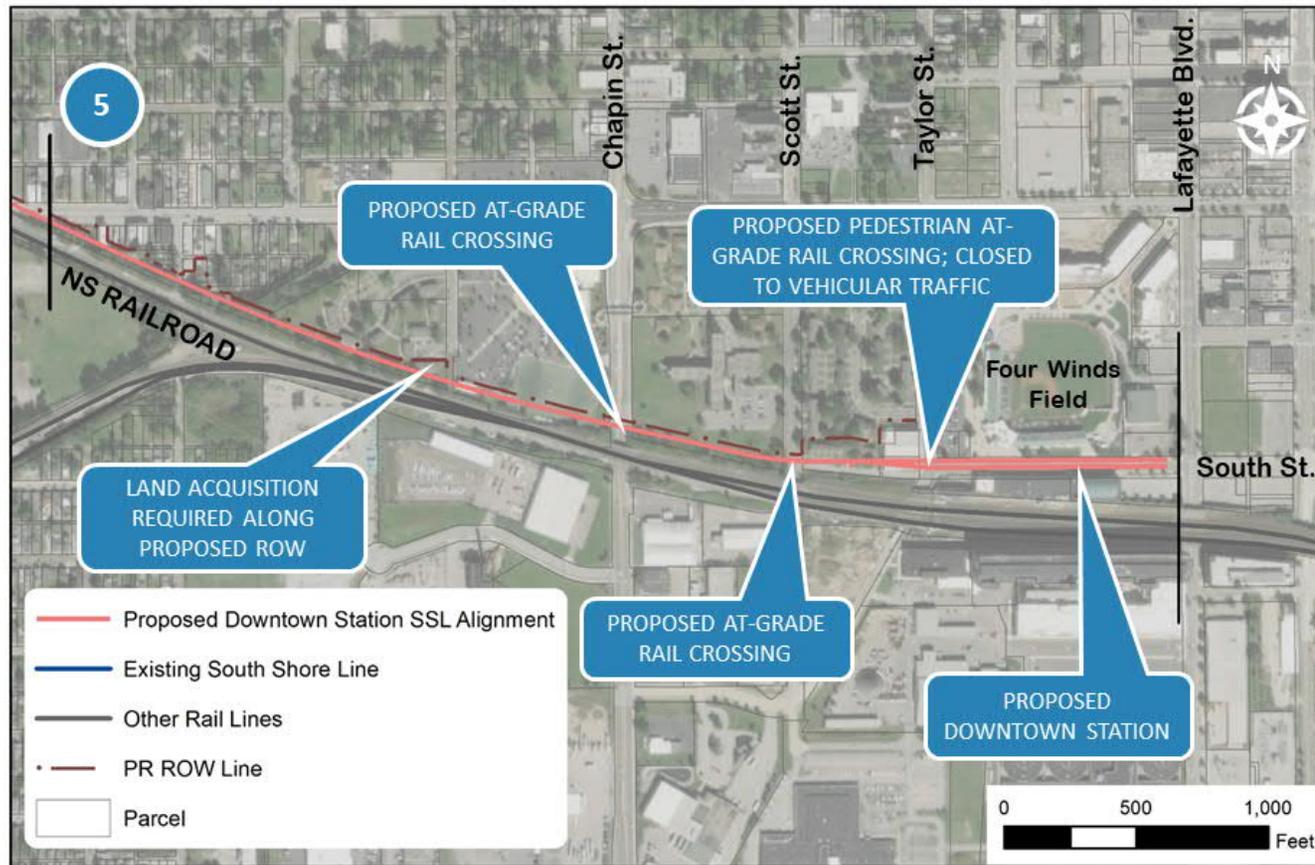
Figure 3-5: Proposed Alignment - Section 4 Map



Section 4: The 800' between the abandoned railroad ROW west of Cherry Street to the west approach to the Western-Walnut intersection involves the alignment rising in elevation (approximately 2.5% grade) so the track can be grade separated from Western Avenue and Walnut Street. The elevated section of rail alignment would be built on fill with retaining walls. This section would require the acquisition of land adjacent to the northern ROW line of the NS.

Segment four includes a new rail bridge structure across the Western-Walnut intersection. The bridge structure would be 450' in length to span both these City-owned streets. This separate SSL bridge runs parallel to the north side of the existing NS structure and maintains a similar minimum vertical clearance over the roads as the existing NS structure.

Figure 3-6: Proposed Alignment - Section 5 Map



Section 5: From the Western-Walnut Bridge, the rail alignment extends approximately 4,300' to Lafayette Street. East of the Western-Walnut Bridge, the rail alignment transitions back to existing ground elevation as it approaches the crossing with Chapin Street. Two new at-grade crossings would be introduced at Chapin Street and at Scott Street. An additional at-grade crossing at Taylor Street will be reconfigured to only allow for pedestrian access across the SSL tracks, vehicular crossings would be prohibited. Proposed improvements include the construction of a single track with a #10 turnout where the SSL tracks diverge at the approach to the Downtown station. This section requires the acquisition of land adjacent to the northern ROW line of the NS. Impacts to the Kroc Complex, located immediately west of Chapin Street, require the reconstruction of the existing soccer field and sections of the existing parking lot.

A map illustrating the full project limits is included in **Appendix C**. Specifics on the station area design are described in Section 3.3.

Plan and Profile drawings for the proposed SSL approach to the Downtown Station along South Street are included in **Appendix D**. Specific information related to proposed access, land right-of-way needs and impacts of the proposed alignment can be found in Section 4.0 of this study.

3.3 Station Design and Parking

The proposed Downtown station tracks would operate at-grade along South Street, landing at the doorstep of Four Winds Field and at the center of the evolving tech industry district of South Bend. In order to accommodate the new station, existing South Street would be narrowed, converting it to a single-lane one-way, eastbound street with parallel parking between Scott Street and Lafayette Boulevard. At the east end of the station, the existing traffic signal at Lafayette Boulevard would be modified to reflect the directional change of South Street.

The station area would include the two tracks, a 15'-wide median platform, and a 1,600-square foot station building at the east side of the platform. The covered platform is designed to be 720' long to accommodate an eight-car train, the maximum size that would operate on this line. Pedestrian ramps compliant with the Americans with Disabilities Act (ADA) and NICTD standards are located on both ends of the station. A stairway connecting the proposed station building to the surrounding sidewalk plaza has also been included.

Vehicular traffic would no longer be able to use Taylor Street to access South Street in order to eliminate vehicular crossing conflicts at the tracks so close to the platform. However, crossing gates at Taylor Street would be included for pedestrians to safely cross the SSL tracks to / from South Street. In addition, a restricted access road for signal maintenance is proposed north of the tracks between Scott Street and Taylor Street.

Based on the projected 2040 park-n-ride customers, a minimum of 274 parking spaces would need to be provided within close proximity of the station.

