

Connecting our Communities.

Summary Report

for

Evaluation of Downtown Ann Arbor

North-South Commuter Rail (WALLY) Station Sites

July 2014



Evaluation of Downtown Ann Arbor North-South Commuter Rail (WALLY) Station Sites

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North-South Commuter Rail Overview

The North-South Commuter Rail service (also referred to by the name “WALLY, for Washtenaw and Livingston Counties, which it would serve) is a proposed 27-mile long commuter rail service that would connect Ann Arbor and Howell, with several intermediate stops. It is being developed as a cost-effective alternative to ease traffic congestion along US-23 between Howell and Ann Arbor and to promote economic development and job creation in the region.

Highlights

- Tracks and right-of-way currently owned by Michigan Department of Transportation and WATCO Companies, LLC
- Stops planned at Howell, Genoa Twp., Hamburg Twp., Whitmore Lake and Ann Arbor
- Four trains/day in each direction providing AM and PM service
- Connecting buses in Ann Arbor will serve the North Campus, the Medical Center, and downtown
- More than 1,200 commuters are expected to ride North-South Commuter Rail every weekday; estimated it will take about 60 minutes

North-South Commuter Rail is supported by a coalition of local public and private organizations in Washtenaw and Livingston counties that are working with the Michigan Department of Transportation (MDOT) to provide commuting options in the heavily growing areas. The coalition is facilitated by the Ann Arbor Area Transportation Authority (TheRide) serving as the designated authority.



How does North-South Commuter Rail relate to other local projects?

Ann Arbor's Model for Mobility

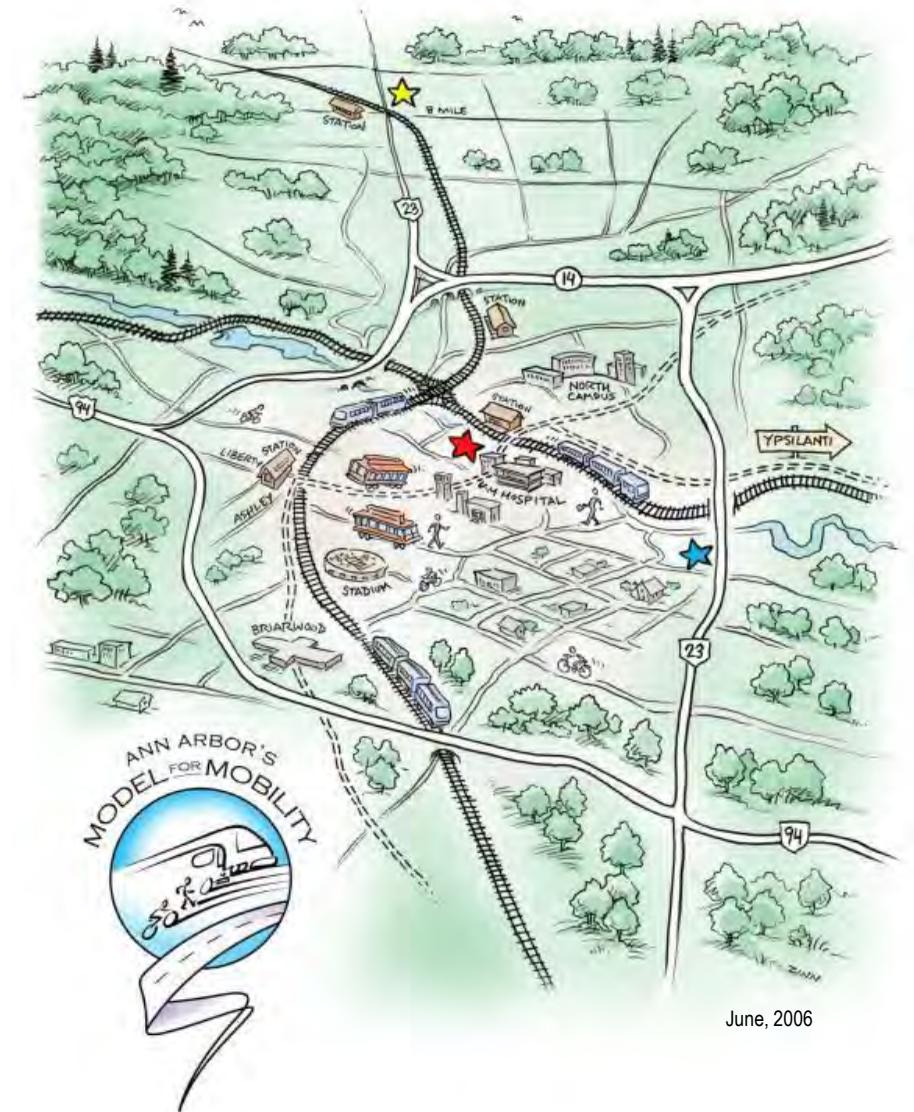
In June 2006, Mayor John Hieftje introduced his "Model for Mobility," a transportation vision for the City of Ann Arbor. Key elements of this transportation vision include alternative forms of transportation such as walking and bicycling, but also expand on the City's bus, rail and train system to support a more regional mode of mobility and reduce Ann Arbor's over reliance on auto travel.

The Mayor has outlined three key components of the Model for Mobility vision:

- An east-west regional transit route that would link the central core of Ann Arbor, including the downtown, University of Michigan Central Campus and the University of Michigan Medical Center, with communities in southeast Michigan.
- A north-south rail connection that would use existing railways between Ann Arbor, Milan and Howell.
- A local connector system that would link the two regional railroads, with a local streetcar system running from west to east through the downtown, across the Central, Medical and North campuses of the University of Michigan.

"In order to continue the smart growth of our community it is essential that we use all of our existing infrastructure before we build more."

Mayor Hieftje



How does the North-South Commuter Rail relate to other local projects?

East-West Commuter Rail

This project implements one of the key recommendations from Southeast Michigan Council of Governments (SEMCOG) *Improving Transit in Southeast Michigan: A Framework for Action* plan (2001). The project will provide commuter rail service between Ann Arbor and Detroit which is a segment of the Pontiac-Detroit-Chicago Amtrak corridor. As a result much of the existing infrastructure is in place and will be used whenever possible.

The current project is to provide commuter rail service in the Detroit-Ann Arbor corridor with stops in Ann Arbor, Ypsilanti, Detroit Metropolitan Airport, Dearborn, and Detroit. The project takes advantage of existing infrastructure where possible and requires adding new station stops in Ypsilanti and at Detroit Metro Airport.

The project is being managed by SEMCOG along with partners that include representatives of all communities in the corridor, Wayne and Washtenaw County officials, state and federal representatives, the Michigan Department of Transportation, the local transit operators (AAATA, DDOT, and SMART), Amtrak, representatives of Norfolk Southern (NS) and Canadian National (CN) Railroads, and members of the business community.



How does the North-South Commuter Rail relate to other local projects?

The Connector

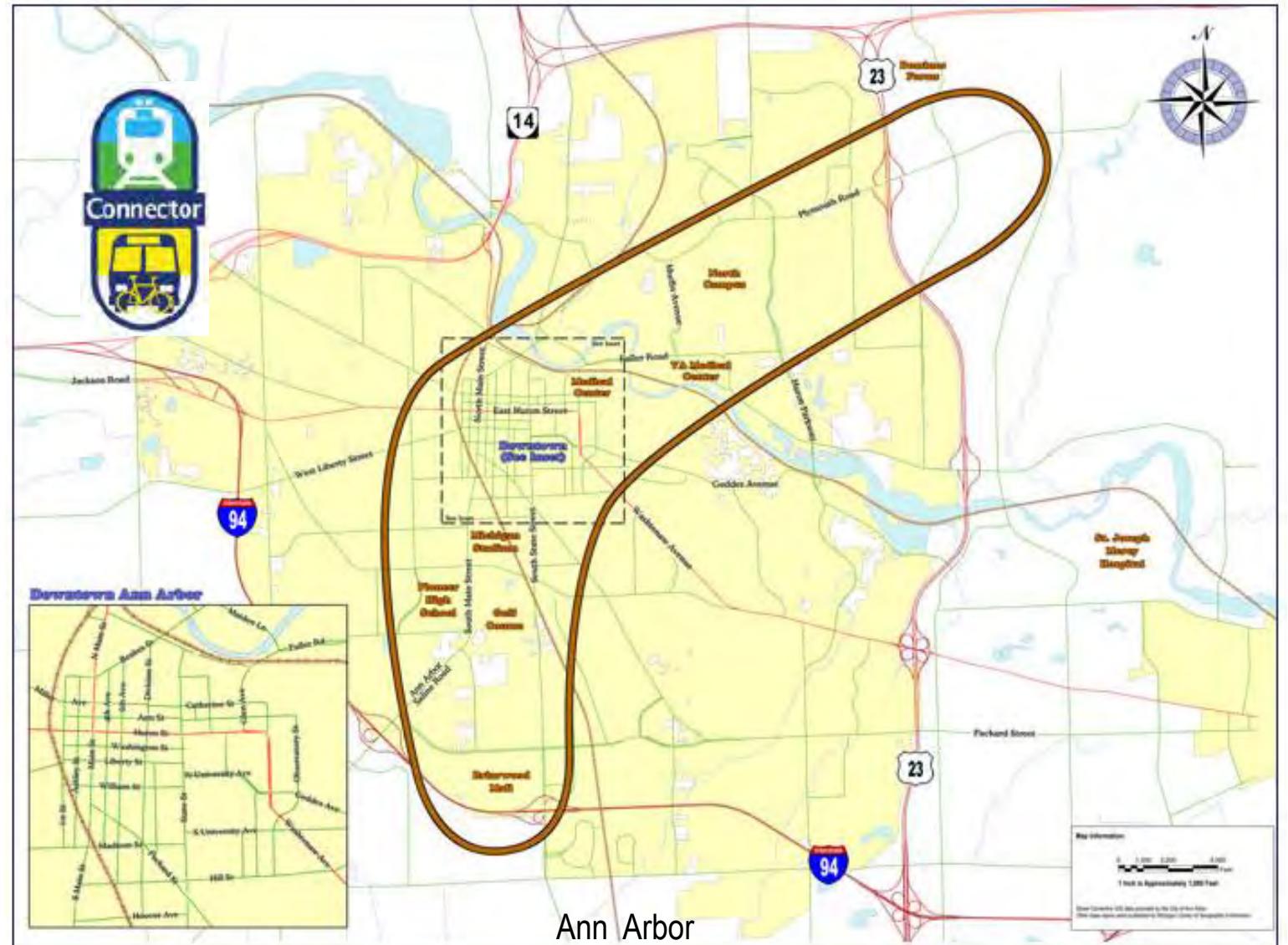
The Connector is a developing plan for high-capacity transit in an arc from northeast to south Ann Arbor, connecting major destinations including downtown, University of Michigan campuses and medical center, and commercial areas.

A Feasibility Study determined that a Connector is technically feasible and that the number of people expected to use The Connector warrants a high-capacity system. The Connector would support a sustainable system of transportation and land use consistent with the City of Ann Arbor Master Plan.

The Feasibility Study identified four potential transportation modes that would best meet the needs of the community:

- Bus
- Bus rapid transit
- Light rail transit
- Automated guideway transit

As of this writing, the feasibility study is complete and an Alternatives Analysis is underway.



Characteristics of Commuter Rail

Commuter rail service typically consists of a locomotive pulling or pushing passenger cars over a distance ranging from 25 to 50 miles with stations about 5 miles apart. Commuter rail service is specifically designed to move people as an alternative to congested freeway travel and provides the following:

- Connects suburbs/outlying communities to city centers
- Larger trains – more seating for passengers and less standing room
- Trains run at specific times, not intervals
- Fewer stations, spaced farther apart, less stops
- Frequently shares track with freight service



Typical Commuter Rail Station Elements

There are several elements that are essential to the operation of commuter rail stations. Others elements are considered optional.

Critical Station Elements

- Platform
- ADA access
- Access to other forms of transportation
- Shelters
- Signage and wayfinding
- Lighting
- Security
- Ticketing mechanisms
- Snow Removal

Optional Station Elements

- Waiting room/building
- Ticketing counter
- Restrooms
- Concessions
- Parking
- Heated shelters
- Electronic signage



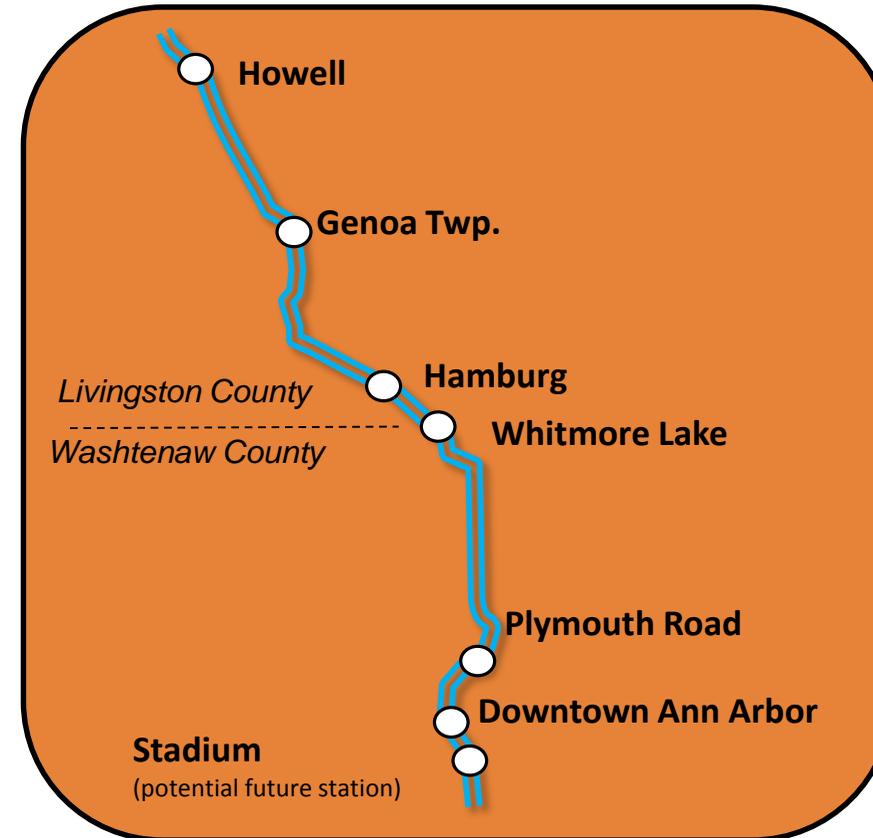
Evaluation of Downtown Ann Arbor North-South Commuter Station Sites

Study Purpose

The purpose of this study is to evaluate the feasibility of locating a North-South Commuter Rail Station in downtown Ann Arbor. This would be south of, and in addition to, the Plymouth Road station which is planned as the primary site for use by University of Michigan Hospital employees.

The scope of this effort included numerous coordination meetings with respective agencies and organizations, collection and review of existing rail and adjacent land use conditions, development of commuter rail station evaluation criteria, two community meetings and preparation of a preliminary and final report.

Funding for this research and development study is provided by a Federal Transit Administration Section 5304 grant along with contributions from Howell, Ann Arbor DDA, Washtenaw County. There are no local or Ann Arbor tax dollars funding this effort.



Evaluation of Downtown Ann Arbor North-South Commuter Station Sites

Steering Committee

A Steering Committee was formed to provide guidance on the study, to review study findings and to concur on study results. The committee was comprised of representatives from state and local agencies and organizations with specific interest in the operation of this commuter rail service including:

Kris Foondle	MDOT Rail
Kammy Frayre	MDOT Transportation Services
Michael Benham	TheRide, Strategic Planner
Eli Cooper	City of Ann Arbor, TheRide Board
Jeff Kahan	City of Ann Arbor
Roger Hewitt	Ann Arbor DDA
Sue Gott	University of Michigan Planner, TheRide Board
Steve Dolan	University of Michigan Transportation and Parking
Ryan Buck	Washtenaw Area Transportation Study
Alex Bourgeau	Southeast MI Council of Governments
Larry Krieg	RTA Citizens Advisory Council, TheRide Board



Evaluation of Downtown Ann Arbor North-South Commuter Station Sites

Goal and Objectives

Goal:

Identify an optimal location(s) for an Ann Arbor North-South commuter rail station that brings the most benefit to the community and users of the service

Objectives:

- Collaborate with a Steering Committee, interested parties and the public to obtain input and information about rail service and potential station sites
- Develop a tiered screening process and an evaluation matrix to guide assessment of potential station sites and document conditions associated with selection criteria



Evaluation of Downtown Ann Arbor North-South Commuter Rail Station Sites

Community Meetings

Two community meetings were held to provide the opportunity for public engagement and input into the process. In addition, the presentations for each of these meetings was posted on the AAATA project website.

Community Meeting #1: Tuesday, October 8, 2013. 7:00 – 9:00 PM
Ann Arbor Community Center, 625 North Main Street, Ann Arbor, MI

Items discussed:

Project overview, goals and objectives, commuter rail station elements + numerous questions about bus/train service and project funding.

Community Meeting #2: Wednesday, December 4, 2013. 7:00 – 9:00 PM
Ann Arbor Community Center, 625 North Main Street, Ann Arbor, MI

Items discussed:

Project overview, goals and objectives, alternative station sites, preliminary evaluation matrix + numerous questions about bus/train service and project funding

Evaluation of Downtown Ann Arbor North-South Commuter Station Sites

Project Limits

The +/- 7,000 foot study corridor extends from Summit St. south to Hill St.

