



# The Treeline

## Allen Creek Urban Trail

**PHASE I ALIGNMENT STUDY**

JULY 2021





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**SMITHGROUP**



**BERGMANN**  
ARCHITECTS ENGINEERS PLANNERS

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1. Overview
2. Analysis + Design Parameters
3. Alignment Options
4. Route Evaluation
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# EXECUTIVE SUMMARY

## TREELINE ALIGNMENT STUDY – PHASE 1

The Treeline Phase 1 Alignment Study was a 15-month long investigation into the Phase 1 area identified in the Treeline Master Plan and covered the critical connection from 721 N. Main (a city owned property) to the Border-to-Border Trail near Argo Dam.

Route options identified prior to this effort, and new route options, were investigated at a greater level of detail. The feasibility of potential routes, from an engineering and property access standpoint were clarified. Route preferences, from a connectivity and user experience were also assessed at a greater level of detail.

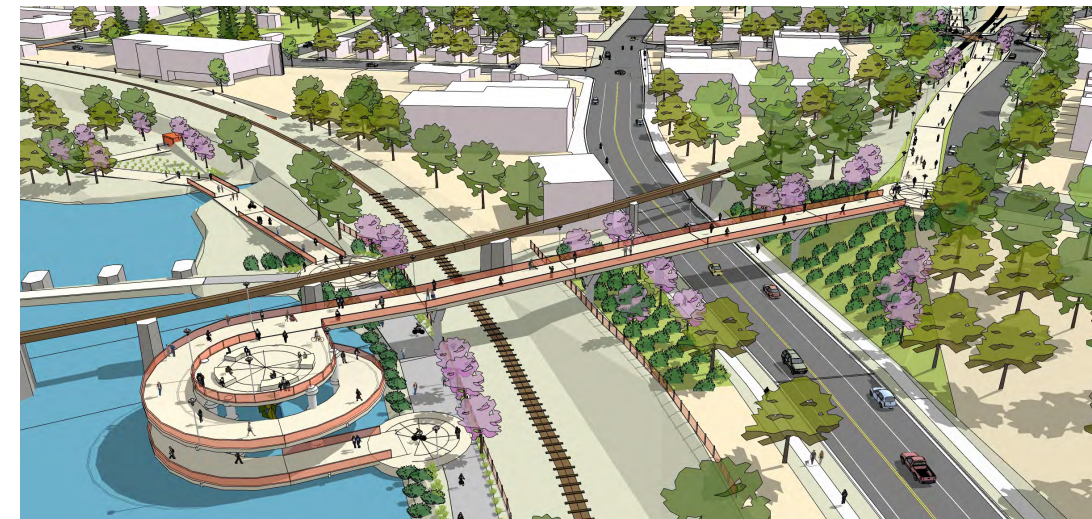
Stakeholder engagement during this study was focused on the partnership with the Treeline Conservancy and extensive engagement with individual property owners in the study area to ascertain the feasibility of different options.

Three primary, conceptual options were considered that all provided grade separated crossings over the N. Main Street corridor and the MDOT railroad track. A fourth on-grade alternative was also considered.

Two of the three options, Option A (which aligns closely with the master plan) and Option C (which was identified as an alternative in the master plan) were preferred from an engineering feasibility and user experience standpoint. Both options provide strong points of connections and have the potential to redefine how Ann Arbor connects to the riverfront.

However, both option A and C face acute complexities from a property access standpoint (Option A with WATCO and Option C with MDOT). While the conversation was advanced through this effort, additional conversations beyond the scope of this study will be needed in the future.

Ultimately, this study recommended that both Option A and Option C continue to be pursued for implementation. Outreach and engagement with the relevant stakeholders should be sustained for each opinion in order to determine which will have a clear path forward for implementation. Both options have strong positive attributes from a design, aesthetic, connectivity, and experience standpoint, and overall align with the goals and values of this project and the Treeline effort.





An aerial photograph of a city street grid, showing a mix of residential and commercial buildings, trees, and roads. A large yellow number '1' is overlaid on the image, positioned in the lower-left quadrant.