- 254 spaces have been allocated to a surface lot in the northeast corner of the Lafayette Boulevard and South Street intersection. This 0.8-acre lot is currently owned by the City's Department of Redevelopment. Additionally, a parking structure could be built on this site to provide enough commuter parking plus extra parking for downtown South Bend and the Four Winds Field ballpark visitors.
- 27 on-street parking spaces would be included along South Street adjacent to the station.
- Five (5) on-street kiss-n-ride spaces would be included along South Street and eight (8) spaces would be provided along Lafayette Boulevard to accommodate the 110 projected daily kiss-n-ride customers.

Appendix E shows the conceptual plan for the Downtown Station.

4.0 Physical and Socio-economic Conditions

The proposed Downtown Station is centrally located to jobs, residences, transit connections, parks and open space, academic and religious institutions and municipal services. The University of Notre Dame is approximately four miles to the northeast and the South Bend International Airport is just over four miles to the northwest.

Examination of the refined Downtown station and rail alignment assessed the following variables more closely to determine the level of impact on South Street and surrounding project area:

- Socio-economic and environmental resources
- Proposed right-of-way needs
- Commuter access

4.1 Socio-Economic and Environmental Resources

Impacts within a socio-economic and environmental resources context were appraised within a half-mile radius of the proposed Downtown station site. Considerations of current population, and the number of and households in the station area, including, calculations of low income, minority, and households without access to a car were performed. Publicly available data were reviewed to identify schools, parks or other sensitive uses in the station area, along with the presence of low-income housing units.

According to U.S. Census' American Community Survey (2011-2015), there are approximately 2,400 people that live within a half-mile of this proposed Downtown station site. Of that population, 62 percent are minorities, 53 percent of households are below the poverty level and 62 percent of households do not own a car.

Additionally, there are 771 low-income housing units within a half-mile of the proposed station. The Monroe Circle and Laurel Place Apartments public housing facilities are located adjacent to the proposed Downtown Station alignment along the north side of South Street. The Westcott apartments public housing complex is located within a half-mile of the proposed alignment near the Scott Street at-grade roadway crossing. Table 4-1 shows these demographics for the half-mile radius around the station and for the City of South Bend.

Table 4-1: Socio-Economic Characteristics

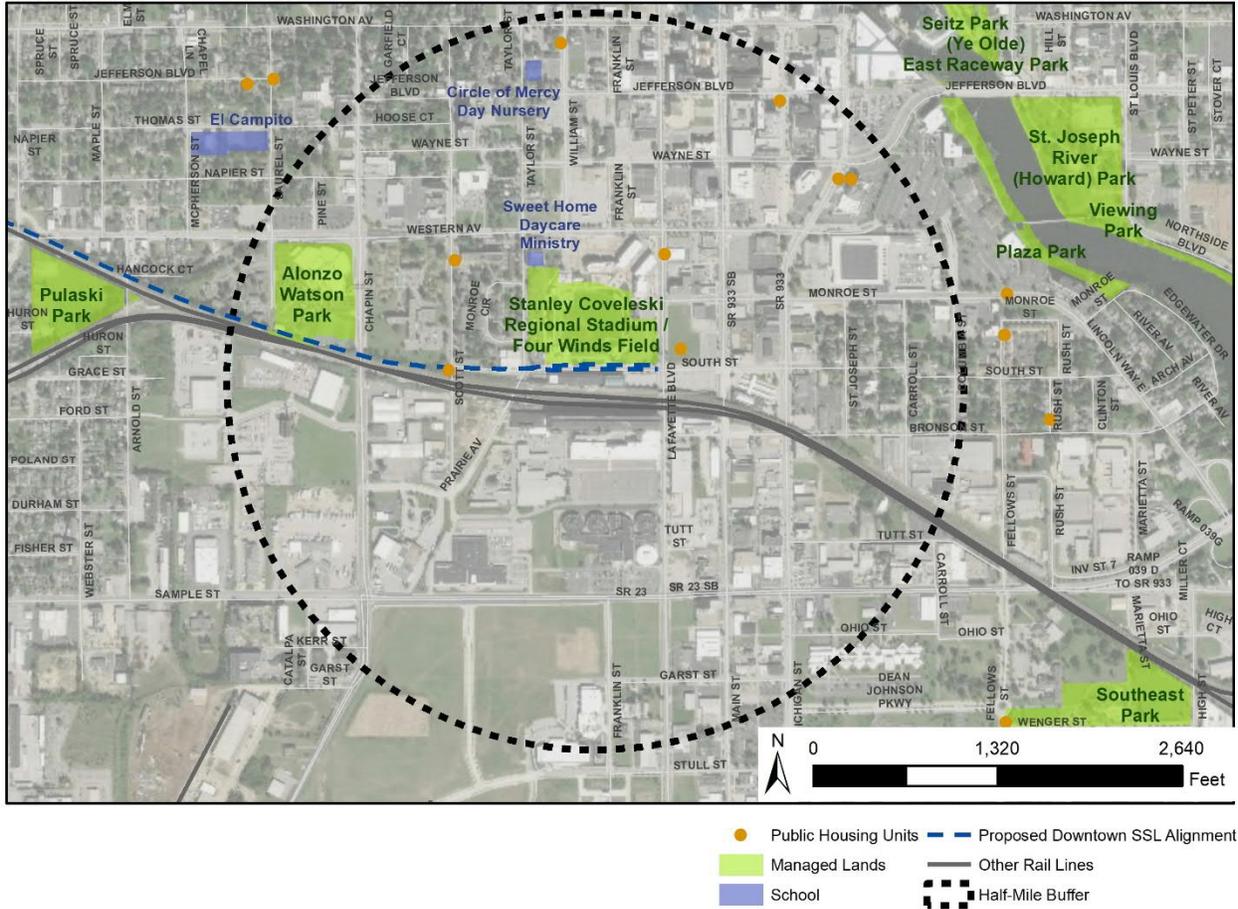
	Downtown Site (half- mile radius)	City of South Bend
Total Population	2,403	100,590
Total Households	1,040	37,197
Minority	1,491	36,728
% Minority	62%	37%
Households Below Poverty	551	8,137
% Households Below Poverty	53%	22%
Zero-Car Households	640	4,635
% Zero-Car Households	62%	12%
Low-income Housing Units	771	4,154

Sources: U.S. Census, American Community Survey 2011-2015,
National Housing Preservation, US Housing and Urban Development (HUD)
Office of Policy Development & Research Databases

In addition to an understanding of these characteristics, existing data was also evaluated to identify any environmental conditions. An overlay using the IndianaMap website (<https://maps.indiana.edu/>), the largest public holding of Indiana geographic information system (GIS) map data, was reviewed for environmental resources.

The review shows there are no floodplains or wetlands within the proposed construction limits. Natural and recreation areas which are owned or managed by the Indiana Department of Natural Resources as well as those owned by federal agencies, local agencies, non-profit organizations, and conservation easements are considered “managed lands”. Figure 4-1 shows these along with other resources within the vicinity of the alignment.