Tracks and railroad right-of-way along this segment are currently owned by WATCO Companies, LLC. On this line, WATCO serves the automotive industry as well as a full range of commodities such as bulk materials, paper, lumber and petroleum.



Evaluation of Downtown Ann Arbor North-South Commuter Station Sites

Existing Conditions: Road Crossings

Within the project limits there are nine at-grade and four grade-separated (rail elevated over road) road crossings.



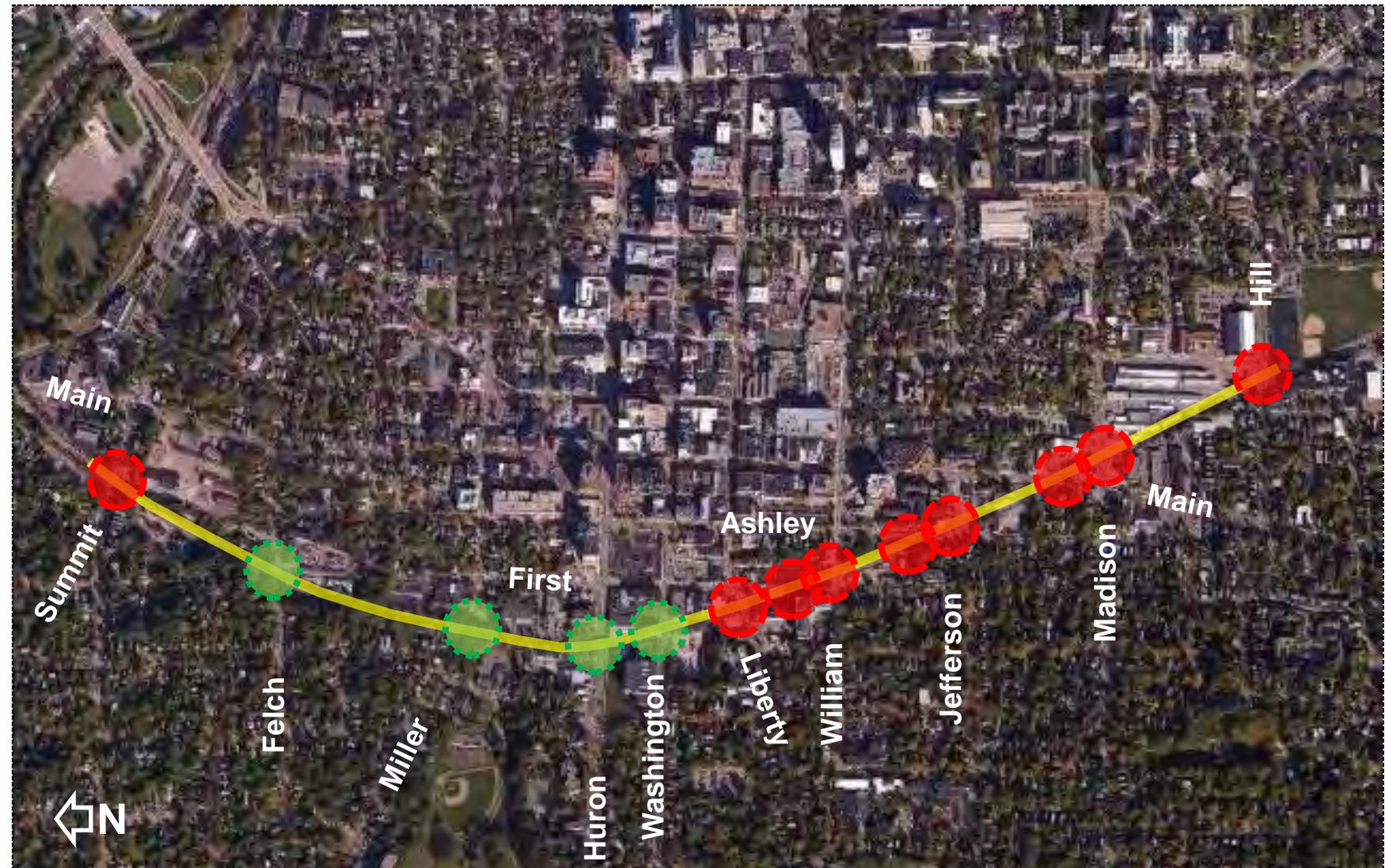
At-grade

- Summit
- Liberty
- First
- William
- Ashley
- Jefferson
- Main
- Madison
- Hill



Grade-separated

- Felch
- Miller
- Huron
- Washington



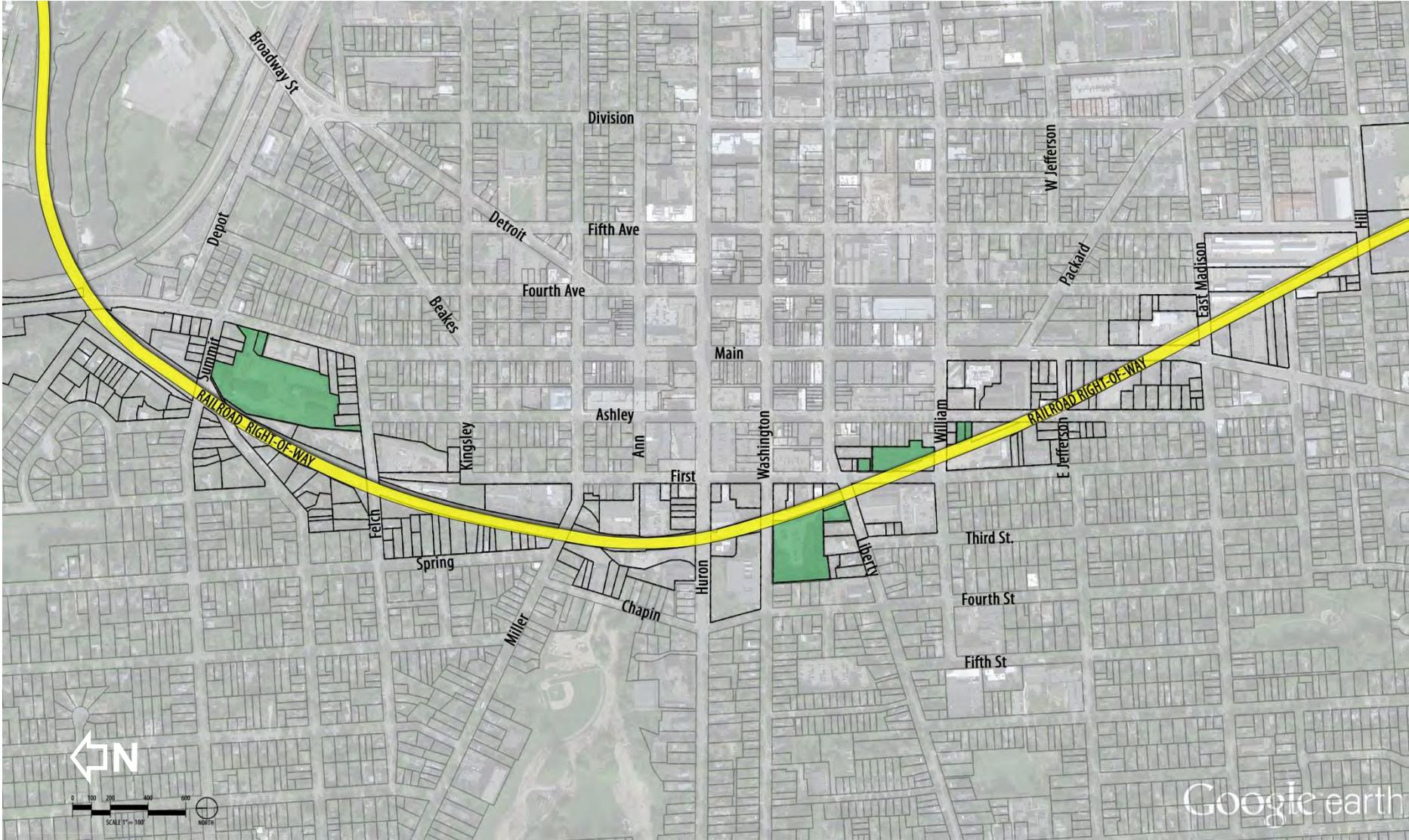
Evaluation of Downtown Ann Arbor North-South Commuter Station Sites

Existing Conditions: Adjacent Parcels



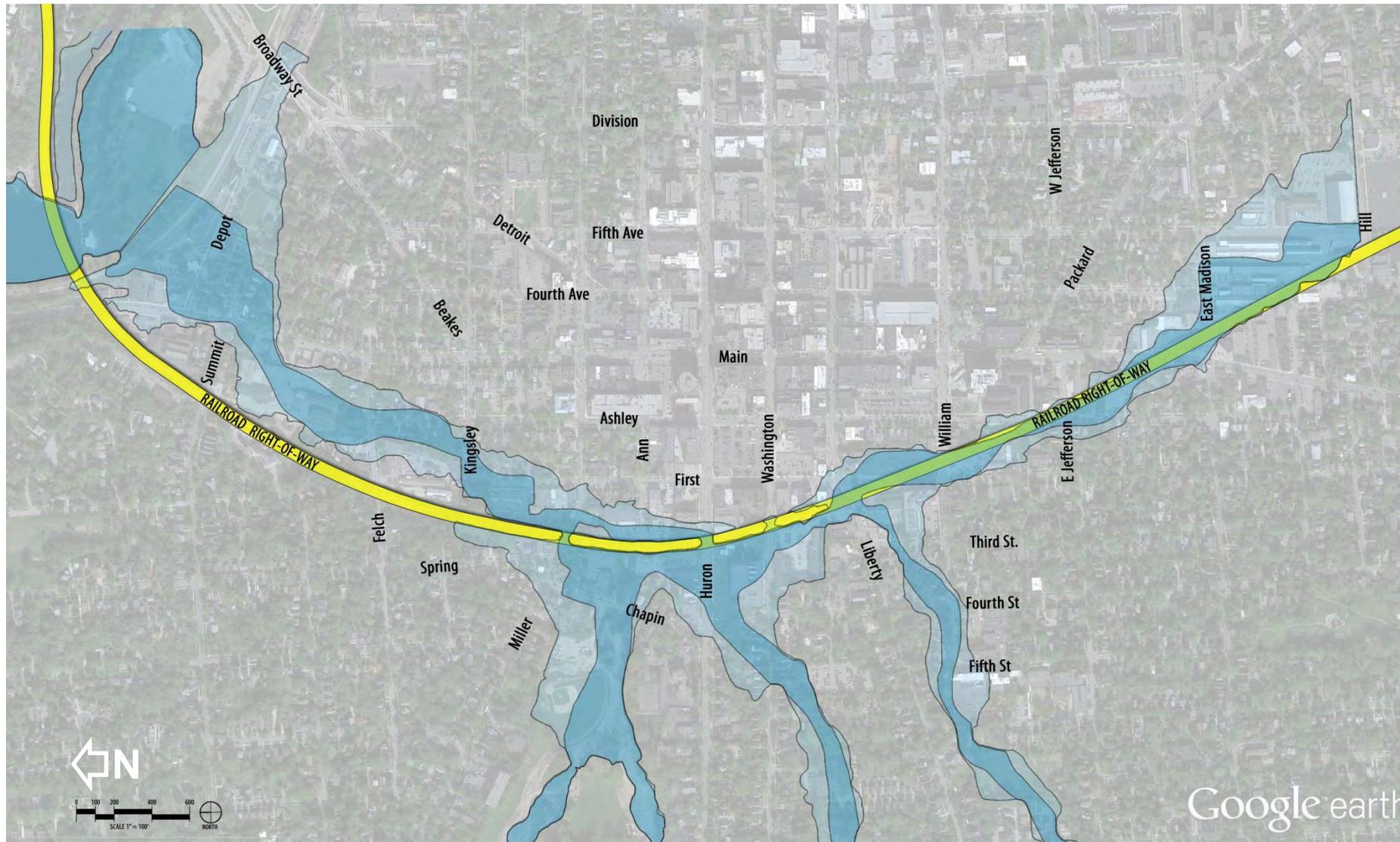
Evaluation of Downtown Ann Arbor North-South Commuter Station Sites

Existing Conditions: City of Ann Arbor Parcels



Evaluation of Downtown Ann Arbor North-South Commuter Station Sites

Existing Conditions: Allen Creek Floodplain = Floodway + Flood Fringe



Floodway

Area reserved to pass the base, 100-year flood flow without increasing flood depths; most dangerous part of floodplain, associated with moving water.

Flood Fringe

Portion of floodplain outside the floodway; generally associated with standing water.

Evaluation of Downtown Ann Arbor North-South Commuter Station Sites

Physical/Operational Requirements

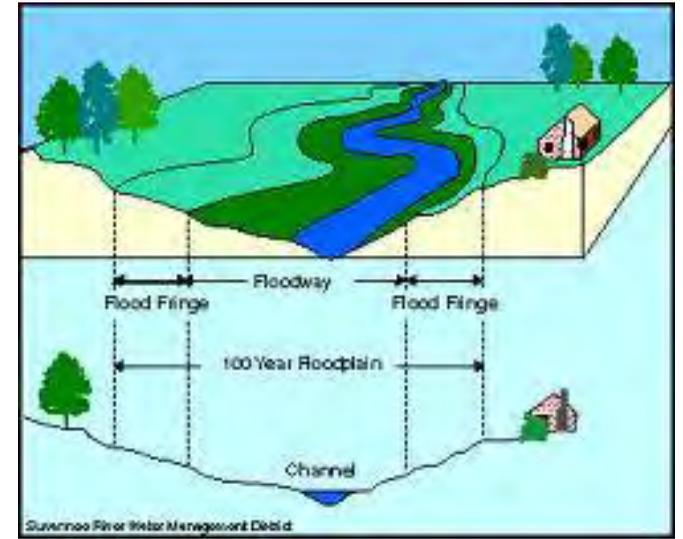
Platform + clear zone



Track curvature



Floodplain

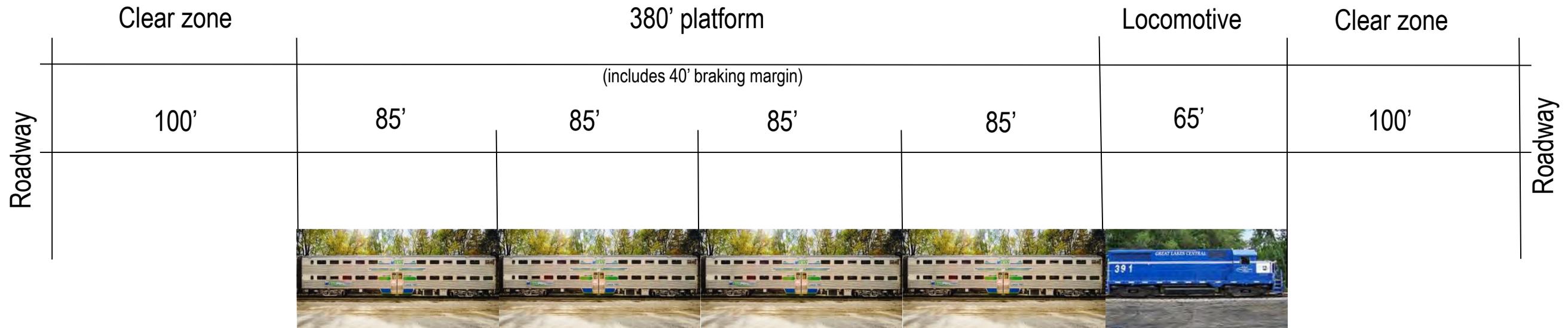


The physical and operational requirements associated with platform + clear zone, track curvature and floodplain represent the first level of screening used to identify segments of the project corridor that meet the minimum criteria for siting a commuter rail station. A description of each element follows.