1

# PROJECT OVERVIEW



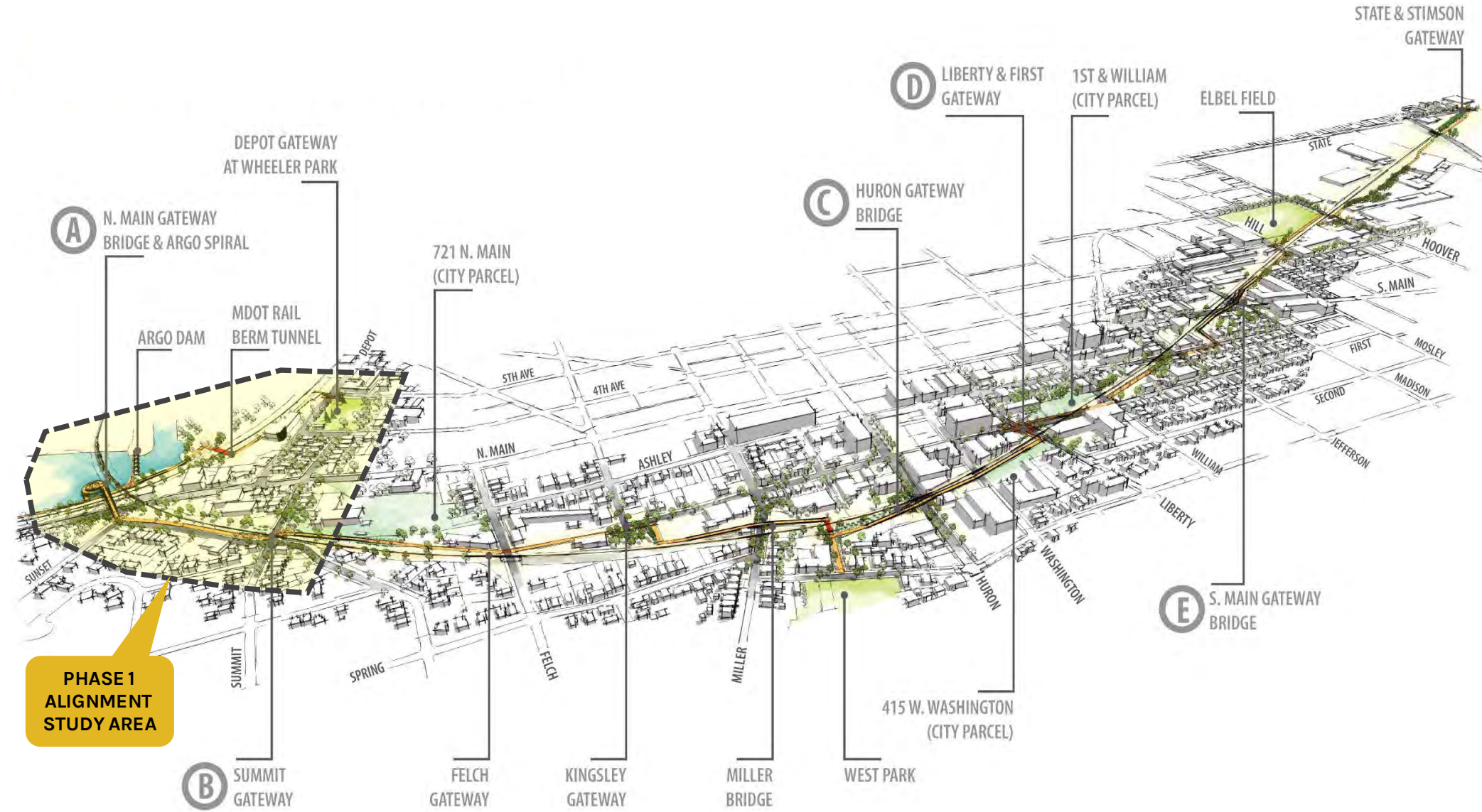
# PROJECT OVERVIEW

## FROM THE MASTER PLAN TO IMPLEMENTATION

The Treeline Master Plan, approved by Ann Arbor City Council unanimously in December 2017, outlined a preferred route and features for a 2.6-mile urban trail, connecting the Huron River to the center of Ann Arbor and nearby neighborhoods.

The plan, assembled through collaboration between the City of Ann Arbor, The Treeline Conservancy, a Citizen Advisory Committee, SmithGroup, and other stakeholders, provides the goals and framework for implementing the Treeline Trail.

Critical to implementation is advancing “Phase 1” of the trail identified in the Treeline Master Plan, which connects from the Border-to-Border Trail to the city-owned 721 North Main property. The intention for this segment is to provide a safe and signature crossing over North Main Street and the MDOT railroad corridor, which have long been barriers to accessing the riverfront and its many amenities.





# PROJECT OVERVIEW

## PHASE I ALIGNMENT STUDY

As a policy document adopted by City Council, the Project Team used the Treeline Master Plan as the basis for exploring options but did not limit the exploration of alternatives. The goal of this endeavor was to determine a preferred and feasible route to safely move trail users from the Border-to-Border trail to the west side of N. Main Street.

The project team also recognized that the eventual design of this first phase of Treeline Trail will establish the character and expectations for the trail in the years to come. It is essential that the best practices and expertise are used to design a safe and comfortable facility that is durable and resilient, and also that the style and aesthetics reflect the values and identity of the Ann Arbor community and the Treeline Trail.





# PROJECT OVERVIEW

## PROCESS

### Phase 1 – Discovery

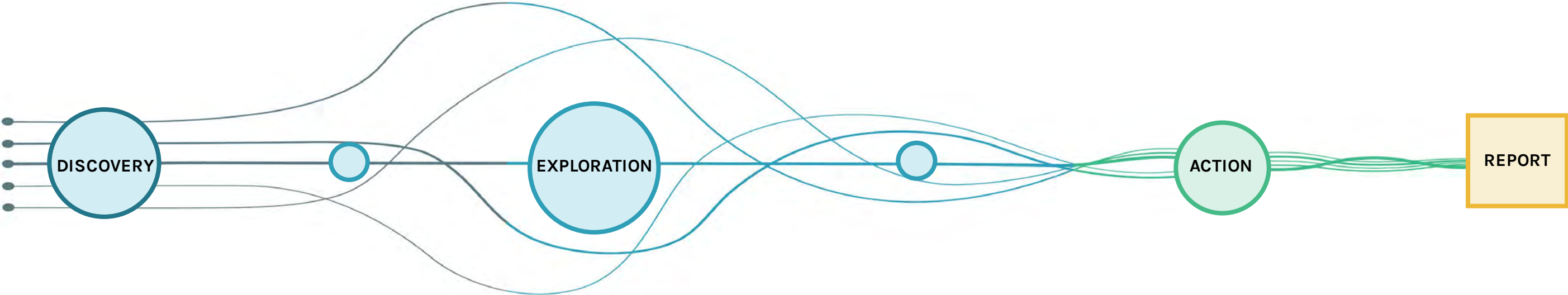
The intent of the Discovery Phase was to leverage work done during the master plan and collect additional (and more detailed) information that was needed to more accurately assess potential alignments and engineering feasibility. This phase of work also includes an initial round of engagement with key stakeholders in city departments and other agencies, as well as private landowners.

### Phase 2 – Exploration

The Exploration Phase is the core phase of work where specific alignment and route options were defined and evaluated based on a consideration of engineering constructability, different land access scenarios, alignment and connectivity options, aesthetics, amenity level, and cost. Evaluation criteria were established to help guide and structure decision making and aid in assessing a preferred option.

### Phase 3 – Action

In the Action Phase, the established aesthetic design direction was refined along with other technical information, timeline, funding, and permitting considerations, and synthesized into the final Report, which includes an implementation strategy.