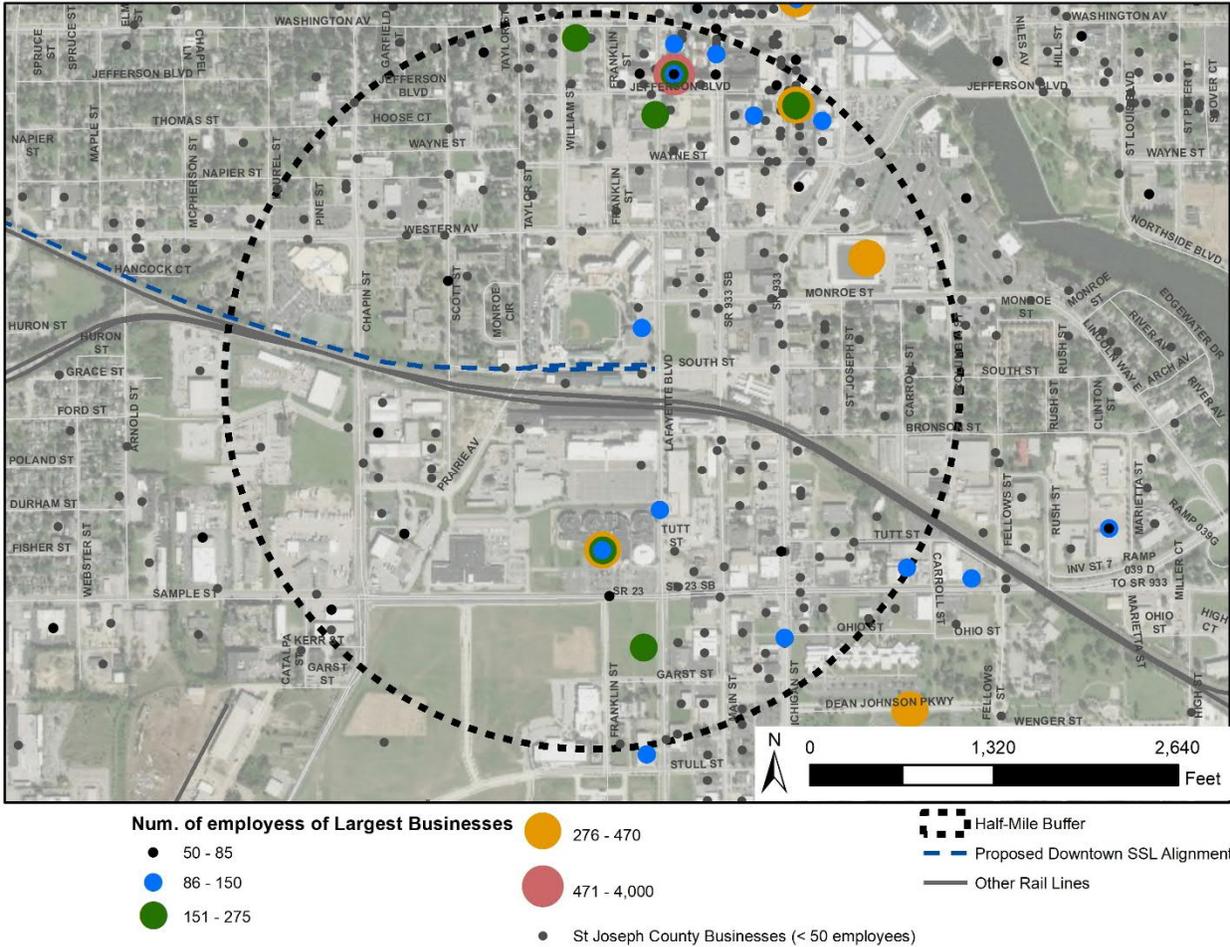
Figure 4-1: Schools and Managed Lands



One of the managed lands, the Four Winds Field is directly adjacent to the proposed Downtown Station. The land and stadium are owned by the City of South Bend as one of their park facilities, but is leased to a private entity. The Salvation Army Kroc Community Center is also within a half-mile of the station and is located adjacent to the proposed alignment. The Kroc Community Center includes recreational facilities, classrooms, administrative facilities, and a chapel. There are also three daycare facilities and scattered public housing developments within a half-mile of the proposed Downtown station.

There are 683 businesses within a half-mile of the proposed station (Figure 4-2). Approximately 500 of these businesses have less than 10 employees. The largest businesses are the St. Joseph County of Insurance, U.S. Post Office and the South Bend Police Department. The area just south of Sample Street, east of Prairie Avenue, is Ignition Park. This is the site of the former Studebaker manufacturing auto plant. Since 2000, the state has aggressively reclaimed this former brownfield site to allow for the development of high-tech manufacturing, commercial and office buildings throughout this business park. Employment at Ignition Park is forecasted to grow, based on conversations with the City. The economic development impacts are discussed in greater detail in Section 7.0.

Figure 4-2: Businesses within Half-Mile of Downtown Station



4.2 Proposed Right-of-Way Needs

Implementation of a Downtown Station and the associated South Shore Line track would require select areas of land acquisition, both full and partial parcels, along the proposed rail alignment. Just over a mile east of Airport Branch Junction, near the existing Amtrak Station, the proposed track alignment falls within the existing NICTD ROW. From the Amtrak Station, the proposed alignment maintains a minimum 25' from the NS northern ROW until the NS meets the CN. At this point, the proposed track curves north of the NS ROW towards the station platform set within the South Street 80' ROW. This right-of-way accommodates:

- 25-feet minimum between NS northern right-of-way line and centerline of the SSL track
- 25-feet minimum from centerline of SSL track to northern line of proposed right-of-way (accommodates 25-foot clear zone including space for a 12-foot wide access road)

Property owners include the City, private residents, public housing developments, the electric utility company, local businesses and a range of industrial manufacturers. Table 4-2 is a summary of the land acquisition required.

Table 4-2: Summary Impacted Parcels and Acreage

	# of Parcels	Area (Acre)
Partial Acquisitions	18	7.1
Full Acquisitions	30	9.5
Total	58	16.6

See **Appendix F** for the complete list of affected properties by parcel ID number. Parcels designated as “public” are those owned by NICTD or the City of South Bend. No costs for parcels owned by NICTD or the City of South Bend are included in this study’s estimate, but mitigation or compensation for displaced land use are considered. Those properties which have either their access affected or a building on site impacted are considered full acquisitions.

Specific parcel impacts include the Salvation Army (Ray & Joan Kroc Corps Community Center), Housing Authority of South Bend properties, and Claeys Candy Factory. At the Kroc Community Center, a portion of the parking lot will be impacted, and the soccer field will need to be relocated. Approaching the proposed station, the ROW also expands to address the signal maintenance access road and parking area swaps. Two residential buildings of the Monroe Circle housing development along South Street between Scott and Taylor Streets fall within the required ROW.

The station platform and through street access along South Street between Taylor Street and Lafayette Boulevard takes up the full South Street 80’ wide ROW and extends north onto a portion of the Four Winds Field property which is owned by the City of South Bend.