Evaluation of Downtown Ann Arbor North-South Commuter Station Sites

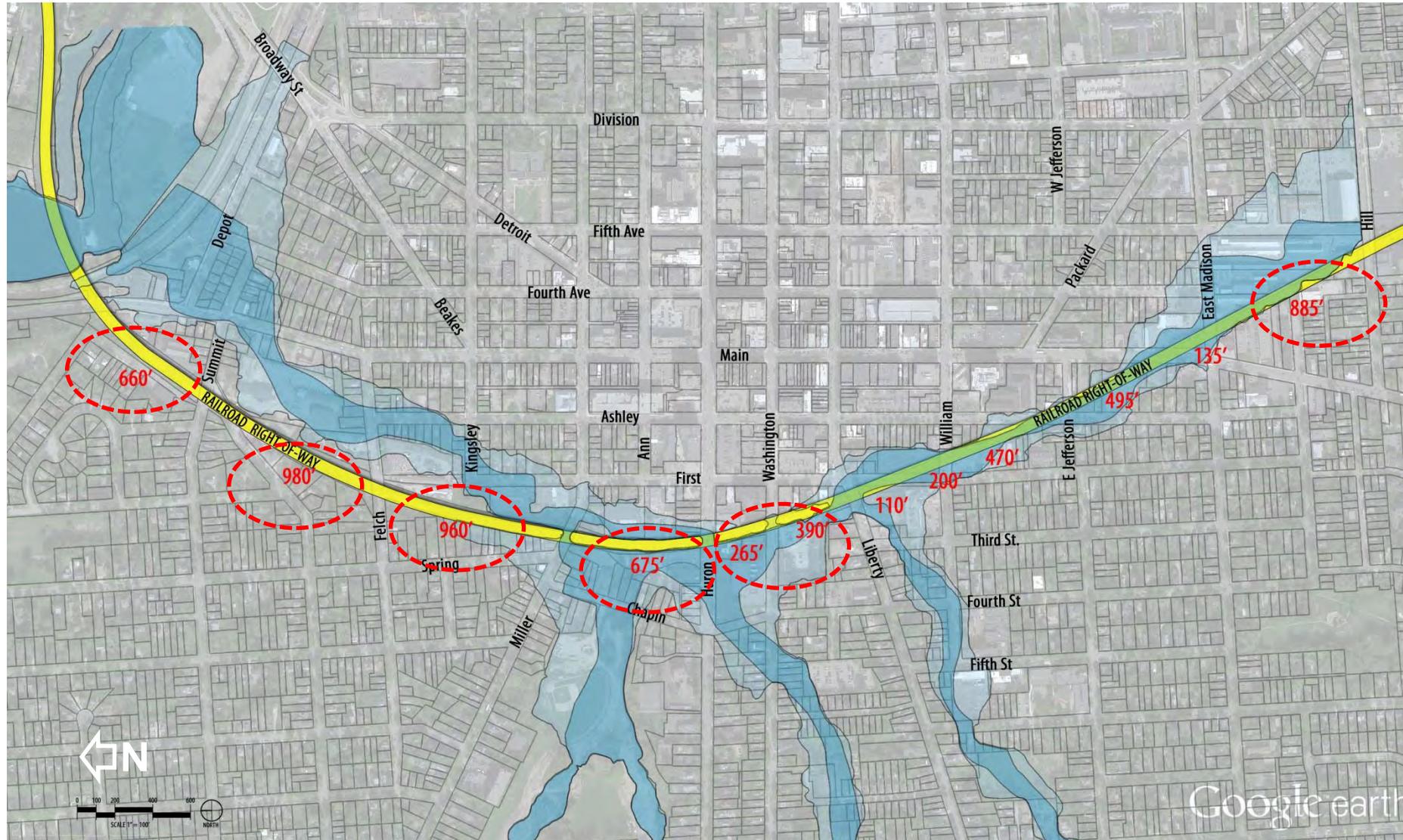
Physical/Operational Requirements: Preference for 645 ft. footprint (platform + locomotive + clear zone)

- 380' platform (4 cars x 85'+ 40' braking margin) + 65' locomotive + 100' clear at each end
- Clear zone for safe site distances to road crossings and to allow proper grade crossing warning system functionality
- Undesirable to block roads while train in station



Evaluation of Downtown Ann Arbor North-South Commuter Station Sites

Physical/Operational Requirements: Preference for 645 ft. footprint (platform + locomotive + clear zone)

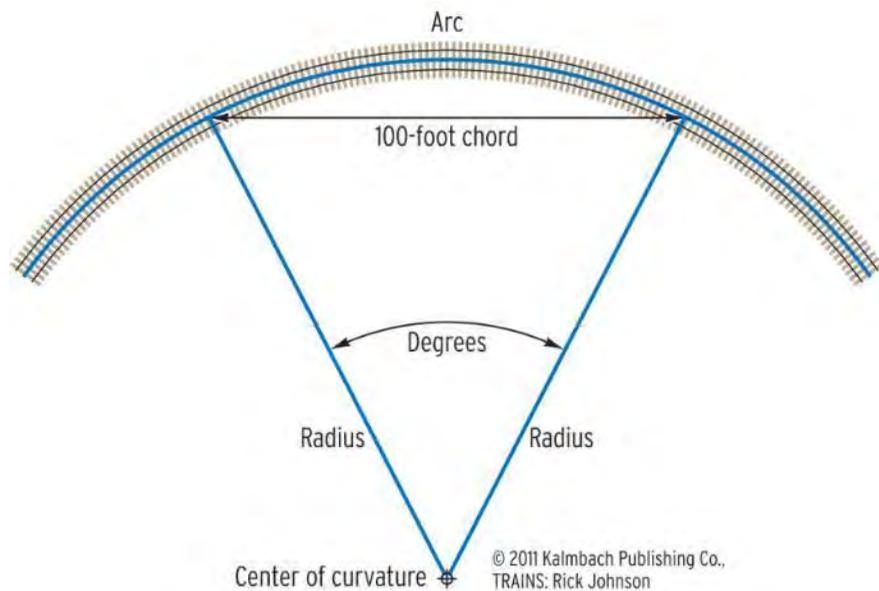


The circled segments all meet or exceed the 645' minimum platform + clear zone dimension. The track is elevated over Washington allowing the Huron to Washington and Washington to Liberty segments to be combined.

Evaluation of Downtown Ann Arbor North-South Commuter Station Sites

Physical/Operational Requirements: Preference for maximum $1^{\circ} 40'$ track curvature ($\pm 3,400'$ radius)

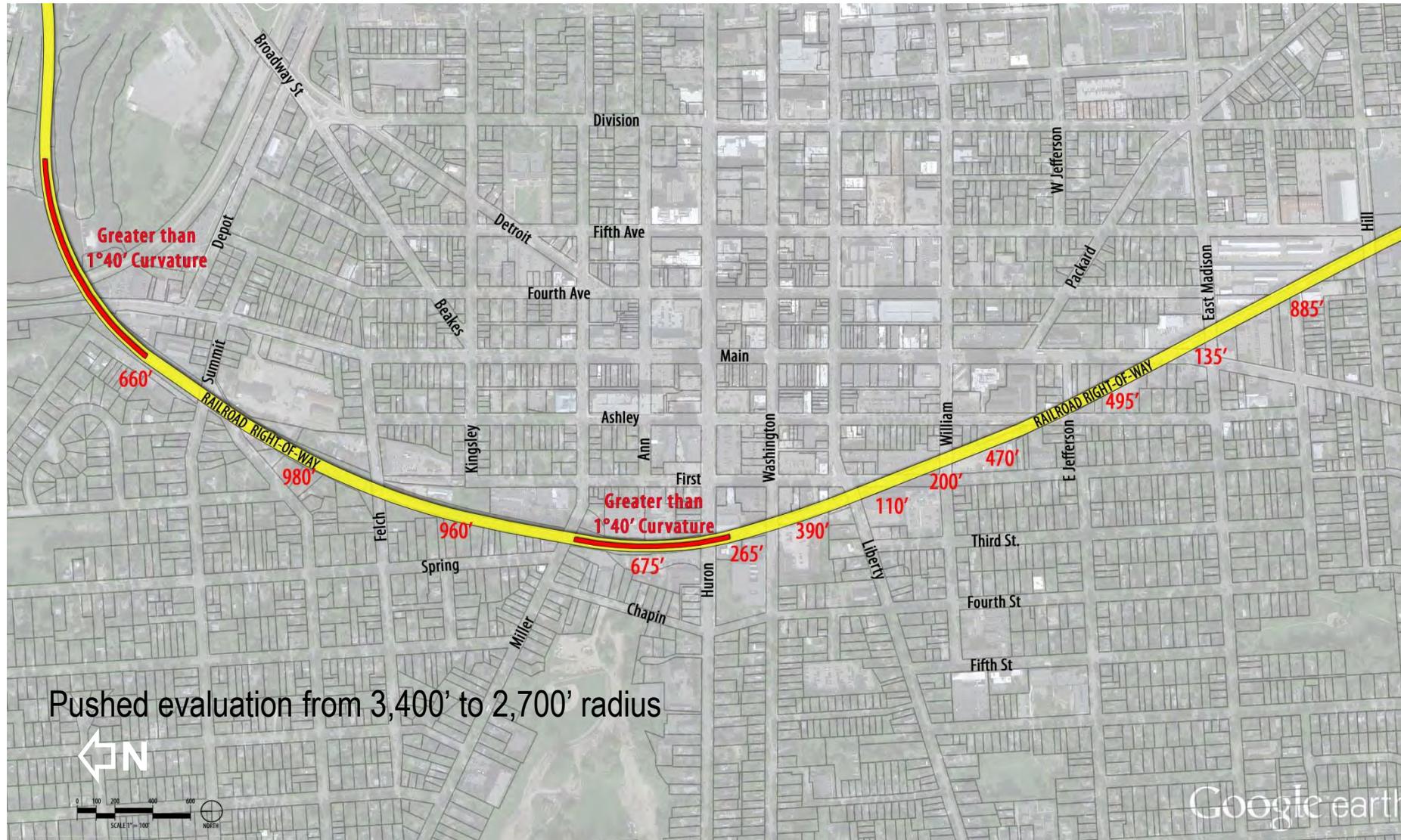
- *Metra* Commuter Rail Station Guidelines and Standards 8/29/2007*
- *Passenger rail cars are a 60' tangent between trucks (wheels):*
 - *middle of car is closer to platform than ends of car on inside of curve*
 - *middle of car is further from platform than ends of car on outside of curve*



* Metra is the commuter rail authority in the Chicago metropolitan area.

Evaluation of Downtown Ann Arbor North-South Commuter Station Sites

Physical/Operational Requirements: Preference for maximum 1° 40' track curvature (+/- 3,400' radius)



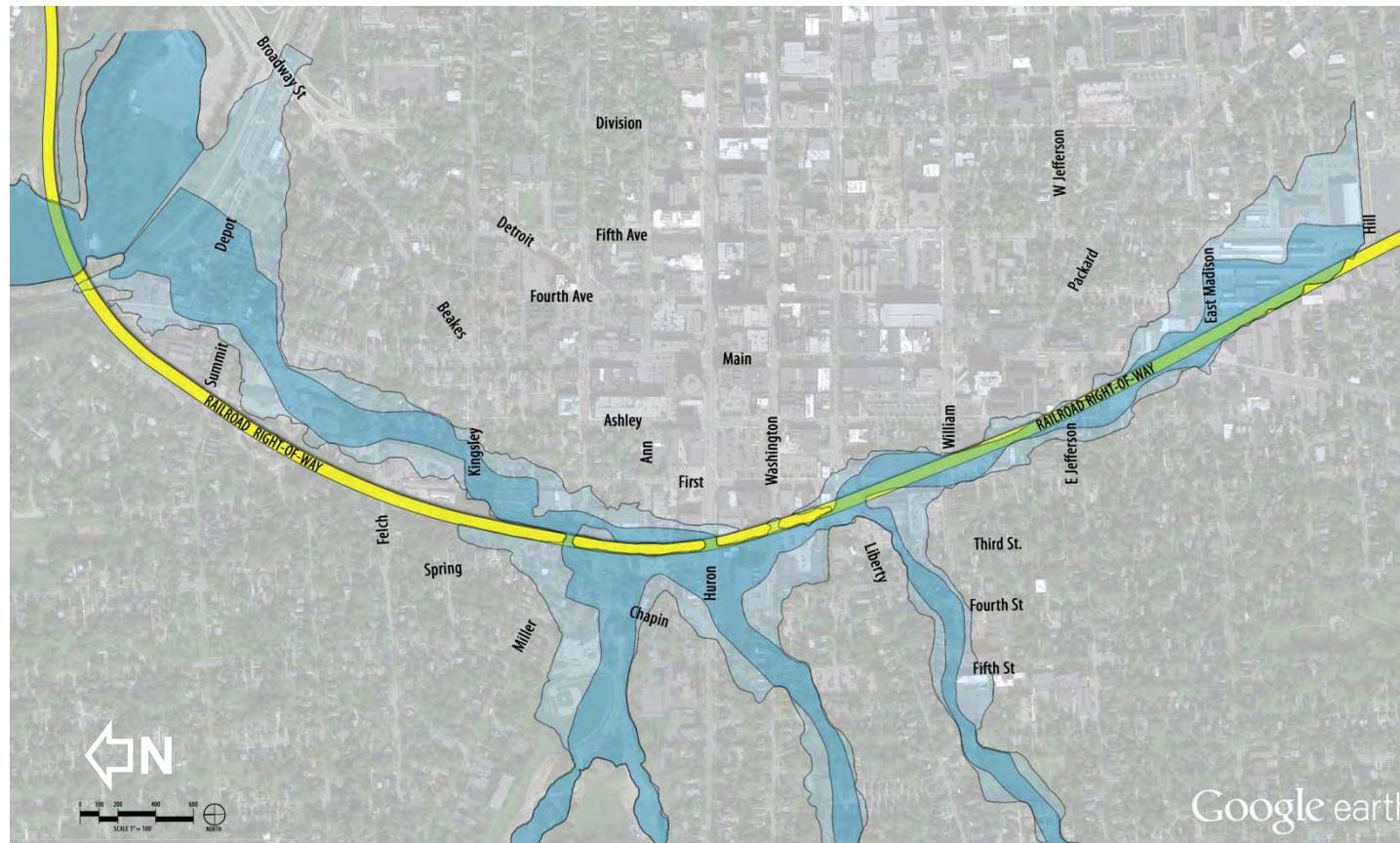
A majority of the corridor within the project limits is less than the preferred maximum track curvature. Two segments, one on the curve at the bridge over the Argo Dam and the other between Miller and Washington are eliminated from the study.

Pushed evaluation from 3,400' to 2,700' radius

Evaluation of Downtown Ann Arbor North-South Commuter Station Sites

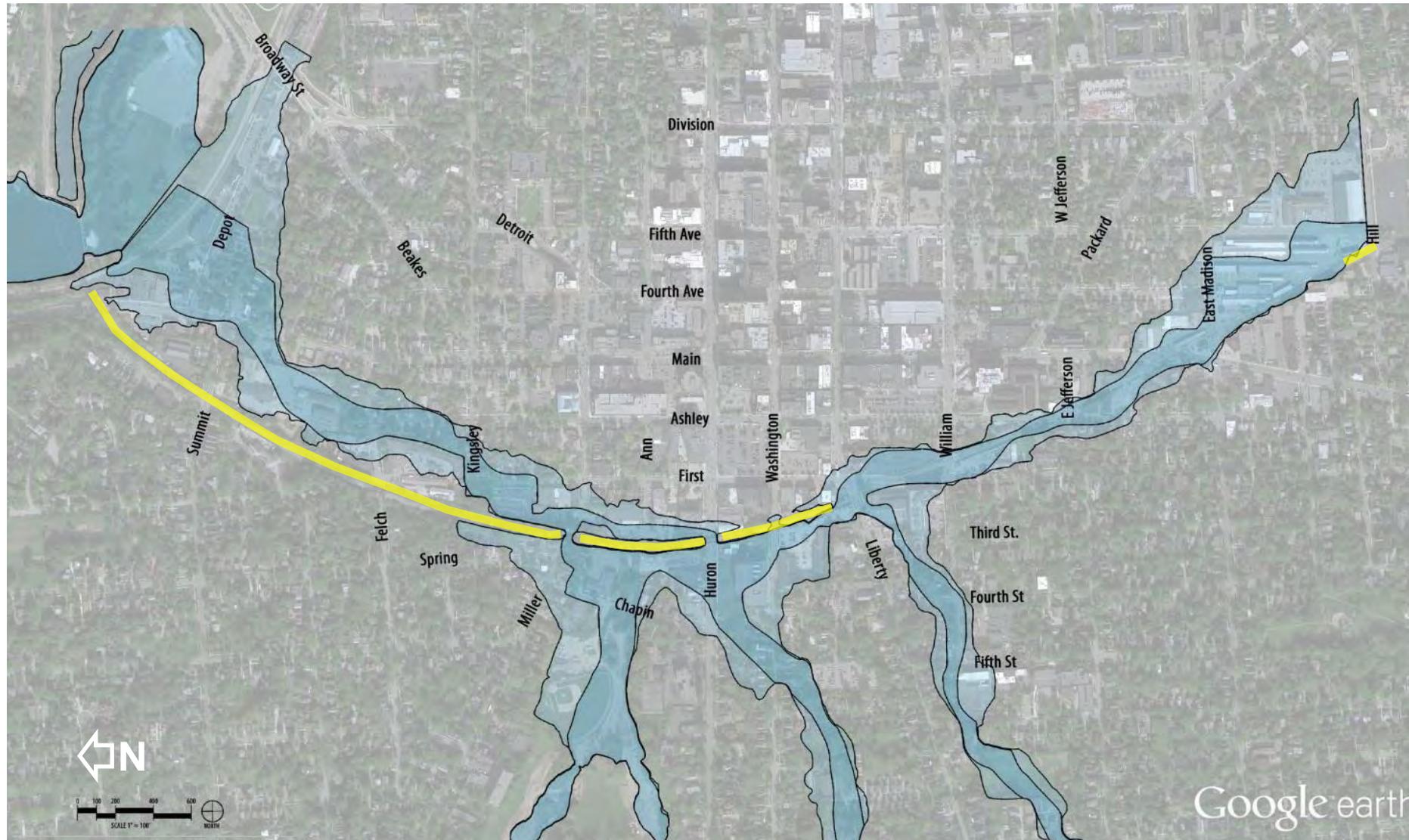
Physical/Operational Requirements: Preference for no at-grade track in the Allen Creek floodplain

- *Difficult to permit platform/shelter construction in floodplain*
- *Requires floodway analysis and compensatory cut*
- *Allen Creek from William Street to Huron River outlet under Michigan Department of Environmental Quality (MDEQ) jurisdiction*



Evaluation of Downtown Ann Arbor North-South Commuter Station Sites

Physical/Operational Requirements: Preference for no at-grade track in the Allen Creek floodplain