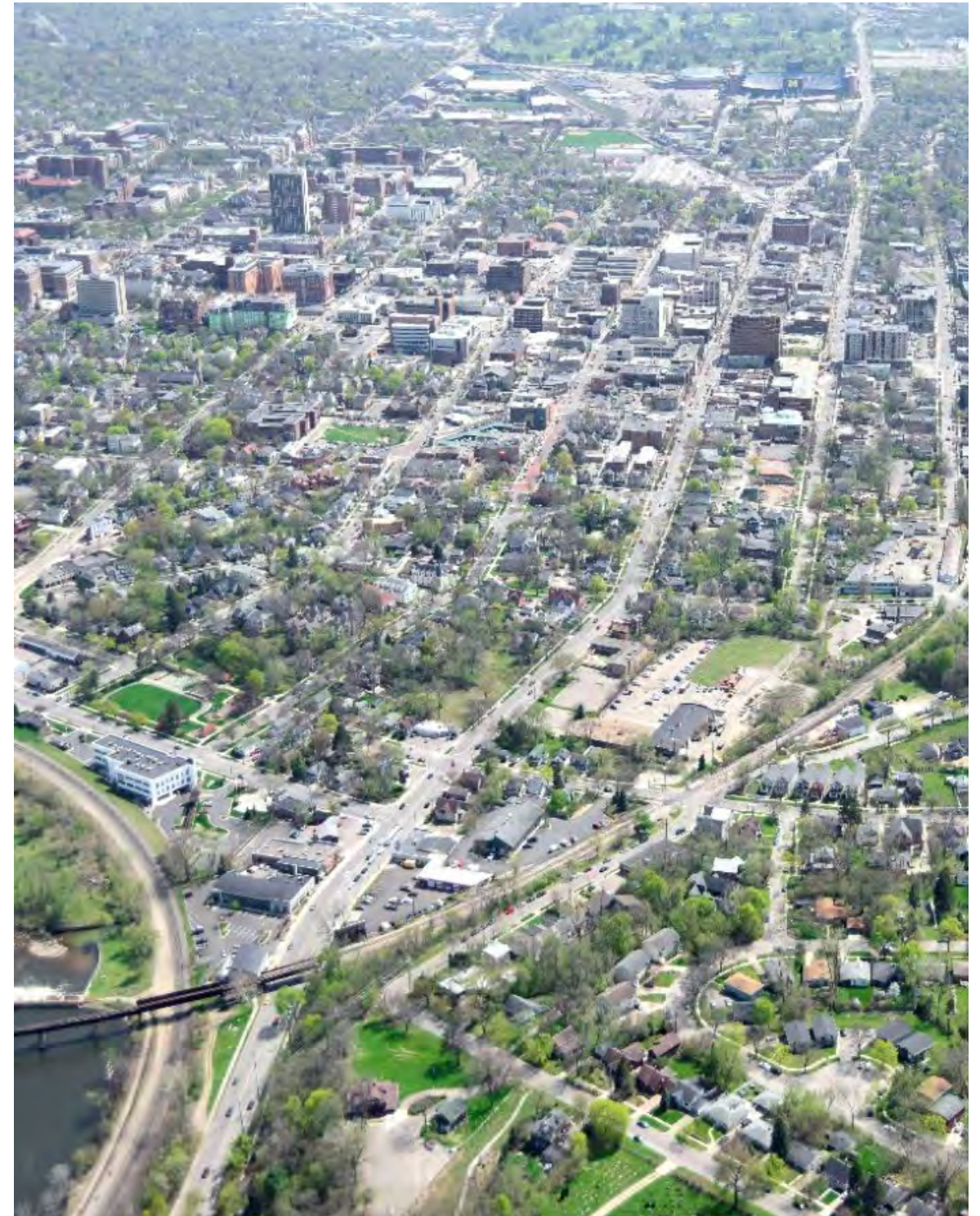




# GUIDING PRINCIPLES

The guiding principles listed below draw on the Design Principles established in the Treeline Master Plan and outline the key outcomes and desires for each portion of the Treeline Trail that is built. These principles are used to inform the evaluation of route options and establishing a preferred route.

- **TRANSFORMATIVE + UNIQUE EXPERIENCE** Be an amenity embraced by the community that promotes health, economic investment, tourism, and community identity.
- **CONTINUITY** Minimize breaks provide a continuous experience. Be distinct and identifiable within the urban context.
- **ACCESSIBLE + SAFE** Serve all users of all abilities, including pedestrians, cyclists, and other non-motorized travelers. Be universally accessible.
- **CONNECTIVITY TO ASSETS** Provide frequent points of access to The Treeline. Link to parks and natural areas. Link to the core of downtown and other economic, civic, and cultural assets.
- **SUSTAINABLE** Improve the water quality of the floodplain. Use sustainable design practices (material selection, energy efficiency, etc.).
- **FEASIBLE + ADAPTABLE** Be implementable. Leverage opportunities and win-win situations. Coordinate with other projects.





# FUNCTIONAL OBJECTIVES

These functional objectives describe essential and priority needs for the Phase 1 portion of the Treeline Trail. The preferred route identified through this planning process must meet the listed “must haves” below. The “strong desires” will help inform the ultimate preference in the case that multiple routes meets the “must have” objectives.

## MUST HAVES:

- Provide a **safe, comfortable, grade-separated** crossing of N. Main Street to Border-to-Border trail
- Provide a **grade-separated** crossing of the MDOT railroad
- Be permissible – meet **safety, regulatory, and engineering** requirements
- Be actionable – have a pathway for property access and funding
- Be accessible for all ages and abilities (meets universal design guidelines)

## STRONG DESIRES:

- Welcoming, inviting, unique, engaging experience
- Celebrates green, sustainable, resilient design





An aerial photograph of a city street grid, showing a mix of residential and commercial buildings, trees, and roads. A large, bold yellow number '2' is overlaid on the lower-left portion of the image.