The proposed sidewalk along the south edge of the Four Winds Field ROW requires that two current parking lots flanking the Field be reconfigured with an impact to 17 spaces. This loss is offset by a new parking lot at the site of the Claeys Candy Factory located on the northwest corner of Taylor and South Streets. Access to this new Four Winds lot will also serve as the termination point for vehicles at Taylor Street while allowing more substantial landscape buffer and open space for pedestrian movement. The proposed station commuter parking lot between Lafayette Boulevard and Main Street north of South Street is located on land owned by the Department of Redevelopment City of South Bend.

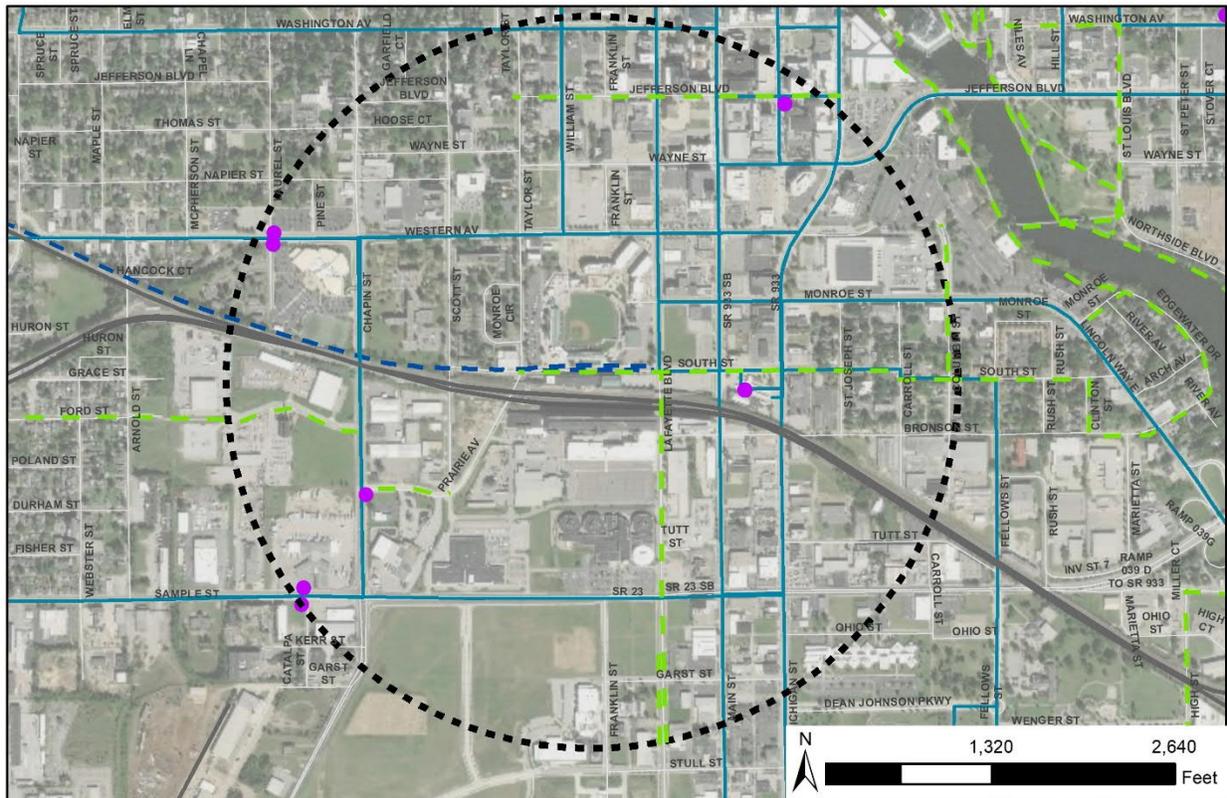
4.3 Commuter Access

This review evaluated the ease of access to the station by non-motorized, motorized and transit users. It also evaluated the number of new at-grade crossings that would be created.

- Pedestrian: The station area has a dense network of sidewalks making it accessible to pedestrians. While Taylor Street will be closed to vehicles at the SSL track crossing, pedestrians will still have access at this location. Crossing protection for pedestrians at this location would be included. The improvements would also install continuous sidewalk along the north side of South Street between Scott Street and Taylor Street.
- Bicycle: This station is accessible by bike lanes and marked bike routes on Lafayette Boulevard and South Street (east of Lafayette Boulevard).
- Transit: Nearly all South Bend Public Transportation Corporation (TRANSPO) bus routes run within a half-mile of the proposed station. The TRANSPO South Street Station Bus Terminal is located approximately 600’ east of the proposed SSL Downtown Station.

- Transportation Network Providers (TNPs): The station accommodates two locations, along Lafayette Boulevard and South Street, for pick-up / drop-off activity.
- Personal vehicle: Access to the station via personal vehicle is expected to be the primary mode of access. Sufficient kiss-n-ride and parking are included in the design of the station area.
- Air: With the realignment of the SSL to service a Downtown station, direct access to the South Bend International Airport, approximately four miles away, would not be provided. Some type of shuttle service to the airport that is timed to coordinate with SSL trains could be considered.

Figure 4-3: Bike and Transit Access



- Bus Stop
- Bus Routes
- - - Bike Facilities
- - - Proposed Downtown SSL Alignment
- Other Rail Lines
- Half-Mile Buffer

Due to site constraints and viaduct vertical clearance requirements, the proposed track design includes only one grade separation, at the Western Avenue / Walnut Street intersection. Five at-grade crossings would be implemented at the following locations:

- Meade Street
- Olive Street
- Chapin Street
- Scott Street
- Taylor Street (pedestrian-crossing only)

Crossing protection would need to be configured to function with the NS existing crossing systems at Meade Street and Olive Street. At Chapin Street and Scott Street, the crossing protection systems would need to be designed to be visible to vehicles traveling northbound under the NS overpasses. Taylor Street at-grade access is for pedestrians only to cross the SSL tracks.

5.0 Preliminary Cost Estimation

Planning-level capital cost estimates were developed using the Federal Transit Administration's (FTA) Standard Cost Categories (SCC) structure, which provides a consistent format for estimating costs for Capital Investment Grants Program projects. The SCC system uses nine cost categories, as shown on Table 5-1.

Table 5-1: FTA Standard Cost Categories (SCC)

FTA Cost Category	
10	Guideway & Track Elements
20	Stations, Stops, Terminals, Intermodal
30	Support Facilities: Yards, Shops, Administration Buildings
40	Sitework & Special Conditions
50	Systems
60	ROW, Land, Existing Improvements
70	Vehicles
80	Professional Services (Applies to Categories 10-50)
90	Unallocated Contingency

The SCC provides two areas where estimated costs can be adjusted for project uncertainty. An Allocated Contingency is applied to each subcategory's unit cost that relates to the degree of unknowns that can affect costs, whereas an Unallocated Contingency is applied to the sum of the allocated costs as it relates to the level of planning. For example, constructing track for a given length (e.g., per foot or per mile) can be estimated with a relatively high level of certainty; whereas, addressing the need to relocate utilities without specific information has a higher level of unknown. In these two instances, the Allocated Contingency for track was assumed at 10 percent and utilities at 40 percent.