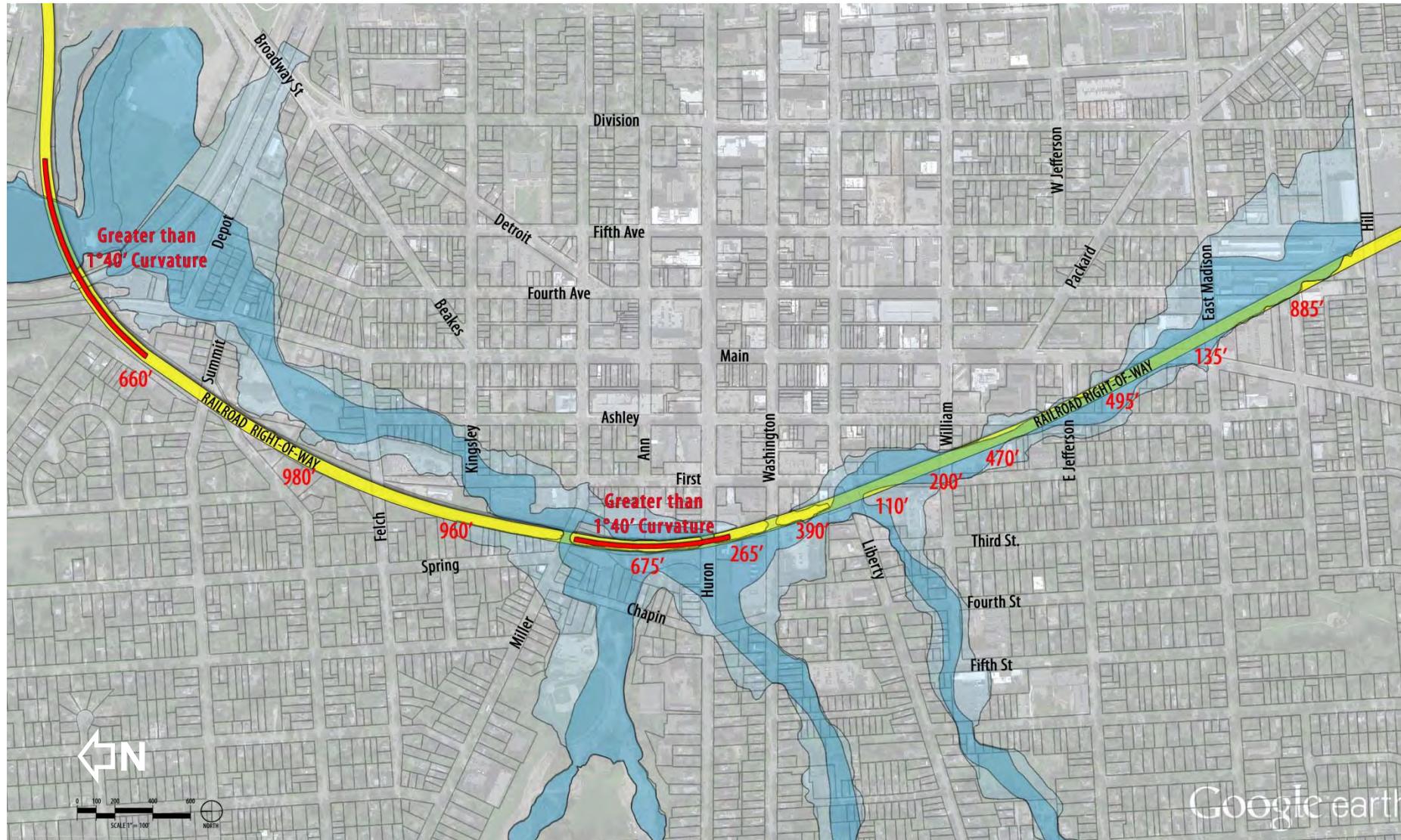


The northern half of the corridor is elevated on an embankment above the Allen Creek floodplain. The tracks come down to existing grade at Liberty and extend at grade to Hill St.

The segments shown in yellow meet the criteria for no at-grade track in the Allen Creek floodplain

Evaluation of Downtown Ann Arbor North-South Commuter Station Sites

Physical/Operational Requirements: Summary

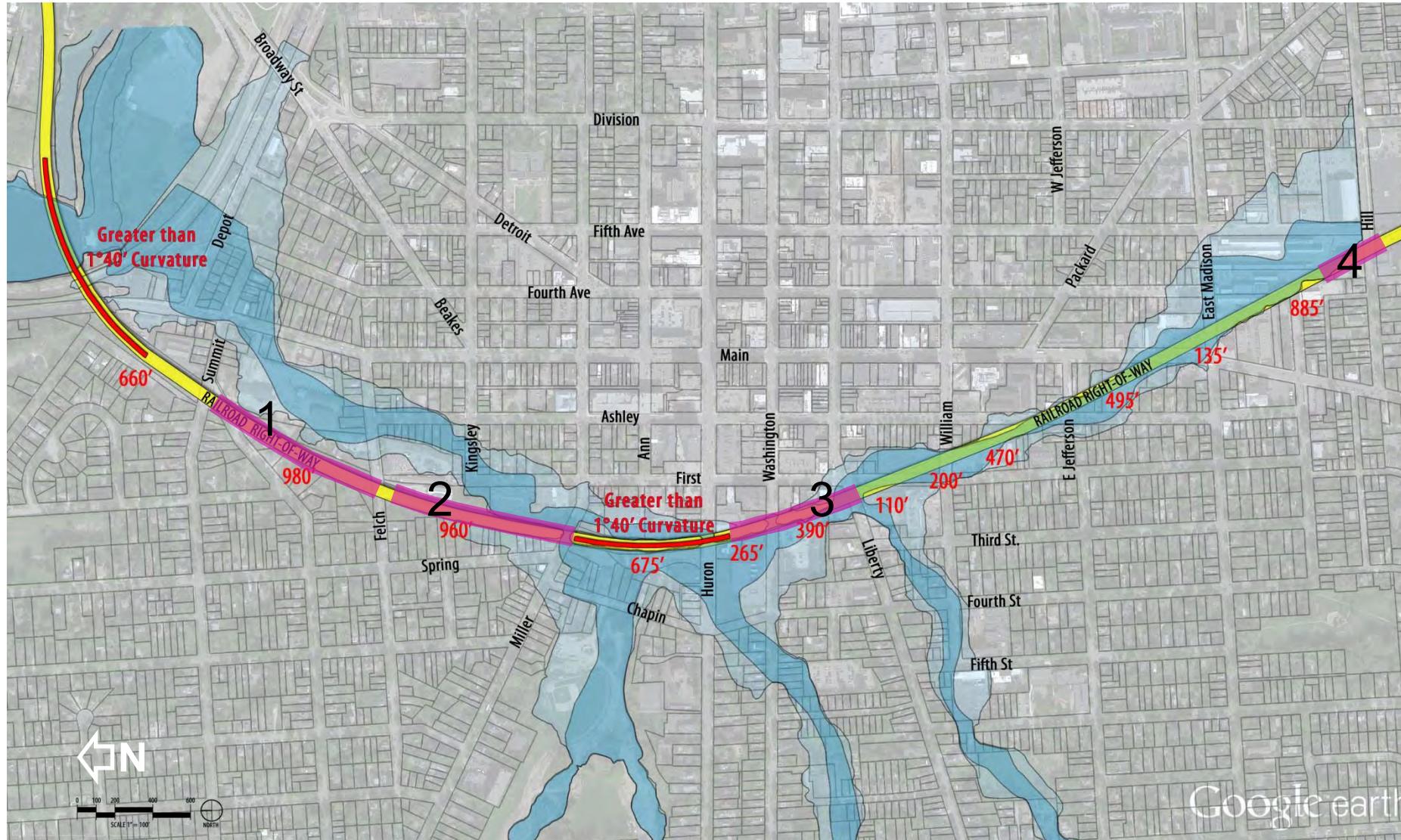


Overlaying the data associated with the three physical/operation requirements allows identification of segments that are suitable for a commuter rail station.

Evaluation of Downtown Ann Arbor North-South Commuter Station Sites

Physical/Operational Requirements: Summary

 Segments that meet minimum criteria



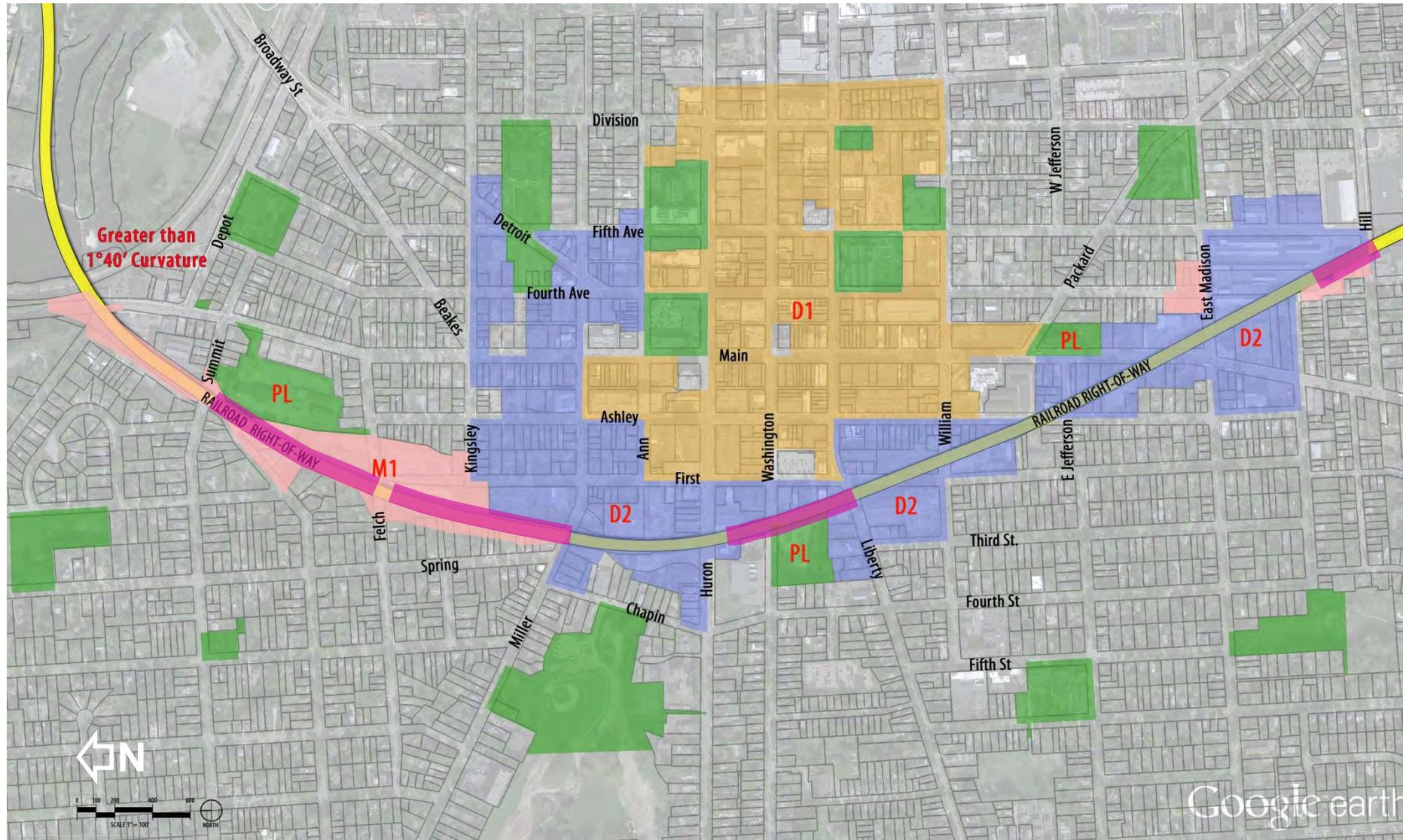
Based on the preference for:

- 645' platform/clear zone footprint
- maximum 1° 40' track curvature (3,400' radius)
- no at-grade track in the Allen Creek floodplain,

four segments were identified that met the minimum criteria. Parcels adjacent to these segments will be evaluated as potential station site alternatives.

Evaluation of Downtown Ann Arbor North-South Commuter Station Sites

Zoning



Zoning adjacent to the proposed segments could be an important element in selecting potential sites as it relates to anticipated future use and recommended development density.

- D1 – Downtown Core
- D2 – Downtown Interface
- M1 – Limited Industrial
- PL – Public Land

Evaluation of Downtown Ann Arbor North-South Commuter Station Sites

Walking Distance



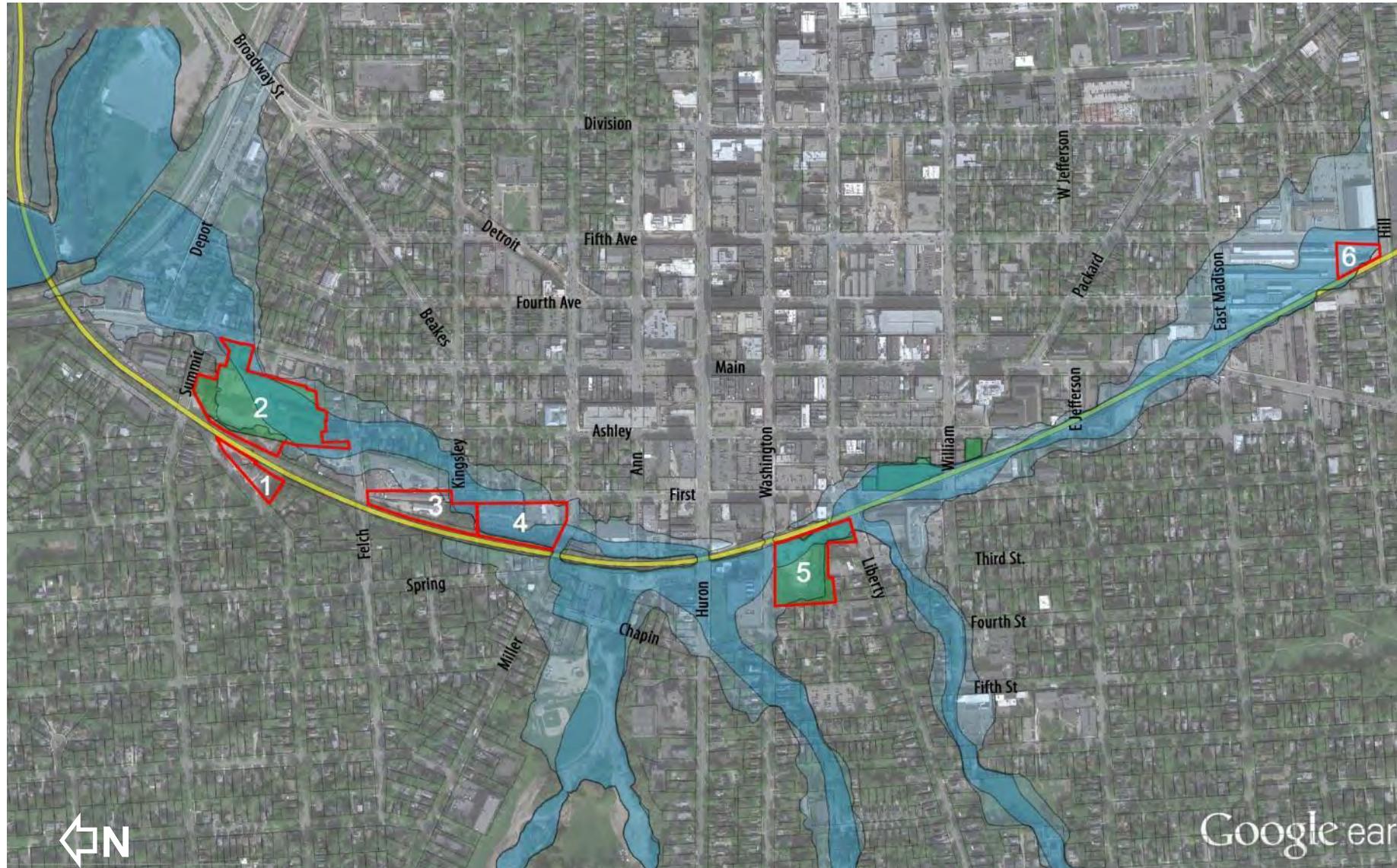
The Blake Transit Center on Fourth Ave. was used as the central point to estimate walking radius. This comparison provides an assessment of walking time from each of the identified segments. While the Blake Transit Center may not be the geographic center of the city, it could be a destination for commuters seeking transit service to sites beyond an easy walking distance. University of Michigan Hospital employees will likely utilize the proposed station at Barton Road where buses are planned to pick them up.

Evaluation of Downtown Ann Arbor North-South Commuter Station Sites

Identification of Alternative Sites

Evaluation of Downtown Ann Arbor North-South Commuter Station Sites

Identification of Alternative Sites



An analysis of parcels adjacent to the four segments that met the minimum physical/operational requirements yielded six potential sites for a downtown Ann Arbor North-South Commuter Rail station. Each site was selected for its ability to accommodate some level of station development outside of the rail ROW with minimal impacts or displacements.