**2**

**ANALYSIS + DESIGN  
PARAMETERS**



# ANALYSIS + DESIGN PARAMETERS

## OVERVIEW

A thorough understanding of regional, local, and site context is critical to developing a functional and feasible Treeline Trail. This analysis also included a review of pertinent projects and initiatives within the area whose adjacencies may inform or impact alignment decision making.

In addition to physical and environmental site considerations, the project team also reviewed policy and permitting parameters that may impact trail alignment and design.

Each of these items will be discussed in this section.



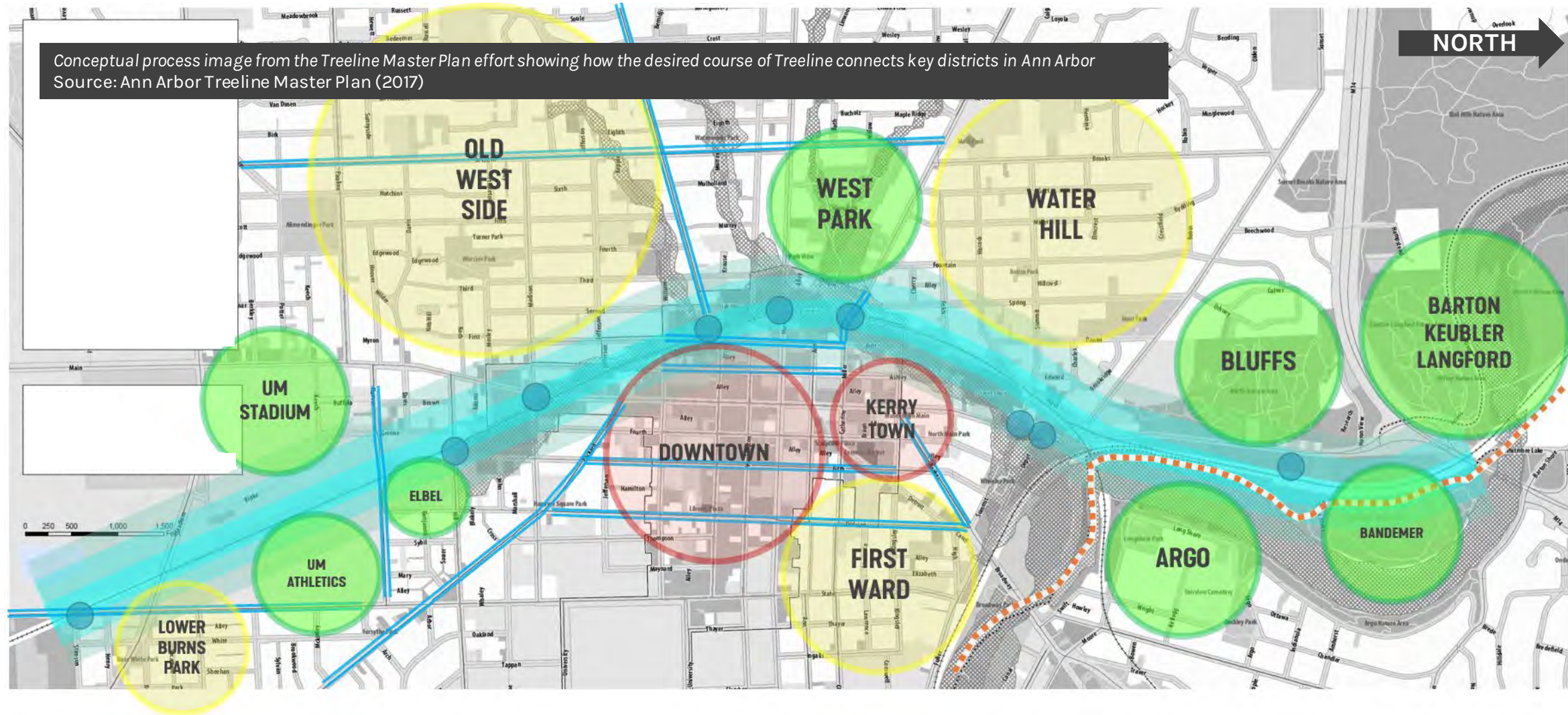
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Detroit, MI