Table 5-2 lists the major elements associated with the station site. The quantities of these elements are used to estimate costs based on unit costs for other SSL or similar projects.

Table 5-2: Major Infrastructure Elements

	Downtown Site
Location	South Street, west of Lafayette Boulevard
Miles to Millennium Station	89.6
New Route Miles*	3.0
Excavation & Roadbed Prep (feet)	13,100
New Track Miles	19,100
Storage Track Siding	1 @ 1,000'
#10 Turnouts (each)	3
Bridge Structure (each)	1 (Western-Walnut)
Road At-Grade Crossings (each)	4 (Meade, Olive, Chapin, Scott)
Ped At-Grade Crossings	5 (Meade, Olive, Chapin, Scott, Taylor)
Station Platform with Canopy	1 (720' long)
Station Building (square feet)	1,610
Platform Access Ramps (each, 72' length)	2
Platform stairs (each)	1
Parking Spaces (each)	400
Railroad Signaling (feet)	19,100
Overhead Contact System (feet)	19,100
Land Acquisition (acres)	16.6
Property Demolitions (each)	16

**Distance to SSL main line.*

The cost estimates prepared in this study are planning-level estimates, which means that they have been developed as an initial review of the proposed station site. The refined costs reflect the refined conceptual engineering design.

This section will look at the capital station costs based on the FTA SCC as well as the operating and maintenance costs.

5.1 Capital Station Costs

Table 5-3 summarizes the downtown station costs by major category, both for the prior 2018 Feasibility Study and refined now with additional information.

Table 5-3: Downtown Station Estimated Capital Costs by Category

	FTA Cost Category	Cost (2018 Feasibility Study), 2017 dollars	Cost (Current Study), 2019 dollars
10	Guideway & Track Elements	\$27,579,000	\$29,438,000
20	Stations, Stops, Terminals, Intermodal	\$7,040,000	\$7,055,000
30	Support Facilities: Yards, Shops, Administration Buildings*	\$3,785,000	\$136,200
40	Sitework & Special Conditions	\$10,213,000	\$12,271,000
50	Systems	\$11,928,000	\$16,985,000
	CONSTRUCTION SUBTOTAL (10-50)	\$60,544,000	\$65,885,300
60	ROW, Land, Existing Improvements	\$5,400,000	\$6,900,000
70	Vehicles	\$0	\$0
80	Professional Services (Applies to Categories 10-50)	\$15,898,000	\$16,835,000
90	Unallocated Contingency	\$20,460,000	\$22,411,000
	Total	\$102,302,000	\$112,056,000

* The 2018 Feasibility Study assumed freight rail replacement / improvements west of the Amtrak station, but per October 10, 2019 meeting, it is understood that NICTD owns this section of impacted track. For this Study, costs include replacement of one (1) freight yard turnout to connect to the freight sidings to the north with the realigned SSL in this location.

In the 2018 Feasibility Study, the capital costs for the Downtown station were estimated at approximately \$102.3 million in 2017 dollars. The updated costs with the refined design are estimated at approximately \$112.1 million in 2019 dollars. Additional detail in the cost estimate can be found in **Appendix G**.

5.2 Operation & Maintenance Costs

In addition to estimating capital costs for the station, annual costs for operating and maintaining station facilities, have also been evaluated. Data were obtained from NICTD on typical station costs to maintain, serve with utilities, sell tickets and secure. These values have been updated to 2019 dollars.

The following discusses the different entities and their likely respective roles and responsibilities for the O&M costs for the station. It should be noted that these assigned responsibilities will require input and ultimately negotiations between the affected parties.

- City of South Bend – assumed to be the party responsible for maintaining and operating station and parking facilities. Commuter rail agencies are increasingly partnering with local governments (usually municipalities) to take on these responsibilities for commuter rail stations. This has proven beneficial elsewhere, with local governments treating these facilities as another community asset, giving them the incentive and capability to maintain them at a higher standard than the railroad would be able. Often, municipal costs are offset by station vendor revenues and parking fees. Municipalities can also supplement the security that the railroad provides.

- NICTD – would be responsible for ticket selling. NICTD may also assign officers from their police department to serve the station site.

Table 5-4 shows the estimated cost by category and which entity would likely be responsible for the activity and the associated cost. One exception to estimated costs that NICTD provided was Local Security (11), which represents double the estimated security costs NICTD would incur. This would clearly be a point of discussion between the City and NICTD as the line item is intended to provide 24/7 coverage with City police personnel. This could also include a satellite police department within the station depot.

Table 5-4: Summary of Estimated Annual O&M Costs by Category

O&M Cost Elements	City of South Bend	NICTD	Total
Downtown Station			
1. Janitorial	\$13,400		\$13,400
2. Routine Maintenance	4,100		4,100
3. Pest Control	600		600
4. Snow Removal - Parking	4,500		4,500
5. Electricity	19,700		19,700
6. Other Utilities	5,000		5,000
7. Ticket Agent - part time		\$27,400	27,400
8. Security-Armored Car		8,300	8,300
9. Ticket Vending Mgmt.		1,100	1,100
10. Security-Police Patrol		170,300	170,300
11. Local Security	340,600		340,600
12. Refuse Pick-up	900		900
Total	\$388,800	\$207,100	\$595,900

6.0 Rail Operations

An analysis of operational characteristics was prepared, including development of travel times and schedules, and forecasts of potential ridership.

6.1 Travel Times and Schedules

The Pine Road Station (Figure 6-1), located at SSL milepost (MP) 5.2, was used as the time marker for determining overall schedule efficiencies.