Evaluation of Downtown Ann Arbor North-South Commuter Station Sites

Site Alternative 1: Hiscock



Existing Use

Commercial vehicle towing operation

Pro

- At-grade rail access
- Adjacent zoning:
 - M1 – Limited Industrial
 - PL – Public Land

Con

- Privately-owned parcel(s)
- Hiscock – Local road
- Single-family neighborhood to north and west

Other

- 18 min. walk to downtown

Evaluation of Downtown Ann Arbor North-South Commuter Station Sites

Site Alternative 2: 721 North Main



721 North Main was historically used by the City's Department of Public Works as a fleet maintenance yard. The use has been relocated and a portion of the site is now used for daily parking. Recently, Ann Arbor City Council formed the North Main-Huron River Vision Task Force and charged them with identifying improvements for the North Main corridor, which includes 721 North Main. Their recommendation for this parcel is found on the next page

721 North Main Conceptual Site Plan

North Main-Huron River Vision Task Force / July, 2013



The North Main-Huron River Vision Task Force identified a proposed use for a 721 North Main that includes a passive park on a majority of the site. However, the task force determined the northwest corner of the property should be designated as a “Future Use Zone”. As part of this study, the western-most portion of this area, shaded in red, would be considered for development of a commuter rail station.

Evaluation of Downtown Ann Arbor North-South Commuter Station Sites

Site Alternative 2: 721 North Main



Pro

- City-owned parcel
- Adjacent zoning:
 - M1 – Limited Industrial
 - PL – Public Land

Con

- Elevated/steep embankment
- Poor vehicular access/circulation
- Single-family neighborhood to north and west

Other

- Summit – Collector road
- 15 min. walk to downtown

Evaluation of Downtown Ann Arbor North-South Commuter Station Sites

Site Alternative 3: Felch



Existing Use

Wholesale panel and lumber sales

Pro

- Adjacent zoning:
 - M1 – Limited Industrial
 - D2 – Downtown Interface

Con

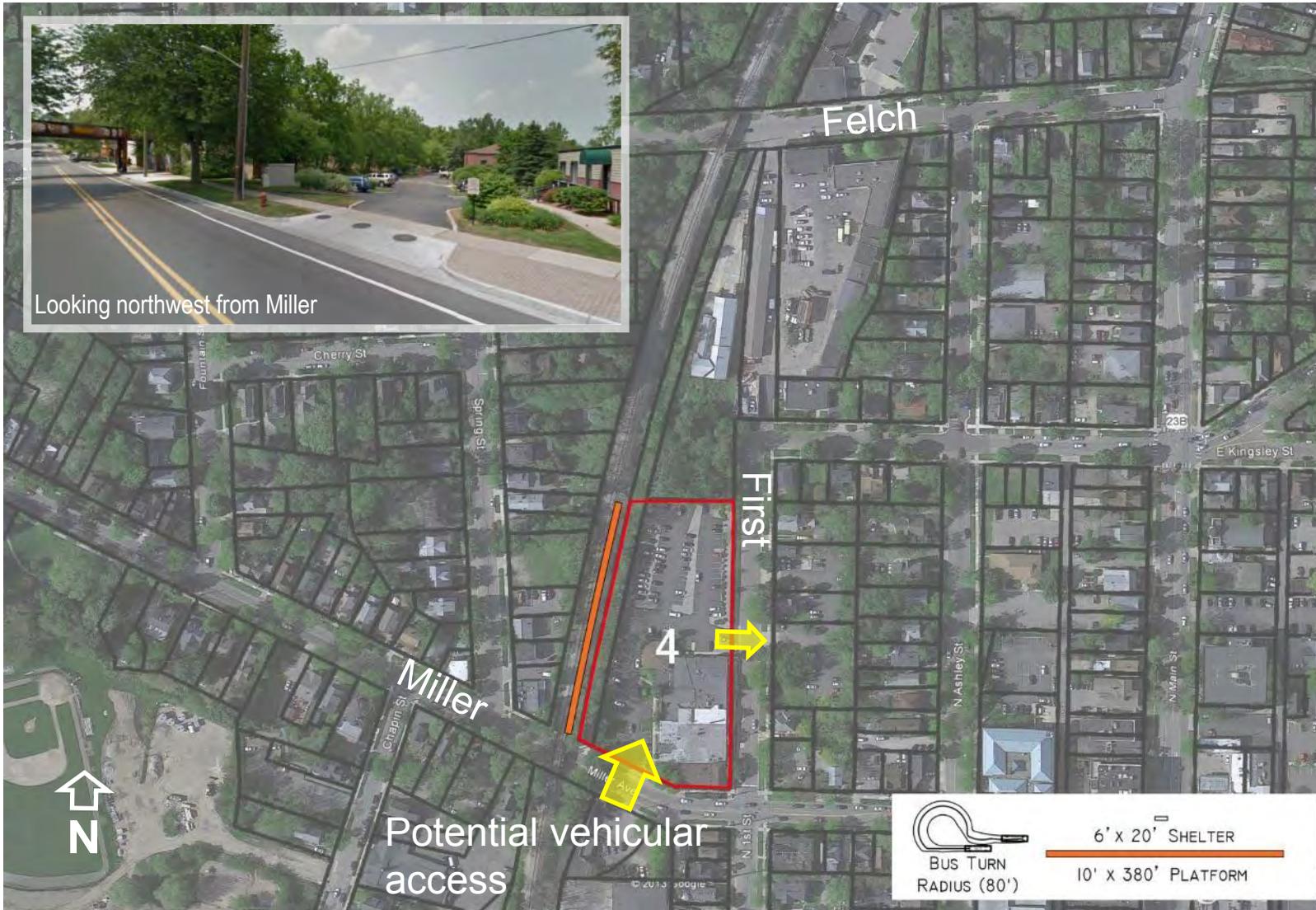
- Privately-owned parcel(s)
- Elevated/steep embankment
- No at-grade rail access
- Poor vehicular access/circulation would require building demolition
- Single-family neighborhood to west

Other

- Felch – Local road
- 15 min. walk to downtown

Evaluation of Downtown Ann Arbor North-South Commuter Station Sites

Site Alternative 4: Miller



Existing Use

Multi-office facility

Pro

- Good vehicular access/circulation but could affect existing parking
- Adjacent zoning:
 - M1 – Limited Industrial
 - D2 – Downtown Interface
 - C1 – Local Business

Con

- Privately-owned parcel
- Elevated/steep embankment
- No at-grade rail access

Other

- Miller – Minor Arterial road
- 12 min. walk to downtown

Evaluation of Downtown Ann Arbor North-South Commuter Station Sites

Site Alternative 5: Washington/Liberty (platform west)



Pro

- City-owned parcel to west
- At-grade rail access at Liberty
- Good vehicular access/circulation
- Adjacent zoning:
 - D2 – Downtown Interface
 - PUD – Planned Unit Development
 - PL – Public Land

Con

- Elevated/steep embankment midway between Liberty/Washington
- The 10'6" clearance on the Washington St. overpass limits bus circulation to the east
- Single-family neighborhood to west
- Commuters with downtown destinations must cross Tracks

Other

- Liberty – Minor Arterial road
- Existing bus service on Liberty
- 7 min. walk to downtown

Evaluation of Downtown Ann Arbor North-South Commuter Station Sites

Site Alternative 5: Washington/Liberty (platform east)



Pro

- At-grade rail access at Liberty
- Commuters with downtown destinations don't cross tracks
- Good vehicular access/circulation
- Adjacent zoning:
 - D2 – Downtown Interface
 - PUD – Planned Unit Development
 - PL – Public Land

Con

- Elevated/steep embankment midway between Liberty/Washington

Other

- A minimal station could be developed w/i the rail ROW; a building outside of the ROW would require use of a private parcel.
- Liberty – Minor Arterial road
- Existing bus service on First
- 7 min. walk to downtown

Evaluation of Downtown Ann Arbor North-South Commuter Station Sites

Site Alternative 6: Hill



Existing Use

Commercial lumber sales

Pro

- At-grade rail access
- Good vehicular access
- Located on Connector route alternatives C and D
- Adjacent zoning:
 - M1 – Limited Industrial
 - D2 – Downtown Interface

Con

- Privately-owned parcel
- Single-family neighborhood to west

Other

- Hill – Collector road
- 9 min. walk to downtown

Evaluation of Downtown Ann Arbor North-South Commuter Station Sites

Site Selection Evaluation Criteria: Weighting/Scoring

An evaluation matrix was developed to evaluate and compare the qualities and characteristics of each of the alternative sites. Evaluation topics included the following:

- Environmental – relating to natural features such as wetland/woodlands and floodplain,
- Land & Land Use – relating to parcel ownership, adjacent land use and potential to generate economic development,
- Transportation – relating to proximity to transit, greenways and commute time, and
- Site Development – relating to site access, generalized site development costs, potential for expansion and proximity to parking.

Each of the criteria within the identified topics were weighted 1, 2 or 4 indicating their level of importance in the site selection process. This was followed by a scoring, from 1-3, for each criteria. This resulted in a sum of the total score as well as a weighted average providing a means to compare each site.

The evaluation criteria, weighting and scoring were reviewed by the Steering Committee and the public in a community meeting with minor revisions and clarifications made.

Evaluation of Downtown Ann Arbor North-South Commuter Station Sites

Site Selection Evaluation Criteria: Weighting/Scoring

	Weight (1, 2, 4)	Site 1 Summit			Site 2 N. Main/Summit			Site 3 Felch			Site 4 Miller			Site 5 Washington/Liberty			Site 6 Hill			Notes	
		Score (1-3)	Weighted Score	Notes	Score (1-3)	Weighted Score	Notes	Score (1-3)	Weighted Score	Notes	Score (1-3)	Weighted Score	Notes	Score (1-3)	Weighted Score	Notes	Score (1-3)	Weighted Score	Notes		
1 Environmental																					
1.1	Wetlands/Woodlands	1.0	3.0	3.0	None	3.0	3.0	None	3.0	3.0	None	3.0	3.0	None	3.0	3.0	None	3.0	3.0	None	None=3, less than 1/2 acre=2, more than 1/2 acre=1
1.2	Floodplain ¹	1.0	3.0	3.0	None	2.0	2.0	Elevated track in floodplain	2.0	2.0	Elevated track in floodplain	2.0	2.0	Elevated track in floodplain	2.0	2.0	Elevated + at-grade track in floodplain	3.0	3.0	None	None=3, less than 1/2 acre=2, more than 1/2 acre=1
2 Land & Land Use																					
2.1	Number of Parcels Required	1.0	3.0	3.0	3 parcels (1 owner)	3.0	3.0	1 parcel	2.0	2.0	2 parcels (3 for expansion)	2.0	2.0	2 parcels	3.0	3.0	1 parcel	3.0	3.0	1 parcel	One=1, two=2, more than two=3
2.2	Parcel Ownership	4.0	1.0	4.0	Private	2.0	8.0	Rail	1.0		Private	1.0	4.0	Private	3.0	12.0	Public	1.0	4.0	Private	Public ownership=3, rail ownership=2, private ownership=1
2.3	Adjacent Land Use	2.0	2.0	4.0	M1	2.0	4.0	M1/FL	2.0	4.0	M1	2.0	4.0	D2	2.0	4.0	D2	2.0	4.0	D2	D2 or M1=2, residential=1
2.4	Potential to generate economic development	4.0	1.0	4.0	Surrounding R2A would limit	2.0	8.0	Surrounding PL/CL could accommodate	2.0	8.0	M1 could accommodate addl parcel required	3.0	12.0	D2 promotes	3.0	12.0	D2 promotes	2.0	8.0	D2/M1 promotes but floodplain restricts	Consider capacity of surrounding land uses and zoning. D2 or M1=3, PL or CL=2, residential=1
3 Transportation																					
3.1	Distance to Blake Transit Center (travel time (walking) ²)	4.0	1.0	4.0	4,800 ft/15 min	2.0	8.0	4,200 ft/15 min	2.0	8.0	4,100 ft/15 min	2.0	8.0	3,200 ft/12 min	3.0	12.0	1,800 ft/7 min	3.0	12.0	2,400 ft/9 min	<10 min=3, 10-15 min=2, >15 min=1
3.2	Distance to closest proposed Connector station (walking)	4.0	2.0	8.0	Connector Alt B	2.0	8.0	Connector Alt B	2.0	8.0	Connector Alt B	3.0	12.0	Connector Alt B	3.0	12.0	Connector Alt B	3.0	12.0	Connector Alts A, C, D, E, F	<10 min=3, 10-15 min=2, >15 min=1
3.3	Access to Bus Routes	4.0	1.0	4.0	Hiscock; Local Road	2.0	8.0	Collector	1.0	4.0	Felch; Local Road	3.0	12.0	Miller; Minor Arterial	3.0	12.0	Washington; Local Road	2.0	8.0	Hill; Collector	From National Functional Classification ⁴ : Principal/Minor Arterial=3, Collector=2, Local Road=1
3.4	Proximity to greenway/non-motorized system ³	2.0	2.0	4.0	Summit; Signed bike route proposed	2.0	4.0	N. Main; Bike lanes proposed	1.0	2.0	Felch; No bike facilities planned	2.0	4.0	Miller; Bike lanes proposed	3.0	6.0	Liberty; Existing bike lanes	2.0	4.0	Hill; Bike lanes proposed	Bike facilities existing=3, planned=2, none=1
3.5	Commute Time from arrival in A2	1.0	3.0	3.0	0 min added to trip time	3.0	3.0	0 min added to trip time	2.0	2.0	1 min added to trip time	2.0	2.0	1 min added to trip time	2.0	2.0	1 min added to trip time	1.0	1.0	2 min added to trip time	Add to arrival in Ann Arbor: 0 min=3, 1 min=2, 2 min=1
4 Site Development⁵																					
4.1	Site Access	2.0	2.0	4.0	Hiscock	2.0	4.0	Main/Summit	2.0	4.0	Felch	2.0	4.0	Miller	3.0	6.0	Liberty/Washington	3.0	6.0	Hill	Existing access=3, major modifications required or known traffic issues=2, none=1
4.2	Site Development	4.0	3.0	12.0	Site is at grade with road and rail	1.0	4.0	Steep embankment limits access	1.0	4.0	Steep embankment limits access	1.0	4.0	Steep embankment limits access	1.0	4.0	Elevated platform over Washington	3.0	12.0	Site is at grade with road and rail	Typical site development costs=3, moderate due to site issues=2, major due to site issues=3
4.3	Potential for Expansion	2.0	2.0	4.0		1.0	2.0		2.0	4.0		2.0	4.0		3.0	6.0		3.0	6.0	Expansion on site=3, difficult expansion on site or adjacent site=2, limited expansion=1	
4.4	Existing/Proposed Parking	1.0	1.0	1.0	Limited on street parking	1.0	1.0	Plans propose remove existing parking	1.0	1.0	Limited on street parking	1.0	1.0	Limited on street parking	3.0	3.0	Decks and surface lots within 500 feet	2.0	2.0	On street parking available	Adjacent, within 500 feet, within 1,000 feet
Total Score			30.0	65.0		30.0	70.0		26.0	56.0		31.0	78.0		40.0	99.0		36.0	88.0		
Weighted Average		37.0		1.76		1.89		1.51		2.11		2.68		2.38							
Notes/Assumptions:			5			4		6		3		1		2							
¹ Sites that would require construction in the floodplain were eliminated as part of the basic segment selection criteria. Sites with elevated tracks in the floodplain could potentially accommodate construction without floodplain impact and, therefore, are under consideration. ² Distance measured is via sidewalk, not straightline. An average walking speed of 3.1 mph (+/- 270 ft/min) was used in this calculation. ³ Although a specific alignment has not been determined for the Allen Creek Greenway, it is assumed that all of the alternative sites are proximate to its location and will accommodate its implementation. ⁴ National Functional Classification: Principal arterials provide the highest levels of mobility at the highest speeds. Minor arterials are similar in function to principal arterials, except they carry trips of shorter distance and to lesser traffic generators. Collectors generally provide a lower degree of mobility than arterials and have lower operating speeds. Local roads primarily provide access to property and have the lowest operating speeds. ⁵ It is assumed that the layover facility is located south of downtown Ann Arbor and that all rail and rail crossings will need to be improved.																					