# CONNECTING THE CITY

## TREELINE CORRIDOR AND DESTINATIONS

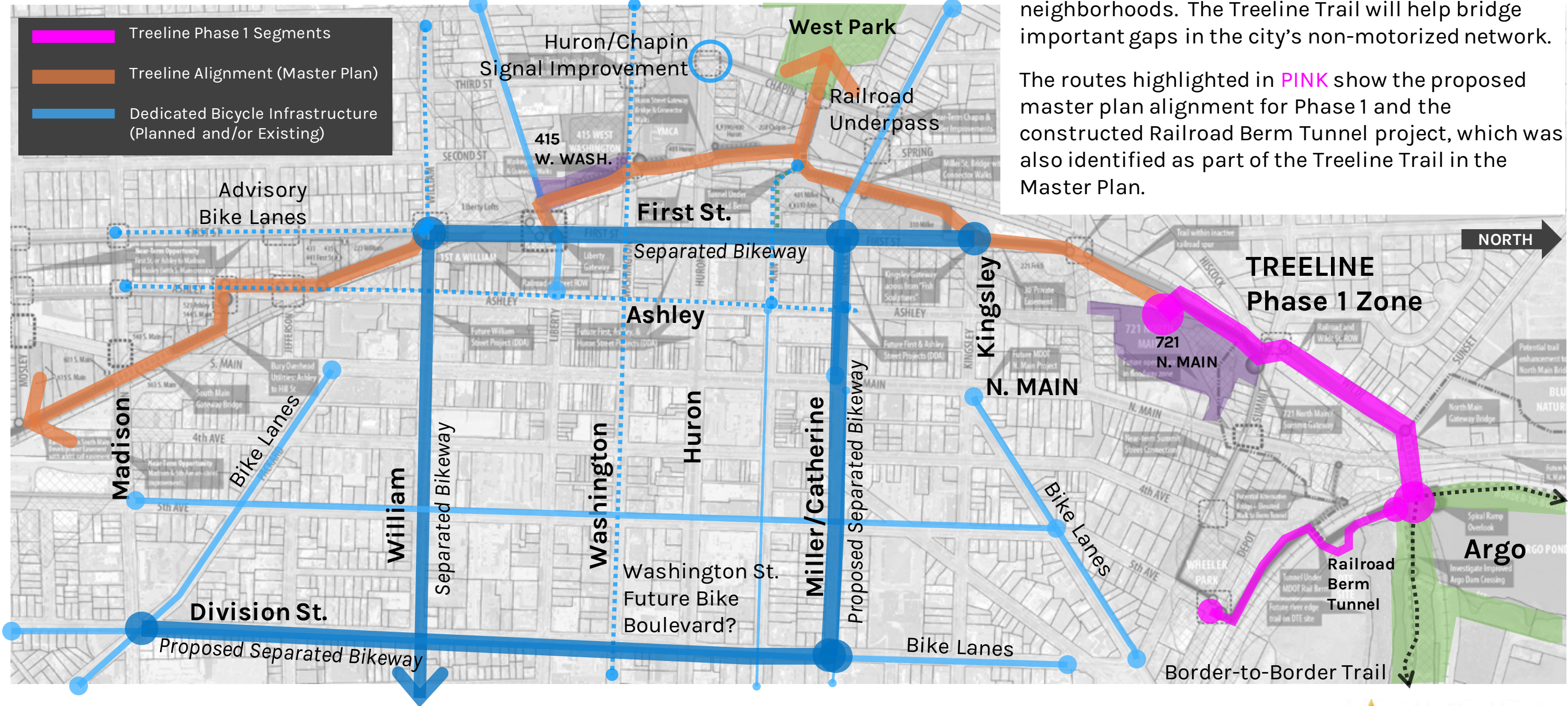
The Treeline Master Plan highlighted areas of residential, commercial, and recreation uses that the proposed trail would connect.





# TREELINE IN CONTEXT

## BIKE INFRASTRUCTURE



The Treeline Trail connects to a network of bike lanes and separated bikeways (both existing and proposed) that run through the downtown and near downtown neighborhoods. The Treeline Trail will help bridge important gaps in the city's non-motorized network.

The routes highlighted in **PINK** show the proposed master plan alignment for Phase 1 and the constructed Railroad Berm Tunnel project, which was also identified as part of the Treeline Trail in the Master Plan.



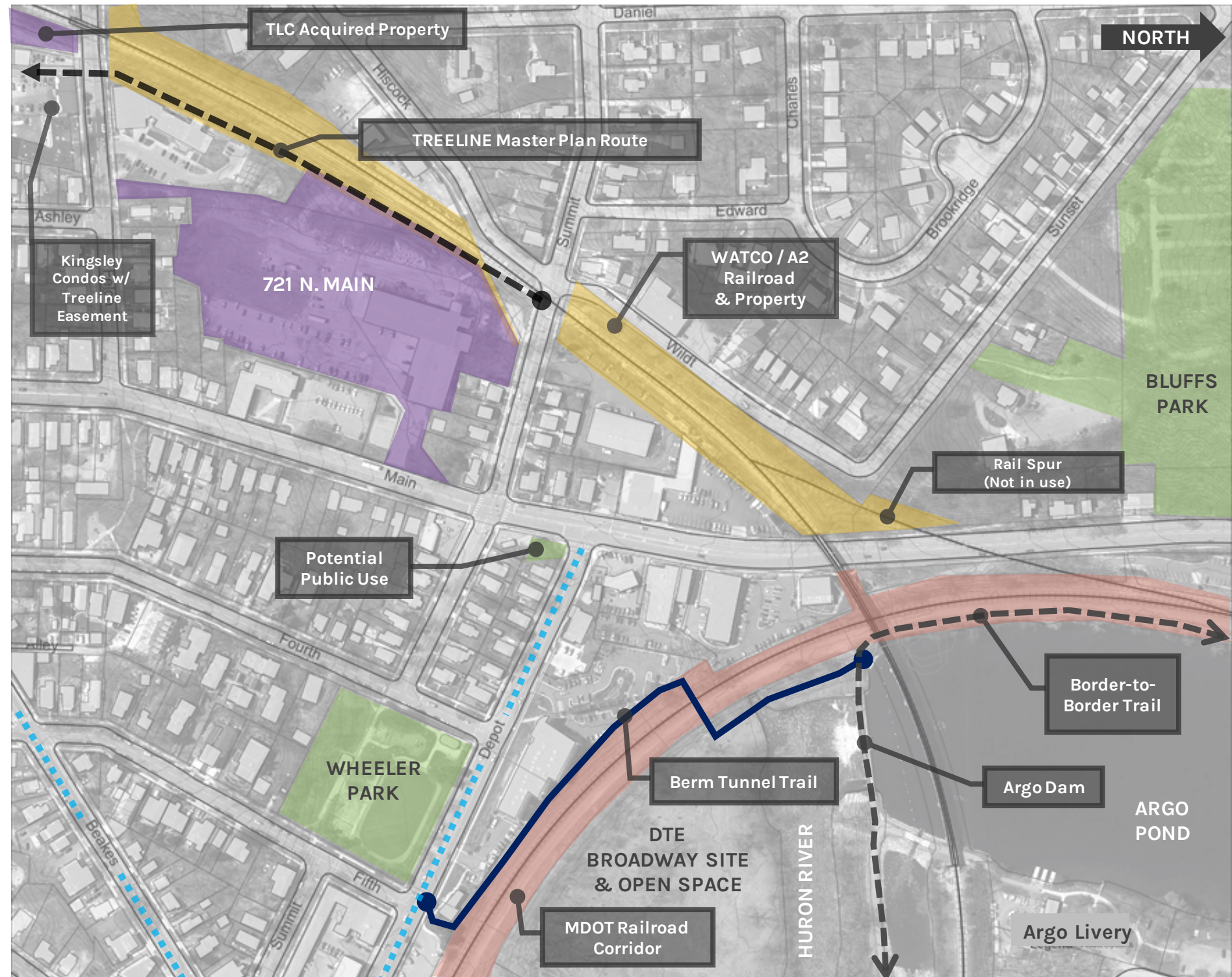
# SITE CONTEXT

## AREA FEATURES

The Phase 1 study area is a particularly complex zone in the city. There is a complex mix of land uses and infrastructure - including two separate railroad lines, steep grade changes from Summit Street/Wildt Street down to North Main, floodplain/floodway conditions, the Huron River, the Argo Dam, and a major state roadway (N. Main).