Figure 6-1: Existing SSL Route with Pine Road Crossing

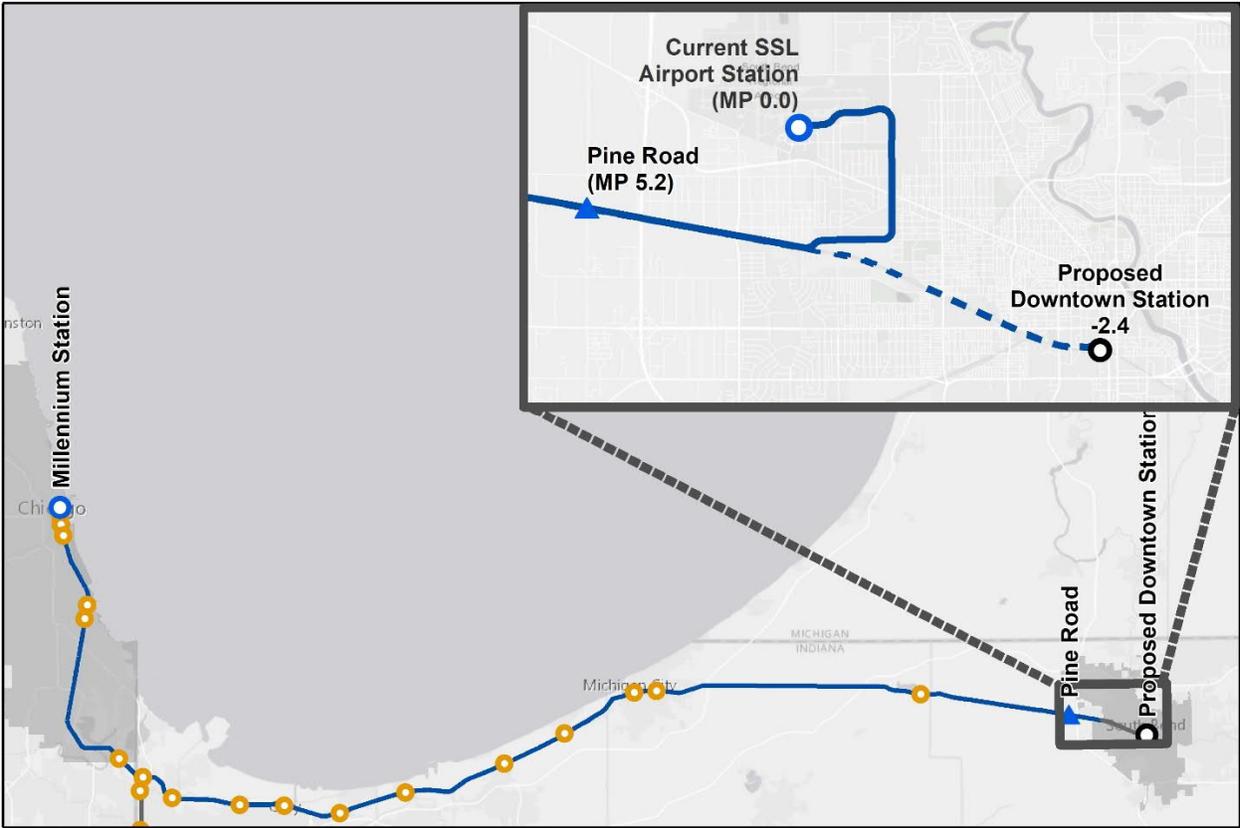


Table 6-1 summarizes travel distance and time characteristics to serve the Downtown station.

Table 6-1: Downtown Station Operations Characteristics

Attribute	Metric
Route Length to Pine Road	5.2 miles
Travel Time to Pine Road	6.9 minutes (mins)
Scheduled Speed to Pine Road	45 mph
Total Westbound Travel Times to Millennium Station	94 mins - 110 mins
Total Eastbound Travel Times from Millennium Station	99 mins - 111 mins

Travel times were estimated for the proposed South Bend Downtown station site to Pine Road, which is a common location on the South Shore main line 2.2 miles west of the SSL mainline/Airport Branch Junction. The time was estimated by segmenting the route from Pine Road east to the proposed station location. Segments were assigned an estimated speed based on the degree of track tangency or curvature. Assumed segment speeds ranged from 20 to 65 mph. The travel times to the proposed downtown station assume completion of the NICTD Double-Track project and the associated travel time savings with that improvement.

Table 6-2 summarizes the distances and estimated travel time from the Downtown station site to the Pine Road crossing of the SSL.

Table 6-2: Summary of Time and Distance from Pine Road to Proposed Downtown SSL Station

	Route Length (miles)	Travel Time (mins)	Scheduled Speed (mph)
Downtown Station (South Street) approach	0.7	2.2	20
Station Approach to Amtrak Station (passby)	1.0	1.2	50
Amtrak Station to Airport Junction	1.3	1.5	50
Airport Junction to Pine Road	2.2	2.0	65
Total	5.2	6.9	45
			(Average)

Based on distance and travel times, proposed SSL schedules were developed. Travel times for trains traveling west from South Bend, terminating at Millennium Station in Chicago range from approximately 94 minutes to 110 minutes.

Travel times for trains traveling east from Millennium Station and terminating in South Bend range from approximately 99 minutes to 111 minutes. Table 6-3 presents the eastbound and westbound schedule for Downtown Station.

Table 6-3: Downtown Station Proposed Schedule

WESTBOUND

MP	Train	6	8	12	18	20	22
-2.4	Downtown*	5:16 AM	6:41 AM	8:53 AM	11:53 AM	4:03 PM	7:45 PM
32.2	Carroll Avenue (Michigan City)						
89.7	Millennium	6:58 AM	8:15 AM	10:43 AM	1:43 PM	5:53 PM	9:31 PM
	Elapsed Time (mins)	102	94	110	110	110	106
	Number of Stops	8	6	15	15	15	14

*Eastern Time expressed as Central.

Note: Deadhead trains traveling between Downtown and Carroll Avenue include train #'s 422, 424, and 426.

EASTBOUND

MP	Train	7	9	11	15	17	19
89.7	Millennium	8:48 AM	1:48 PM	4:05 PM	5:28 PM	6:01 PM	7:18 PM
32.2	Carroll Avenue (Michigan City)						8:39 PM
-2.4	Downtown*	10:38 AM	3:39 PM	5:44 PM	7:18 PM	7:48 PM	9:08 PM
	Elapsed Time (mins)	110	111	99	110	107	110
	Number of Stops	14	15	10	15	14	16

*Eastern Time expressed as Central.

Note: Deadhead trains traveling between Carroll Avenue and Downtown include train #'s 401 and 403.

A breakdown of travel time for three scenarios are shown below. These include:

- (1) Existing location of the SSL Airport Station
- (2) Existing location of the SSL Airport Station with implementation of the Double-Track project
- (3) Proposed Downtown station with implementation of the Double-Track project

Table 6-4: Downtown Station Proposed Schedule Progression

West Bound (from South Bend)		December 2019 Analysis	
Station Site	Travel Time (mins)		Number of Trains
	Min	Max	
Current Airport Station / No-Build	115	160	5
Current Airport Station with Double-Track	102	118	6
Proposed Downtown Station	94	110	6

East Bound (to South Bend)		December 2019 Analysis	
Station Site	Travel Time (mins)		Number of Trains
	Min	Max	
Current Airport Station / No-Build	118	155	5
Current Airport Station with Double-Track	102	120	6
Proposed Downtown Station	99	111	6

6.2 Ridership Forecasts

The technical tool to estimate use for each of the alternative sites is the Simplified Trips-on-Project Software (STOPS). The STOPS model application was developed by various NICTD consultants over the last five years to develop forecasts for the West Lake and Double Track initiatives. Travel time is a primary input for processing of the model. As the travel time between Pine Road and the Downtown Station increased only 1.5 minutes (5.4 minutes up to 6.9 minutes) between the 2018 Feasibility Study and this report, there is not anticipated to be a substantial enough change to warrant re-analyzing the ridership data for the Downtown Station. Therefore, the ridership information from the 2018 Feasibility Study is presented below for reference.

6.2.1 2018 Feasibility Study – Ridership Forecasts

Ridership was modeled for the 2015 base year and 2040 forecast year in the 2018 Feasibility Study. Alternatives included:

- No-Build (current service to Airport Station)
- Downtown Station Site

In addition, each model run provided the number of weekday boardings by access mode, including:

- Walk
- Kiss-n-Ride (i.e., drop-off)
- Park-n-Ride
- Transfer (i.e., from another mode)

Table 6-5 and Table 6-6 show 2015 and 2040 weekday boardings by access mode and station site.