Evaluation of Downtown Ann Arbor North-South Commuter Station Sites

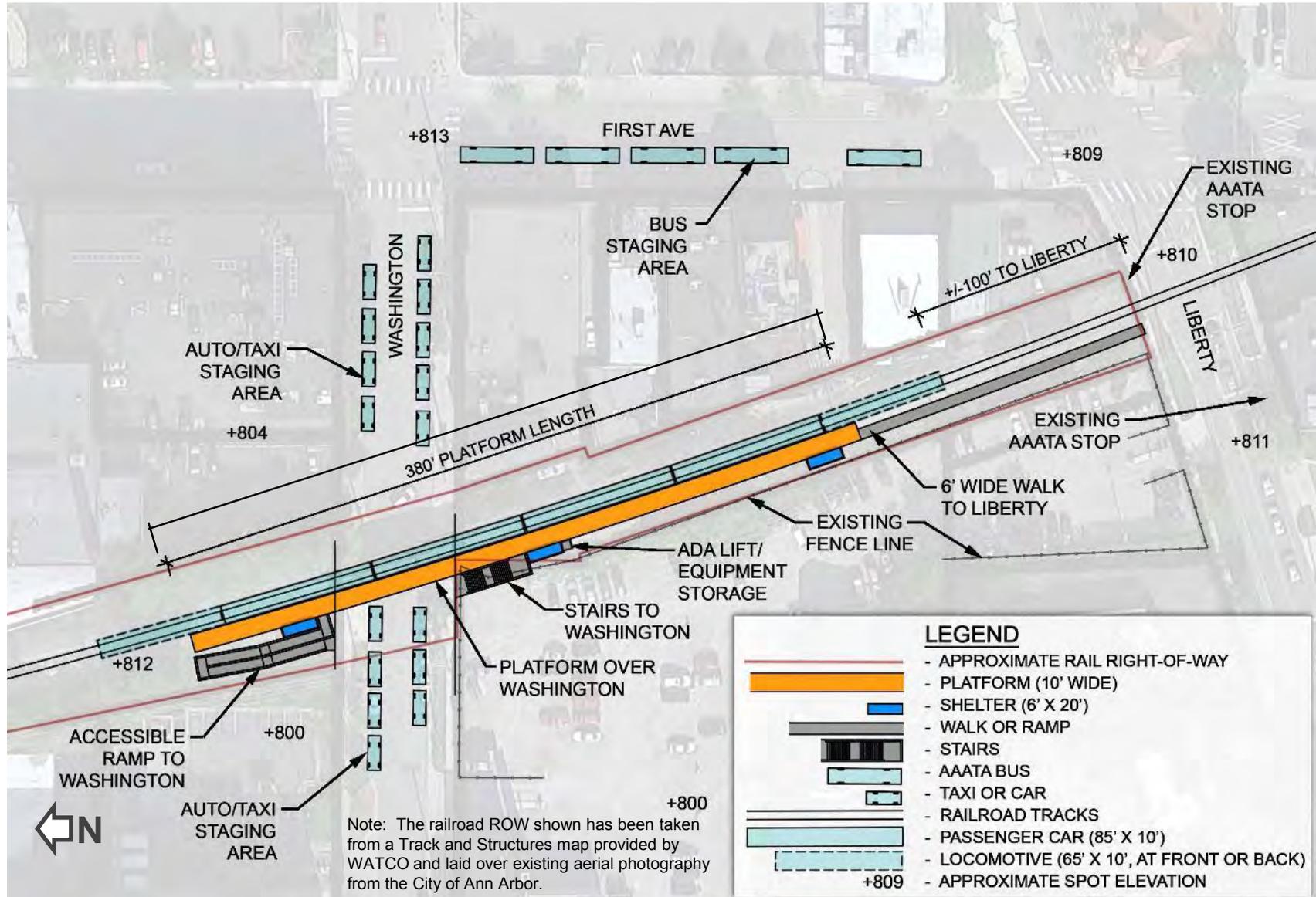
Preferred Site: Washington/Liberty

Highest Weighted Average

	Weight (1, 2, 4)	Site 1 Summit			Site 2 N. Main/Summit			Site 3 Felch			Site 4 Miller			Site 5 Washington/Liberty			Site 6 Hill			Notes
		Score (1-3)	Weighted Score	Notes	Score (1-3)	Weighted Score	Notes	Score (1-3)	Weighted Score	Notes	Score (1-3)	Weighted Score	Notes	Score (1-3)	Weighted Score	Notes	Score (1-3)	Weighted Score	Notes	
1 Environmental																				
1.1	1.0	3.0	3.0	None	3.0	3.0	None	3.0	3.0	None	3.0	3.0	None	3.0	3.0	None	3.0	3.0	None	None=3, less than 1/2 acre=2, more than 1/2 acre=1
1.2	1.0	3.0	3.0	None	2.0	2.0	Elevated track in floodplain	2.0	2.0	Elevated track in floodplain	2.0	2.0	Elevated track in floodplain	2.0	2.0	Elevated + at-grade track in floodplain	3.0	3.0	None	None=3, less than 1/2 acre=2, more than 1/2 acre=1
2 Land & Land Use																				
2.1	1.0	3.0	3.0	3 parcels (1 owner)	3.0	3.0	1 parcel	2.0	2.0	2 parcels (3 for expansion)	2.0	2.0	2 parcels	3.0	3.0	1 parcel	3.0	3.0	1 parcel	One=1, two=2, more than two=3
2.2	4.0	1.0	4.0	Private	2.0	8.0	Rail	1.0		Private	1.0	4.0	Private	3.0	12.0	Public	1.0	4.0	Private	Public ownership=3, rail ownership=2, private ownership=1
2.3	2.0	2.0	4.0	M1	2.0	4.0	M1/FL	2.0	4.0	M1	2.0	4.0	D2	2.0	4.0	D2	2.0	4.0	D2	D2 or M1=2, residential=1
2.4	4.0	1.0	4.0	Surrounding R2A would limit	2.0	8.0	Surrounding PL/CL could accommodate	2.0	8.0	M1 could accommodate addl parcel required	3.0	12.0	D2 promotes	3.0	12.0	D2 promotes	2.0	8.0	D2/M1 promotes but floodplain restricts	Consider capacity of surrounding land uses and zoning: D2 or M1=3, PL or CL=2, residential=1
3 Transportation																				
3.1	4.0	1.0	4.0	4,800 ft/15 min	2.0	8.0	4,200 ft/15 min	2.0	8.0	4,100 ft/15 min	2.0	8.0	3,200 ft/12 min	3.0	12.0	1,800 ft/7 min	3.0	12.0	2,400 ft/9 min	<10 min=3, 10-15 min=2, >15 min=1
3.2	4.0	2.0	8.0	Connector Alt B	2.0	8.0	Connector Alt B	2.0	8.0	Connector Alt B	3.0	12.0	Connector Alt B	3.0	12.0	Connector Alt B	3.0	12.0	Connector Alts A, C, D, E, F	<10 min=3, 10-15 min=2, >15 min=1
3.3	4.0	1.0	4.0	Hiscock; Local Road	2.0	8.0	Main: Principal Arterial, Access @ Summit; Collector	1.0	4.0	Felch: Local Road	3.0	12.0	Miller: Minor Arterial	3.0	12.0	Liberty: Minor Arterial, Washington: Local Road	2.0	8.0	Hill: Collector	From National Functional Classification ⁴ : Principal/Minor Arterial=3, Collector=2, Local Road=1
3.4	2.0	2.0	4.0	Summit: Signed bike route proposed	2.0	4.0	N. Main: Bike lanes proposed	1.0	2.0	Felch: No bike facilities planned	2.0	4.0	Miller: Bike lanes proposed	3.0	6.0	Liberty: Existing bike lanes	2.0	4.0	Hill: Bike lanes proposed	Bike facilities existing=3, planned=2, none=1
3.5	1.0	3.0	3.0	0 min added to trip time	3.0	3.0	0 min added to trip time	2.0	2.0	1 min added to trip time	2.0	2.0	1 min added to trip time	2.0	2.0	1 min added to trip time	1.0	1.0	2 min added to trip time	Add to arrival in Ann Arbor: 0 min=3, 1 min=2, 2 min=1
4 Site Development⁵																				
4.1	2.0	2.0	4.0	Hiscock	2.0	4.0	Main/Summit	2.0	4.0	Felch	2.0	4.0	Miller	3.0	6.0	Liberty/Washington	3.0	6.0	Hill	Existing access=3, major modifications required or known traffic issues=2, none=1
4.2	4.0	3.0	12.0	Site is at grade with road and rail	1.0	4.0	Steep embankment limits access	1.0	4.0	Steep embankment limits access	1.0	4.0	Steep embankment limits access	1.0	4.0	Elevated platform over Washington	3.0	12.0	Site is at grade with road and rail	Typical site development costs=3, moderate due to site issues=2, major due to site issues=3
4.3	2.0	2.0	4.0		1.0	2.0		2.0	4.0		2.0	4.0		3.0	6.0		3.0	6.0		Expansion on site=3, difficult expansion on site or adjacent site=2, limited expansion=1
4.4	1.0	1.0	1.0	Limited on street parking	1.0	1.0	Plans propose remove existing parking	1.0	1.0	Limited on street parking	1.0	1.0	Limited on street parking	3.0	3.0	Decks and surface lots within 500 feet	2.0	2.0	On street parking available	Adjacent: within 500 feet, within 1,000 feet
Total Score			30.0	65.0		30.0	70.0		26.0	56.0		31.0	78.0		40.0	99.0		36.0	68.0	
Weighted Average		37.0		1.76		1.89		1.51		2.11		2.68		2.38						
Notes/Assumptions:			5		4		6		3		1		2							
¹ Sites that would require construction in the floodplain were eliminated as part of the basic segment selection criteria. Sites with elevated tracks in the floodplain could potentially accommodate construction without floodplain impact and, therefore, are under consideration. ² Distance measured is via sidewalk, not straightline. An average walking speed of 3.1 mph (+/- 270 ft/min) was used in this calculation. ³ Although a specific alignment has not been determined for the Allen Creek Greenway, it is assumed that all of the alternative sites are proximate to its location and will accommodate its implementation. ⁴ National Functional Classification: Principal arterials provide the highest levels of mobility at the highest speeds. Minor arterials are similar in function to principal arterials, except they carry trips of shorter distance and to lesser traffic generators. Collectors generally provide a lower degree of mobility than arterials and have lower operating speeds. Local roads primarily provide access to property and have the lowest operating speeds. ⁵ It is assumed that the layover facility is located south of downtown Ann Arbor and that all rail and rail crossings will need to be improved.																				

Evaluation of Downtown Ann Arbor North-South Commuter Station Sites

Washington/Liberty Alternative 1: Minimal Station West



This option is based on development of the commuter rail station within the limits of the existing railroad ROW to the greatest extent possible with a 380' platform on the west side of the tracks and a 100' clear zone north of Liberty.

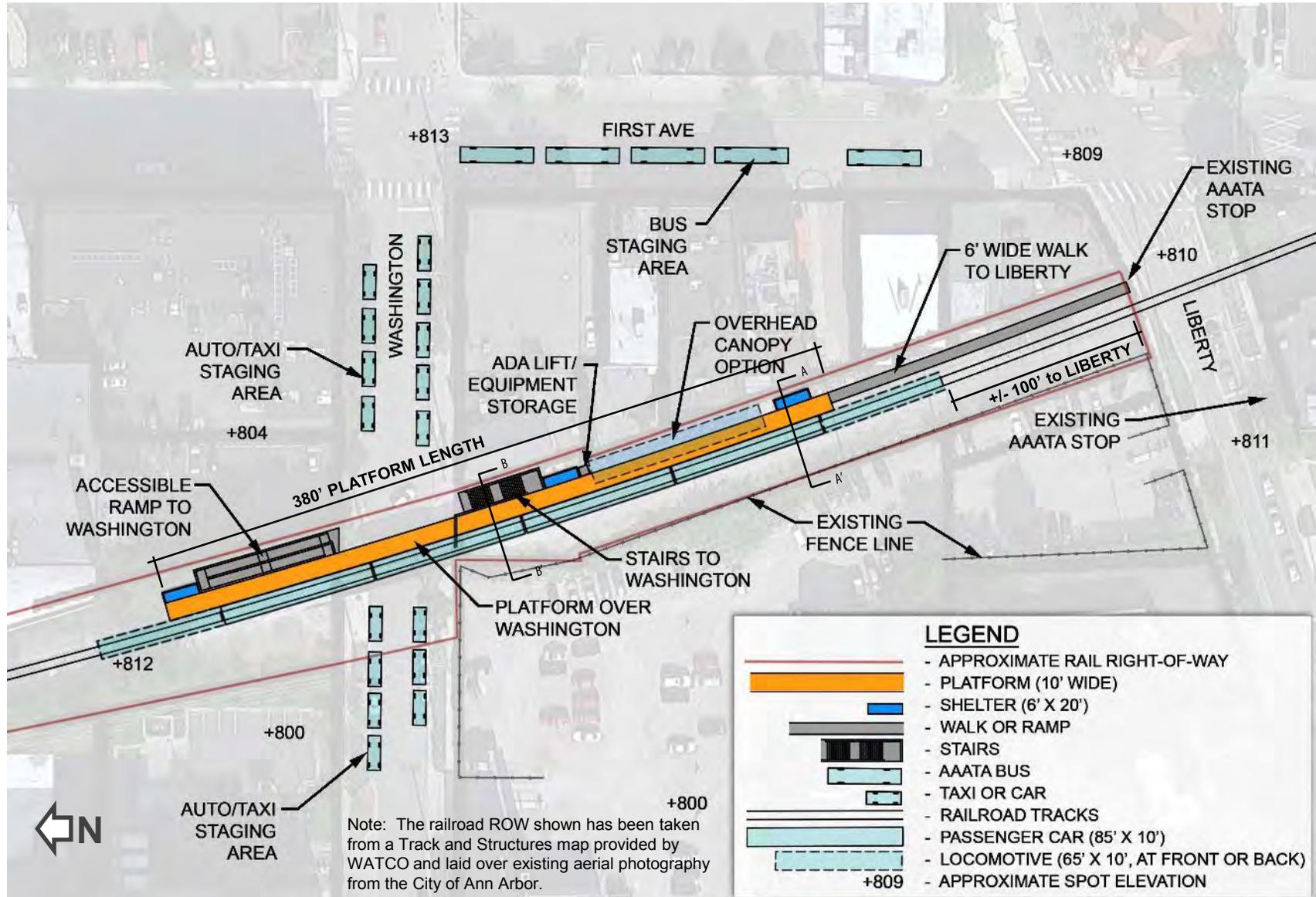
This option includes three shelters, one in the center and one at each end. The center shelter, elevated above grade, uses steps to access Washington or a walk parallel to the tracks to access Liberty. The steps would require construction outside of the railroad ROW within the Allen Creek floodway. The northern shelter uses a ramp, partially in the Allen Creek floodway, to access Washington while the southern shelter uses a walk parallel to the tracks to Liberty. Auto/taxi staging is located on Washington and bus staging occurs on First. Existing AAATA bus stops are accessed at Liberty.

As shown, this option could use either a pull or push mode, with the locomotive in the front or back, pushing or pulling the train cars depending on the direction of travel. This would also depend, among other things, on operational variables such as location of the midday layover facility.

This option has been eliminated due to construction needs outside of the railroad ROW and the potential for floodway impacts. As noted on pages 14 and 22, the floodway is much more extensive west of the tracks than east. In addition, the need for users accessing Liberty to cross over the tracks for downtown destinations creates a potential safety concern. Also, there have been long term discussions regarding use of the property west of the railroad to accommodate the proposed Allen Creek Greenway. While there are no definite plans for the greenway at this time, a west side station could interfere with future greenway construction.

Evaluation of Downtown Ann Arbor North-South Commuter Station Sites

Washington/Liberty Alternative 2: Minimal Station East



This option is based on development of the commuter rail station entirely within the limits of the existing railroad ROW with a 380' platform on the east side of the tracks and a 100' clear zone north of Liberty.

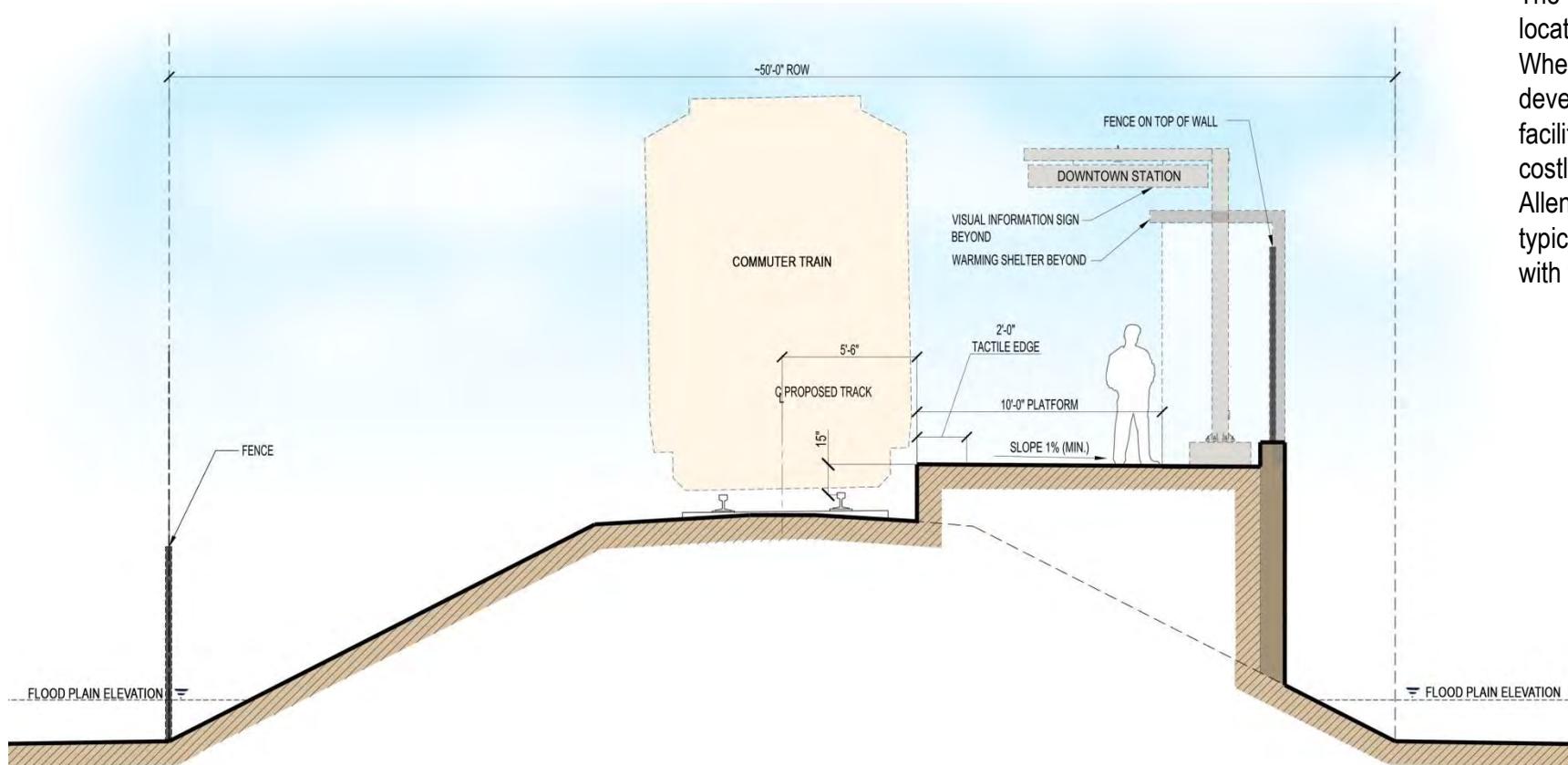
This option includes three shelters, one in the center and one at each end. The center shelter, elevated above grade, uses steps to access Washington, in an area where the ROW widens, or a walk parallel to the tracks to access Liberty. The northern shelter uses a ramp to access Washington while the southern shelter uses a walk to Liberty. Auto/taxi staging is located on Washington and bus staging occurs on First. Existing AAATA bus stops are accessed at Liberty.