From 721 N. Main Street property, the master plan route for the Treeline Trail is anticipated to head south (left side of the map) either through a secured easement at the Kingsley Condominiums or on a band of acquired property adjacent to the railroad corridor.

A recently completed berm tunnel trail connects from the Depot and Fifth Ave. intersection along and underneath the MDOT railroad line, and eventually connects to the Border-to-Border trail near Argo Dam.





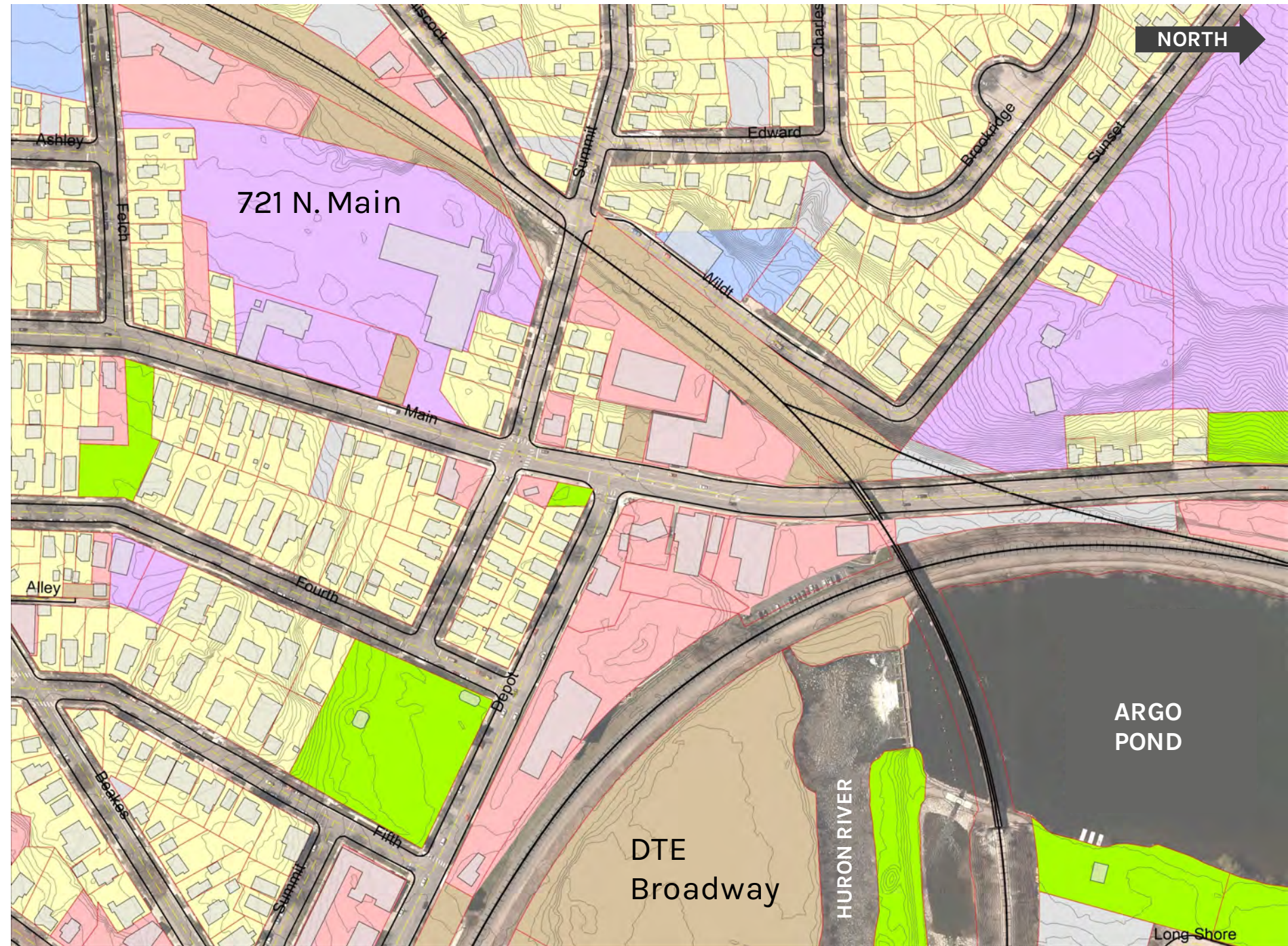
# SITE CONTEXT

## LAND USE

In the Phase 1 Study Area, the land use mix is a combination of small-scale commercial and mixed-use properties, concentrated on the corner of N. Main and Depot Street, and along Summit Street, and single-family residential houses (many of which are divided into multiple apartments). 721 N. Main is a city-owned property and former municipal yard, currently used for varied purposes including storage and permit parking.

The N. Main corridor has been identified as an opportunity for redevelopment, both on private land as well as on portions of the 721 N. Main site. In addition, the DTE Broadway site is in the process of major redevelopment and is slated to be a new mixed-use district.