Table 6-5: South Bend Alternative Station Sites – 2015 Weekday Boardings

Alternative	Walk	Kiss-n-Ride	Park-n-Ride	Transfer	Total	All SSL Station Boardings
Downtown	44	59	141	107	351	19,616
Current Airport Station *	38	101	146	2	287	12,291

Source: South Bend South Shore Line Station Alternatives Feasibility Study (2018)

Table 6-6: South Bend Alternative Station Sites – 2040 Weekday Boardings

Alternative	Walk	Kiss-n-Ride	Park-n-Ride	Transfer	Total	All SSL Station Boardings
Downtown	95	110	274	189	668	24,233
Current Airport Station *						Not available

Source: South Bend South Shore Line Station Alternatives Feasibility Study (2018)

* Note that 2015 ridership for the Current Airport Station reflect the current operating schedule for the present South Bend Airport station. Ridership forecasts for a “no build” alternative with service to the current South Bend Airport station location with or without other South Shore Line improvements (e.g., Double-Track NWI) are not available for this report.

7.0 Potential Economic Development Impacts

An analysis of the market conditions was conducted to understand the City’s strengths and potential areas for growth, particularly in the area around the Downtown station site. The approach for assessing development potential emulated the 2018 Feasibility Study. This section updates the results of the 2018 Feasibility Study with a refined design and capital cost estimate.

7.1 Development Potential

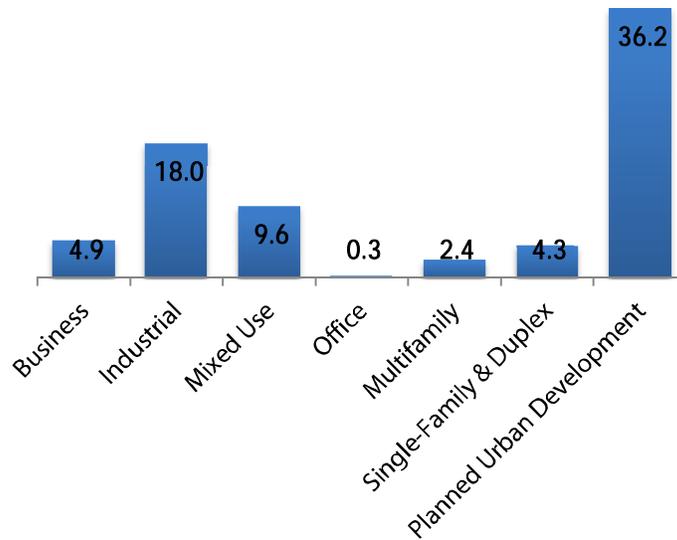
7.1.1 Developable Parcels

Within the half-mile station area (approximately 502 acres), vacant and underutilized properties were identified as candidates for development. Properties separated by the proposed station site by a major physical barrier that would impede non-motorized connections and therefore would not form part of cohesive transit-oriented development neighborhood, were excluded from consideration. These barriers include active railroad rights-of-way (SSL and NS/CN) and limited access highways (US 31).

There are 83 acres within a half-mile that are available for development, see Figure 7-1 and Figure 7-2. It is assumed that the large surface parking and unimproved exempt parcels can be

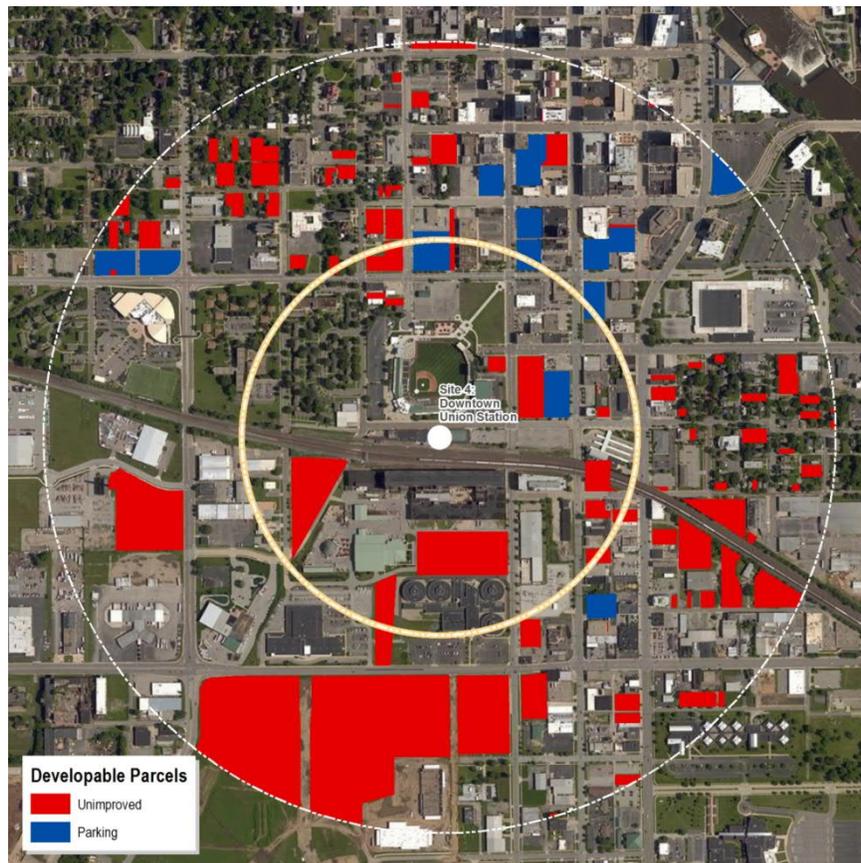
acquired and developed. There are 16 acres available for development within a quarter-mile of the proposed site.

Figure 7-1: Downtown Station Area Half-Mile Zoning



Source: City of South Bend

Figure 7-2. Downtown Station Area Developable Parcels



Source: City of South Bend

7.1.2 Demand and Development Program

The development program balances the amount of developable land with the feasible market capture. The programs were development with consideration for building density and parking requirements.

Table 7-1. Programmed Use in Developable Acres within a Half-Mile

	Residential	Industrial	Retail	Office	Open/Storm Water
Downtown	45%	12%	8%	5%	30%

The potential development program was quantified by the approximate value associated with the proposed development. By estimating demand and determining the value per square foot of each type of development (residential, office, industrial, or retail), an overall estimated value of the potential development at each station area was determined. Table 7-2 lists the potential new development value in the station area, delivered over a ten-year period.

Table 7-2. Estimated New Development Value within a Half-Mile

	Total Value
Downtown	\$152,570,000

7.2 Economic Development Summary

The economic development and Transit Oriented Development (TOD) analysis concluded several points:

- The City of South Bend has captured large shares of tri-county South Bend market deliveries.
- There is no shortage of vacant land near the Downtown Station site.
- To estimate reasonable caps on demand within a ten-year horizon, we extrapolate occupancy trends and assign appropriate shares of market growth to each station area based on value and assume no demolition of existing structures.