As shown, this option could use either a pull or push mode, with the locomotive in the front or back, pushing or pulling the train cars depending on the direction of travel. This would also depend, among other things, on operational variables such as location of the midday layover facility.

This option is preferred over Option 1 because construction is limited to the railroad ROW, there are minimal floodplain impacts and riders with destinations downtown are not required to cross the tracks.

Evaluation of Downtown Ann Arbor North-South Commuter Station Sites

Washington/Liberty Alternative 2: Minimal Station East - Section A-A' looking north @ platform

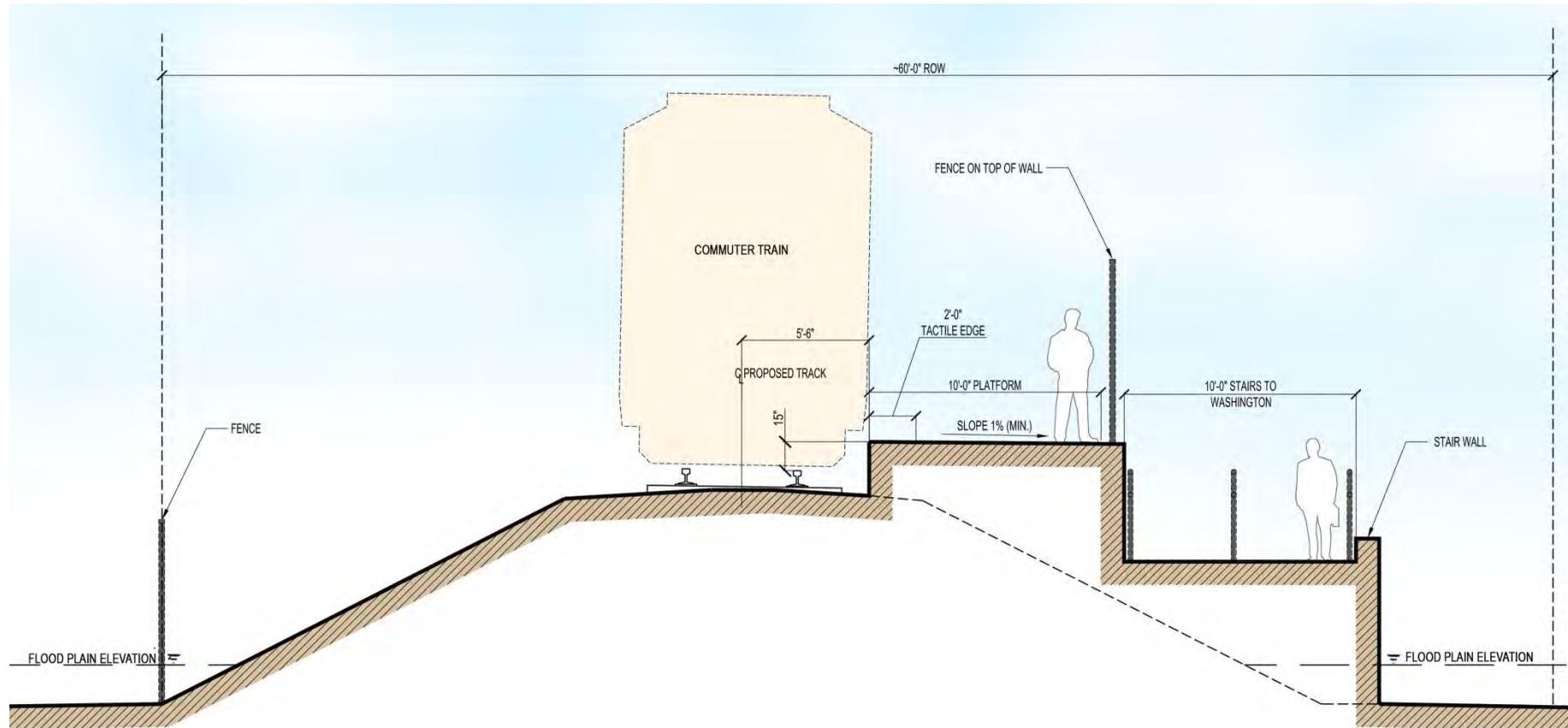


Note: The floodplain elevation shown is meant to represent the relationship between station improvements and the floodplain itself. It is not based on the established elevation in this location.

The northern half of this segment between Washington and Liberty is located on track elevated on an embankment above adjacent grade. Where this occurs, a retaining wall is required to create a space for development of the station and platform facilities. Alternatively, the facilities could be built on piles in this location as a potentially less costly solution. Such construction would prevent the need for fill in the Allen Creek floodplain. The dimensions identified in this section are typical for passenger rail stations located on rail lines that are shared with freight operations.

Evaluation of Downtown Ann Arbor North-South Commuter Station Sites

Washington/Liberty Alternative 2: Minimal Station East - Section B-B' looking north @ stairs



Note: The floodplain elevation shown is meant to represent the relationship between station improvements and the floodplain itself. It is not based on the established elevation in this location.

This section shows the stairs down to Washington north of the center platform in a location where the rail ROW widens to approximately 60 feet. There appears to be potential for minor floodplain impacts in this location. Construction projects within the floodplain require a permit from the Michigan Department of Environmental Quality (MDEQ). Flood flow may not be obstructed in a manner that causes a rise in flood elevations at the property line. The State, County, and City all require not net loss of flood storage capacity (i.e. no fill without compensatory cut). The extent of these impacts cannot be determined with the accuracy of the data available at this level of analysis.

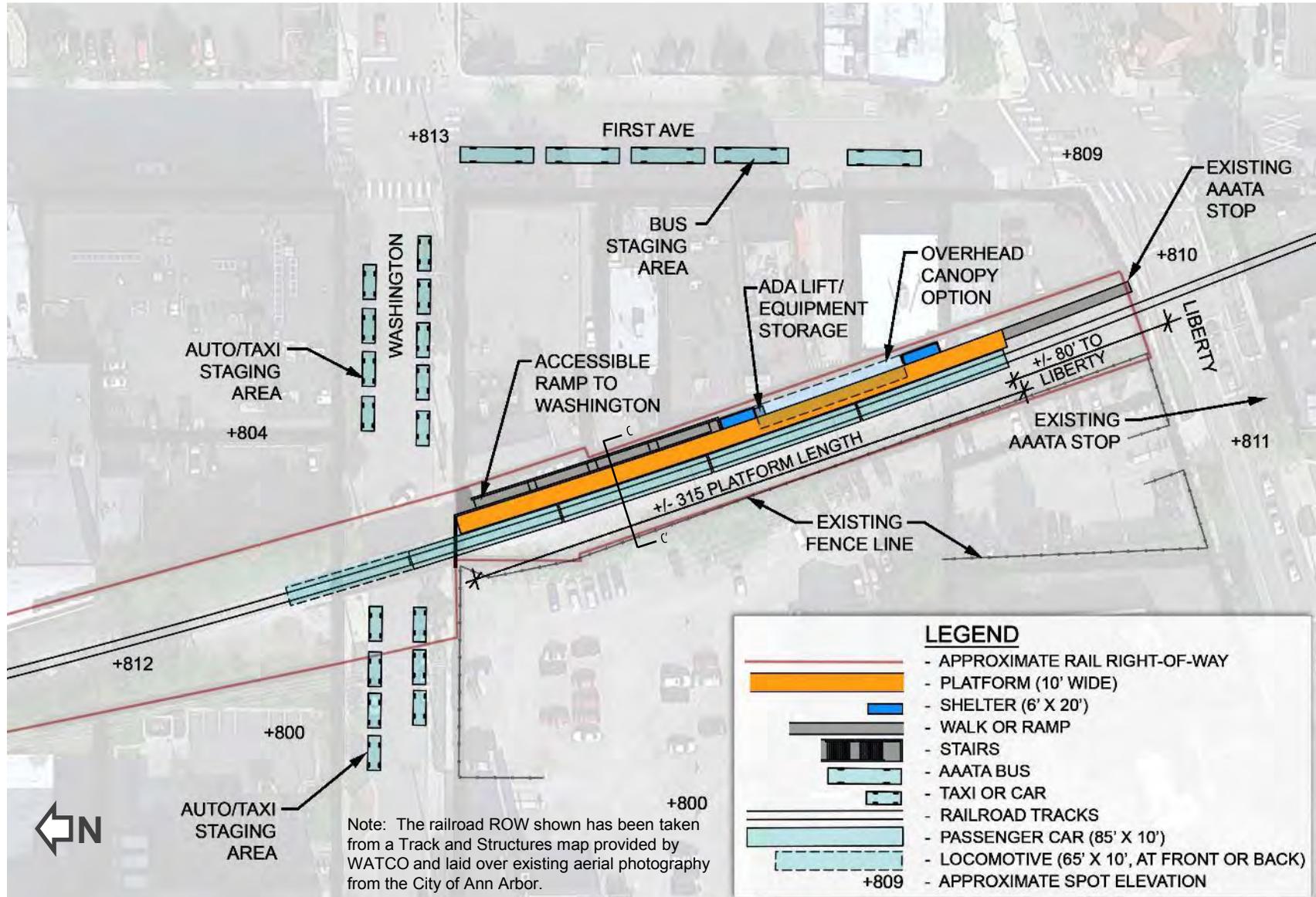


Floodway

Flood Fringe

Evaluation of Downtown Ann Arbor North-South Commuter Station Sites

Washington/Liberty Alternative 3: Minimal Station East (shortened platform)



A second option for station development on the east side of the tracks includes shortening the platform from 380' to approximately 315' to avoid significant costs associated with constructing an elevated platform over Washington. This option would also shorten the clear zone north of Liberty from 100' to 80'.

Operationally, this option would require a careful alignment of the passenger cars upon arrival to provide platform access. The center door of the last car would be aligned with the platform leaving the tail end of the car beyond. This option would also require a push mode for the locomotive in the morning commute and a pull mode in the evening commute in order to maximize passenger car alignment with the shorter platform.

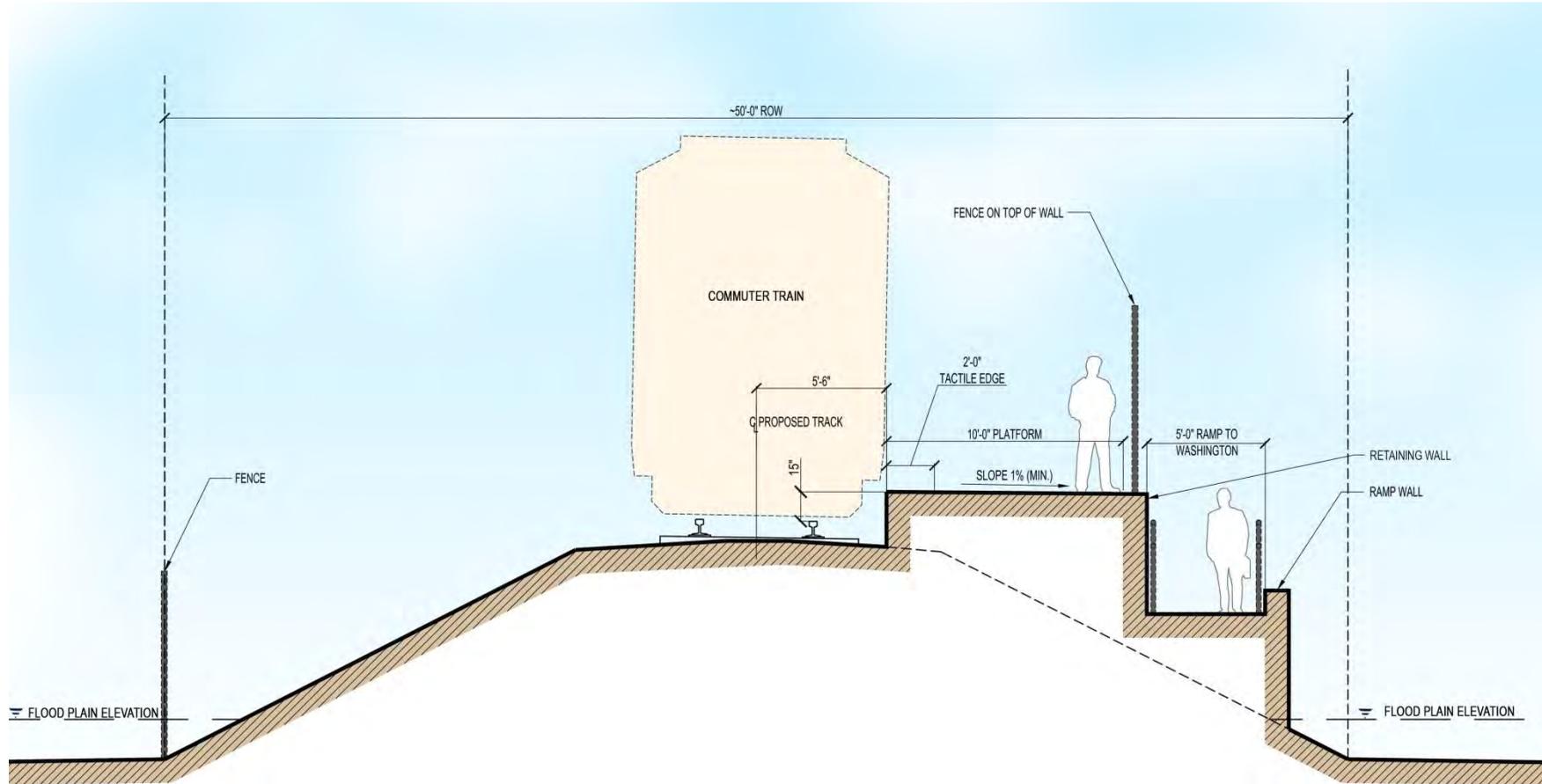
This option includes two shelters with a north ramp access to Washington and a south sidewalk to Liberty.

Auto/taxi staging is located on Washington and bus staging occurs on First. Existing AAATA bus stops are accessed at Liberty.

The benefit of this option is that it meets operational requirements while drastically reducing construction costs.

Evaluation of Downtown Ann Arbor North-South Commuter Station Sites

Washington/Liberty Alternative 3: Minimal Station East (shortened platform) - Section C-C' looking north @ ramp



Note: The floodplain elevation shown is meant to represent the relationship between station improvements and the floodplain itself. It is not based on the established elevation in this location.

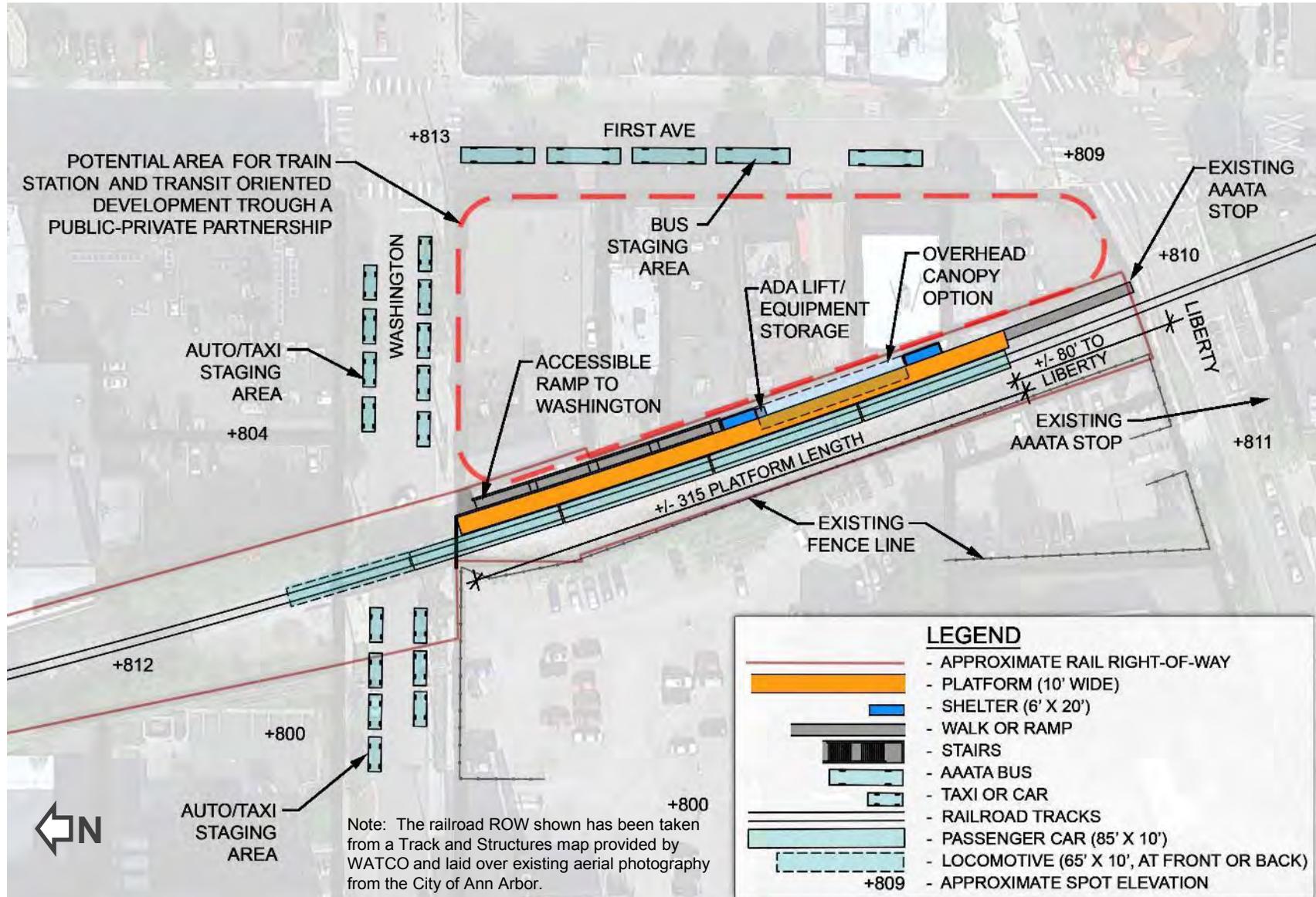
This section shows the ramp access to Washington north of the center platform. There appears to be potential for minor floodplain impacts in this location. Construction projects within the floodplain require a permit from the Michigan Department of Environmental Quality (MDEQ). Flood flow may not be obstructed in a manner that causes a rise if flood elevations at the property line. The State, County, and City all require not net loss of flood storage capacity (i.e. no fill without compensatory cut). The extent of these impacts cannot be determined with the accuracy of the data available at this level of analysis.