- Commercial / Mixed Use
- Public / Semi-Public
- Industrial
- Public Recreation
- Residential
- Transportation / Utility / PUD





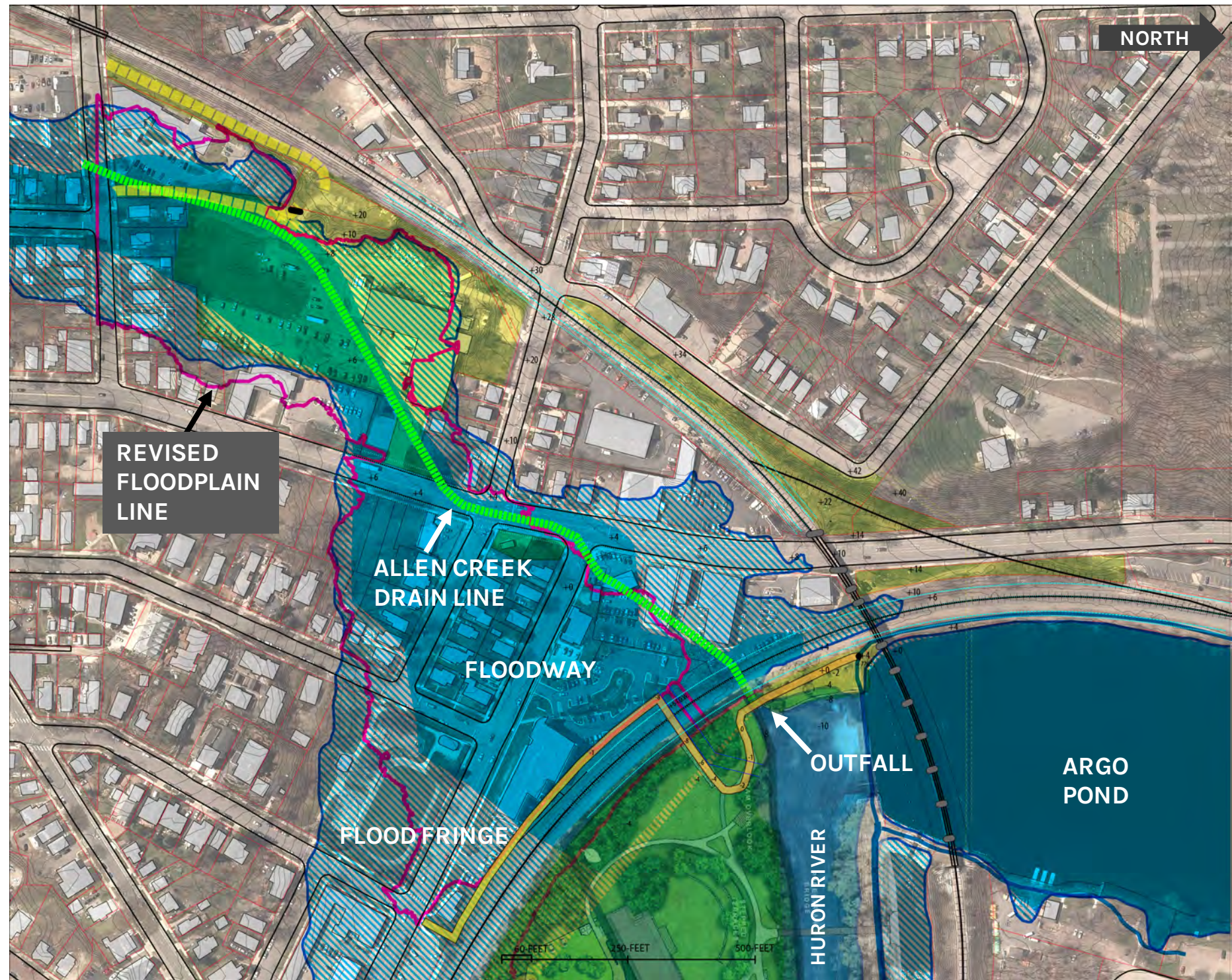
# SITE CONTEXT

## FLOOD PLAIN AND ALLEN CREEK DRAIN

Immediately south of the Argo Dam is the outfall for the underground Allen Creek Drain, which is a very substantial stormwater drain that generally follows the alignment of the master plan projected Treeline Trail as it moves south through town. As a low-lying area and former creek bed, the project area is largely within the floodplain, with portions in the floodway zone.

The City of Ann Arbor is working with FEMA to update the official floodplain boundaries to become the dark pink line following the 2020 completion of the berm opening and flood relief project. This is expected to reduce the size of the floodplain (and floodway).

The Allen Creek Drain itself, shown in the green dashed line, is a major (8+ foot diameter, underground) storm sewer, and care must be taken when locating structures near the drain, to ensure that it is not impacted by construction and that it remains accessible in the future for maintenance and repair.