7.3 Economic and Fiscal Impacts

7.3.1 Economic Impacts

AECOM used the input-output model developed by IMPLAN to trace how the initial investment would circulate throughout the Indiana economy. The impact analysis is for the construction period only and does not consider operating period impacts.

Economic impacts can be described as the sum of economic activity within a defined geographic region resulting from an initial change in the economy. This initial change, also referred to as the direct impact, spurs a series of subsequent indirect and induced activities.

- Direct Impact results from an initial change in the economy such as construction costs, the operating revenues from a new business, or jobs created.
- Indirect Impacts result when the suppliers to the companies initiating the direct impacts purchase local goods and services.
- Induced Impacts result from the employees purchasing goods and services for their households from the wages they earn.
- Total Impact is the sum of the direct, indirect and induced impacts.

The indirect and induced impacts are often referred to as the multiplier effect. The size of this depends on the region in which the impacts occur and the nature of the economy within the region. Larger regions that have most of their needs met locally have larger multiplier effects.

When comparing alternatives, note that it is the nature of an impact analysis that the higher the input, the higher the output—i.e., the more you spend, the greater the impact.

Table 7-3. Full Time Equivalent Jobs, 10-Year Development Program

	Direct	Indirect	Induced	Total
Downtown	1,470	630	680	7,770

Table 7-4. Economic Output, 10-Year Development Program

	Direct	Indirect	Induced	Total
Downtown	\$238,100,000	\$102,000,000	\$89,900,000	\$430,000,000

7.3.2 Fiscal Impacts

Fiscal impacts are the measure of change in tax revenues. In the analysis for this study, the property tax revenue impact is not an incremental revenue assessment of new revenues from development minus previous revenues at prior use. It is exclusively the estimated property tax revenue generated from new development. The revenue from (primarily vacant) existing parcels would need to be subtracted to estimate a *net* fiscal impact. The analysis also does not include the potential uplift to existing developed properties due to investment in the station area.

Table 7-5. Property Tax Impacts, 10 Year Development Program

	Property Tax Revenues		All Tax Revenues	
	Annual	Cumulative	Annual	Cumulative
Downtown	\$1,901,000	\$19,011,000	\$4,646,000	\$46,461,000

7.4 Potential Economic Development Summary

Table 7-6 summarizes the potential redevelopment program for the Downtown Station area along with the associated economic and fiscal impacts over a 10-year period. This site area which features a large residential program show great potential impact due to the higher values and densities entailed. However, it also has high capital and construction costs.

Table 7-6. Summary of 10 Year Development Program and Associated Economic and Fiscal Impacts

	New Construction (sq. ft.)	Assessed Value (2019 \$)	Construction Cost (2019 \$)	Economic Output (Year of Occurrence \$)	Tax Revenue (Year of Occurrence \$)
Downtown	1,260,000	\$152,700,000	\$112,000,000	\$430,000,000	\$46,460,000

Table 7-7 interprets development potential relative to potential investment in station-related capital costs.

Table 7-7. Return on Investment Metrics

	% Station Capital Cost Recovered in Est. Tax Revenue	Economic Impact as % of Station Capital Cost
Downtown	40%	366%

7.5 Notes on this Economic Development and Impact Analysis Research

This report is based on estimates, assumptions, information developed by AECOM from its independent research effort, general knowledge of the industry, and information provided by third parties. No responsibility is assumed for inaccuracies in data provided by third-party data source used in preparing or presenting the report. AECOM assumes no duty to update the information contained in the report unless such additional services are separately retained pursuant to a written agreement signed by AECOM and the City of South Bend.

AECOM’s findings represent its professional judgment. Neither AECOM nor its parent corporations, nor their respective affiliates or subsidiaries make any warranty or guarantee, expressed or implied, with respect to any information or methods contained in or used to produce this report. It shall not be used in conjunction with any public or private offering of securities, debt, or equity, or instruments of a similar nature where it may be relied upon to any degree by any person other than the City of South Bend and shall not be used for purposes other than those for which they were prepared or for which prior written consent has been obtained from AECOM.

This report was prepared solely for the use by the City of South Bend. No third party may rely on the report unless the third party has executed a reliance letter in which case, this report must be used in their entirety and not on any abstract, excerpt or summary.

This report may include “forward-looking statements”. These statements relate to AECOM’s expectations, beliefs, intentions or strategies regarding the future. These statements may be identified by the use of words like “anticipate,” “believe,” “estimate,” “expect,” “intend,” “may,” “plan,” “project,” “will,” “should,” “seek,” and similar expressions. The forward-looking statements reflect AECOM’s views and assumptions with respect to future events as of the date of the report and are subject to future economic conditions, and other risks and uncertainties. Actual and future results and trends could differ materially from those set forth in such statements due to various factors, including, without limitation, those discussed in the report. These factors are beyond AECOM’s ability to control or predict. Accordingly, AECOM makes no warranty or representation that any of the projected values or results contained in the report will actually occur or be achieved. The report is qualified in its entirety by, and should be considered in light of, these limitations, conditions and considerations.

8.0 Summary

The objective of this study was to further investigate a new Downtown Station based on the information presented in the 2018 South Bend South Shore Line Station Alternatives Feasibility Study, see **Appendix H**. While the east SSL connection point and west terminal station location remained the same, rail alignment and station design have been refined. Many of the same

criteria from the earlier study were applied, updating community impacts, preliminary cost estimate, rail operations and potential economic development to accommodate the current rail and station layout. More developed horizontal track alignment led to an improved understanding of ROW requirements and the refined vertical alignment helped to assess the anticipated construction limits. At the station level, the conceptual design worked through parking needs and distribution, vehicular and pedestrian circulation and an overall integration of a significant transit infrastructure piece within the urban fabric.

Track alignment and station alignment took in consideration minimal displacements and adverse neighborhood impacts as well as optimizing capital investment and long-term O&M costs. The overall costs were approximately \$10 million higher than the 2018 Feasibility Study, considering inflation and a clearer understanding of the alignment and station layout and impacts. Additionally, the table below presents a summary of key metrics of each criterion reviewed for both studies:

Table 8-1. Summary of Proposed Station Metrics

Criteria	2018 Feasibility Study, Downtown Site	Current Study, Downtown Station
Displaced / Shared Property Ownership	<ul style="list-style-type: none"> • Freight railroads • Union Station properties • Rail-adjacent segments of various private properties, potentially: Kroc/Salvation Army; Housing Authority; private residential; Claeys 	<ul style="list-style-type: none"> • Freight railroads • Rail-adjacent segments of various private properties, potentially: Kroc/Salvation Army; Housing Authority; private residential; Claeys
Number of Bridge Structures*	2	1
Number of At-Grade Crossings (vehicular)*	2	4
Number of At-Grade Crossings (pedestrian)	3	5
Minimum number of Station Parking Spaces provided (274 spaces)	Yes	Yes
Land Acquisition (acres)	17.3	16.6
Capital Costs	\$102,302,000	\$112,056,000

*The 2018 Feasibility Study assumed that Scott Street would be closed to through traffic.