Floodway
Flood Fringe

Evaluation of Downtown Ann Arbor North-South Commuter Station Sites

Washington/Liberty Alternative 4: Station East w/ Public-Private Partnership

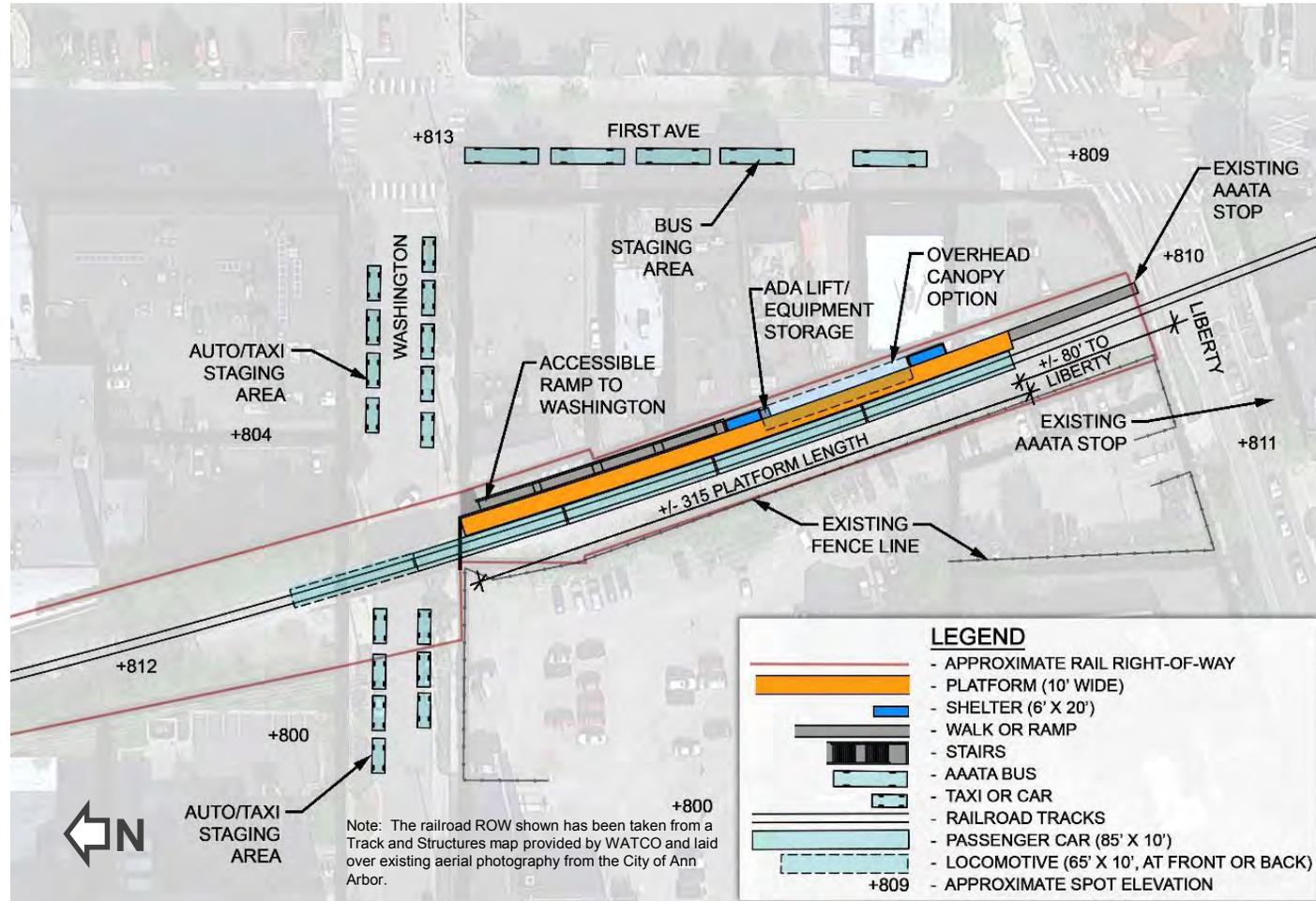


An alternative to development of a minimal train station within the limits of the railroad ROW is presented by the opportunity for a public-private partnership within a parcel on the block between Washington and Liberty and north of the railroad track. The partnership could be realized through shared use of the parcel with a station at track level, including ADA access from the street, and retail along the First Ave. frontage. Such a strategy could be the result of a rehab of an existing building or the redevelopment of an entire site and could potentially require coordination between the City and a private developer. Regardless of the coordination required, this would represent a very unique development opportunity that could stimulate additional development/redevelopment in this part of the City.

Under this option, it is anticipated that auto/taxi staging would be located on Washington and bus staging would occur on First although the specifics of the redevelopment proposal could include several different staging alternatives. Existing AAATA bus stops are accessed at Liberty.

Evaluation of Downtown Ann Arbor North-South Commuter Station Sites

Washington/Liberty Preferred Option: Minimal Station East (shortened platform)

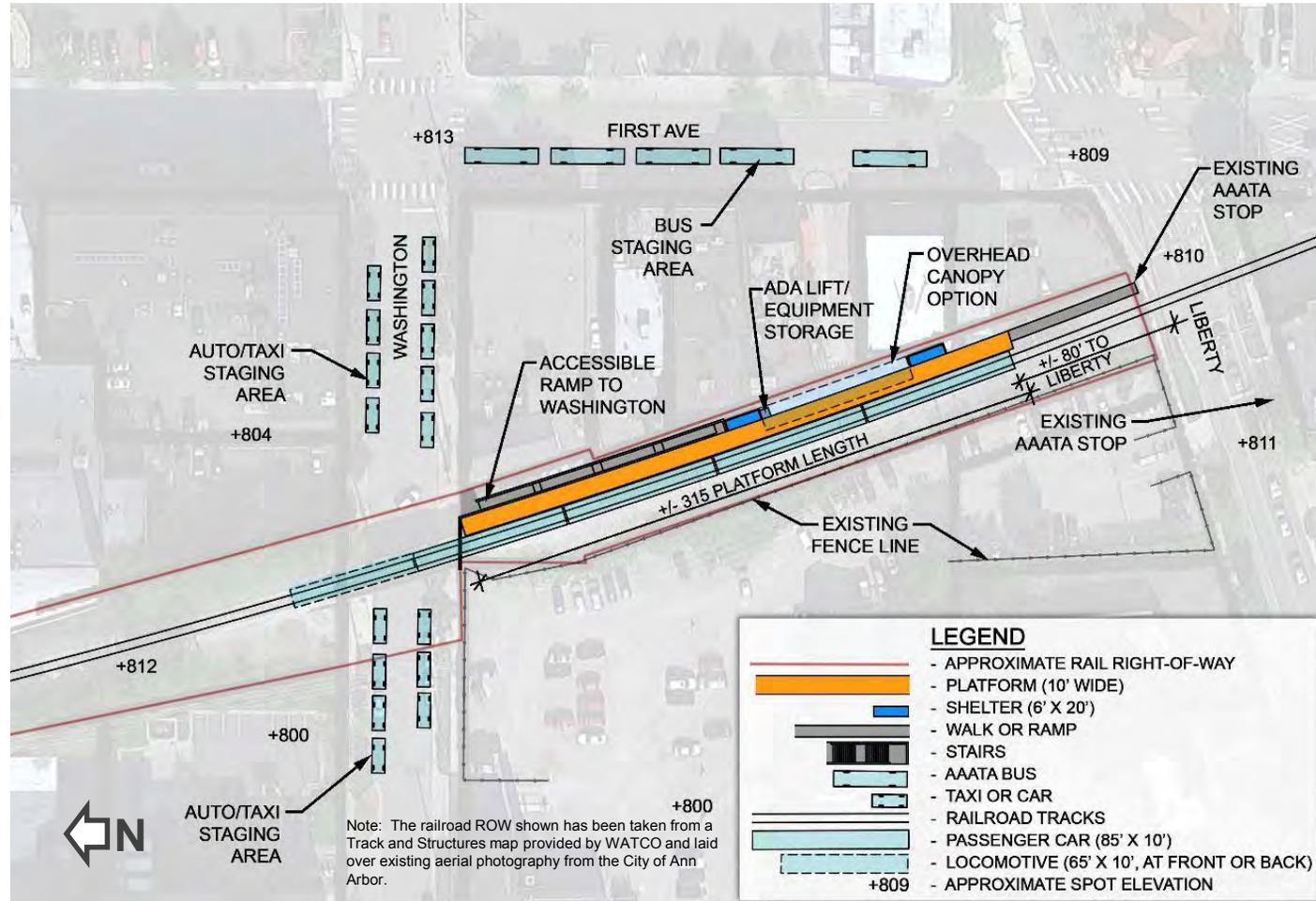


The Minimal Station East (shortened platform) was selected as the Preferred Option. As noted previously, the benefit of this option is that it meets operational requirements while drastically reducing construction costs.

A concept level estimate of probable construction costs has been prepared for the Minimal Station East (shortened platform) option. The planning efforts for this option have been based on aerial photo imagery and right-of-way data provided by WATCO. The probable construction costs shown on the next page are reflective of this level of base information. These costs are provided as a basis to understand the relative magnitude of construction and do not include any rail, signal or street improvements.

Evaluation of Downtown Ann Arbor North-South Commuter Station Sites

Washington/Liberty Preferred Option Summary

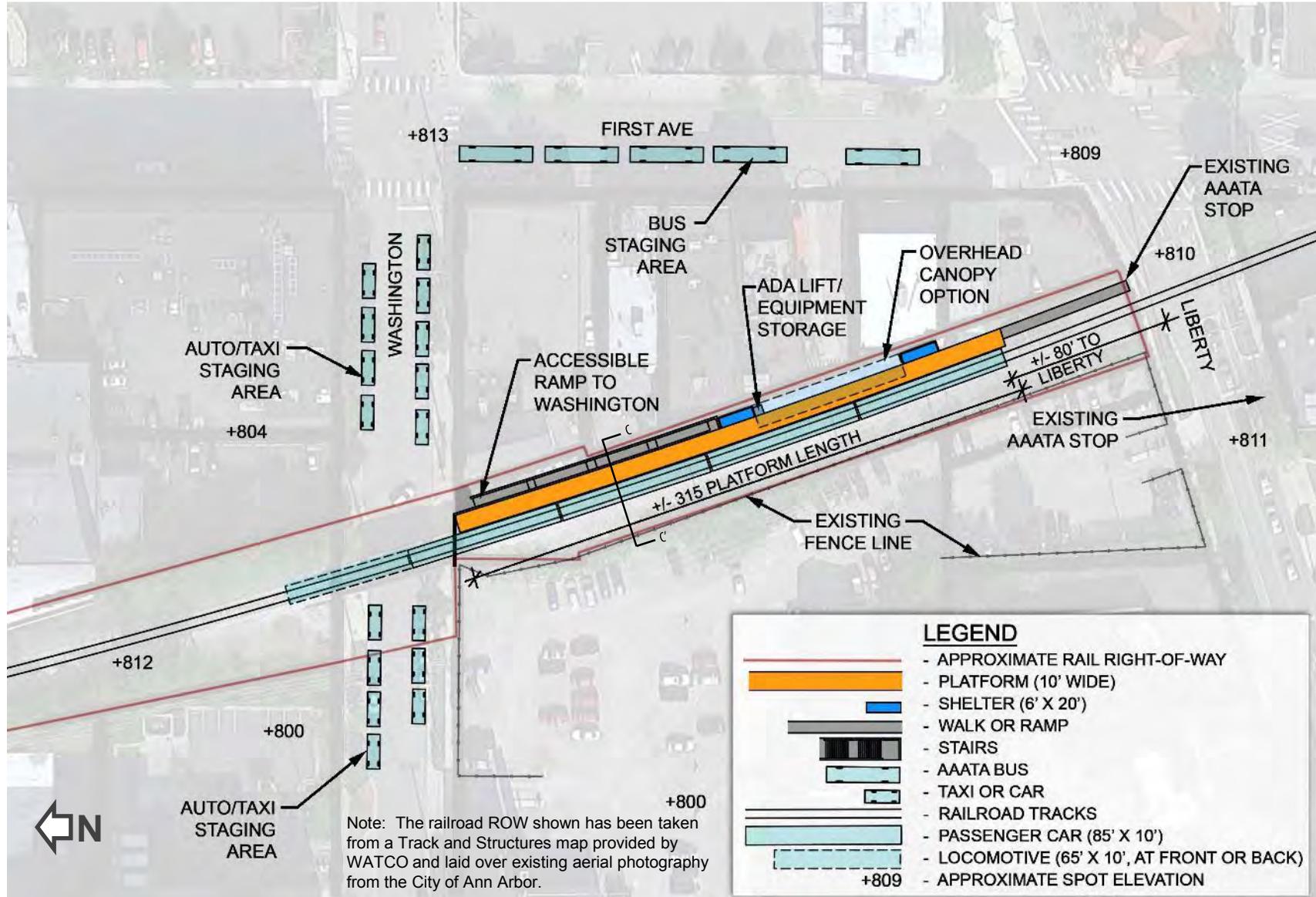


Concept Level Estimate of Probable Construction Costs

Item Description	Units	Unit Price	Quantity	Cost Subtotal
Mobilization	LS	\$20,000.00	1	\$20,000.00
Demolition	LS	\$15,000.00	1	\$15,000.00
Temporary Shoring	LS	\$150,000.00	1	\$150,000.00
Track Monitoring	LS	\$20,000.00	1	\$20,000.00
Flag Man Protection	LS	\$40,000.00	1	\$40,000.00
Concrete Walk	SF	\$6.00	750	\$4,500.00
Platform with Flip-Up Edge	SF	\$110.00	3150	\$346,500.00
Site Walls	SF	\$100.00	2010	\$201,000.00
Ramp to Washington	LS	\$150,000.00	1	\$150,000.00
Railing	LF	\$75.00	280	\$21,000.00
Fence	LF	\$150.00	400	\$60,000.00
Earthwork/Site Utilities	LS	\$40,000.00	1	\$40,000.00
Shelters	EA	\$20,000.00	2	\$40,000.00
Site Furnishing	LS	\$15,000.00	1	\$15,000.00
Lights	LS	\$40,000.00	1	\$40,000.00
Security	LS	\$25,000.00	1	\$25,000.00
Signage	LS	\$20,000.00	1	\$20,000.00
Landscape	LS	\$25,000.00	1	\$25,000.00
SUB-TOTAL				\$1,233,000.00
Survey, Borings and Engineering		15.00%	1	\$184,950.00
Permitting and Reviews & Construction Management		5.00%	1	\$61,650.00
Contingency		25.00%	1	\$308,250.00
TOTAL				\$1,787,850.00

Evaluation of Downtown Ann Arbor North-South Commuter Station Sites

Washington/Liberty Preferred Option Summary



The Minimal Station East is the preferred option for development of a commuter rail station in downtown Ann Arbor. This is the most cost effective approach to providing the required station elements including:

- Adequate platform length and stopping clearance distances
- Platform shelters and canopies
- ADA lift/equipment storage
- ADA accessible ramp/sidewalk connections to Washington and Liberty
- Auto/taxi and bus staging

Next steps required to advance development of this alternative include:

- Coordination with WATCO to approve plan layout and details.
- Completion of a property boundary and topographic survey to serve as a basis for design development.
- Design/engineering to prepare construction details.
- Coordination with WATCO for work within the railroad ROW.
- Permitting for potential construction within the Allen Creek flood plain.

A future option would include a public-private partnership that would focus on development of a train station along the tracks integrated with retail on the First Ave. frontage for one of the parcels between Washington and Liberty.