# SITE CONTEXT

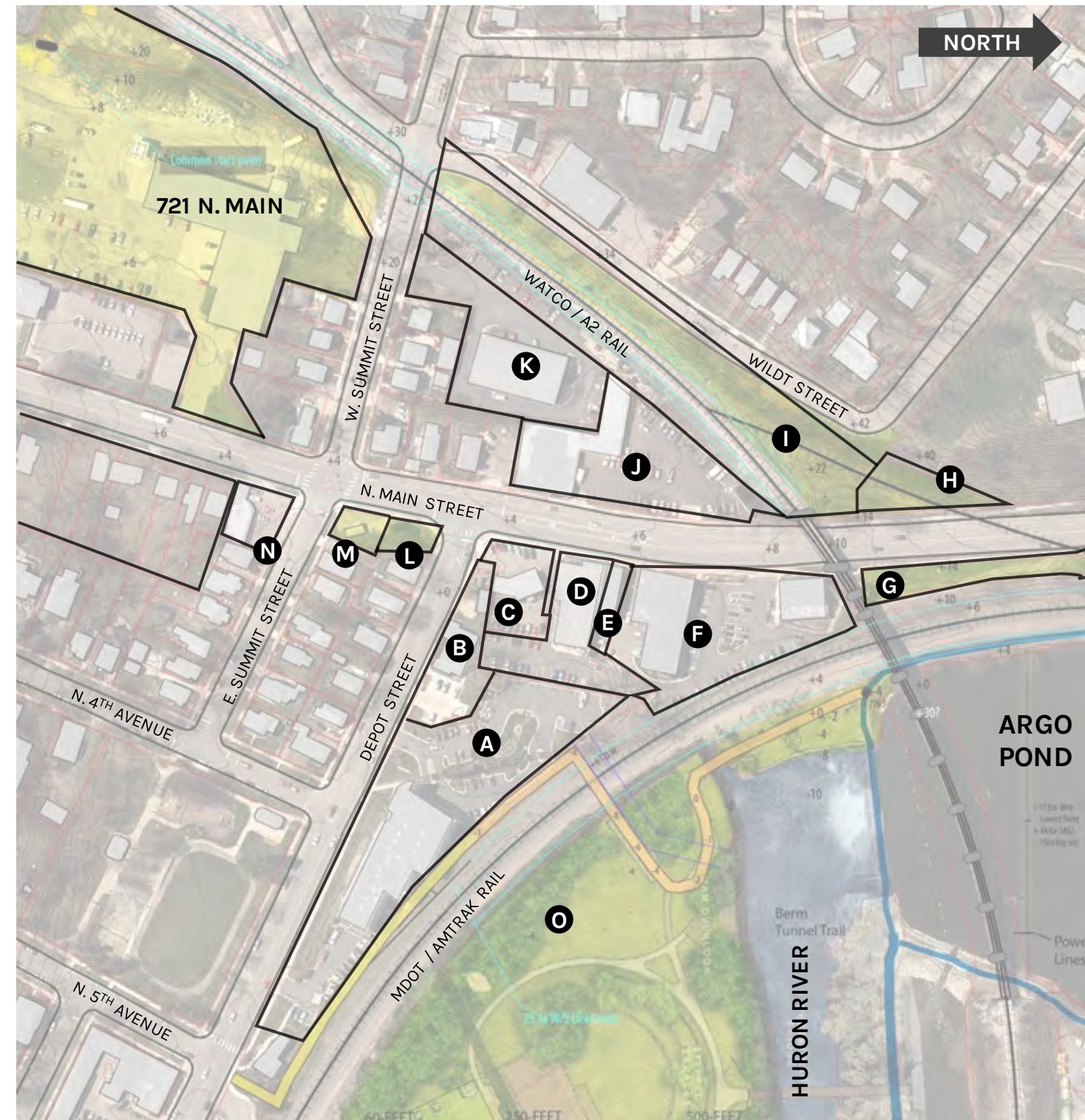
## PROPERTY OWNERS / CRITICAL STAKEHOLDERS

At the onset of this study, a number of properties were identified where route alignments could potentially traverse through the property, necessitating the need to understand the possibility for acquisition, easements, or otherwise securing access. During the planning process, representatives from the property addresses listed here were engaged, in some cases multiple times, to discuss the feasibility of a route going through their property.

- A. 201 Depot Street
- B. 115 Depot Street
- C. 906 N. Main Street
- D. 912 N. Main Street
- E. 918-920 N. Main Street
- F. 924 N. Main Street
- G. N. Main Street (Penn Central Corp)\*
- H. N. Main Street (Watco Railroad)
- I. Wildt Street (Watco Railroad)
- J. 907 N. Main Street
- K. 124 W. Summit Street
- L. 808 N. Main Street (City of AA)
- M. 800 N. Main Street
- N. 730 N. Main Street
- O. 841 Broadway Street

\* Penn Central had not yet been engaged at the time of this report.

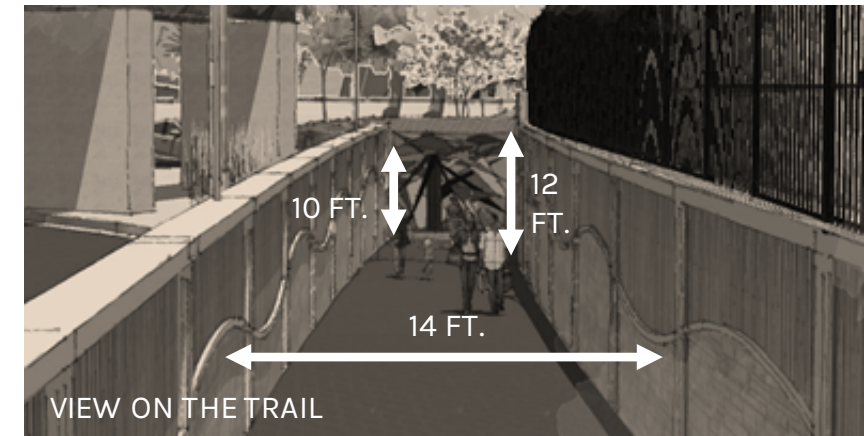
**The route options described later in this report do not in any way convey agreement to or acceptance of the route from the perspective of a given property owner. No agreements have been reached with any of the affected property owners to date.**





# ADJACENT PROJECTS + INITIATIVES

## ALLEN CREEK BERM OPENING & PEDESTRIAN TUNNEL



The Allen Creek Berm opening project was envisioned as a flood relief project, which would create an opening in the MDOT railroad berm that would allow higher volumes of floodwater to proceed to the Huron River, thereby reducing the extent and depth of the Allen Creek Floodplain in the upstream area.

The project also became an opportunity to integrate a parallel pedestrian tunnel under the MDOT railroad, providing safer public access to the Border-to-Border trail from Depot Street.

- The project was completed and open to the public in 2020.
- Hydraulic improvements are being evaluated in order to update the official FEMA floodplain maps.
- The pedestrian tunnel and ramp approaches were constructed, along with a new pedestrian bridge over the Allen Creek outfall, providing a connection to the Border-to-Border trail.
- This pedestrian connection was identified as part of the primary route of the Treeline Trail in the Treeline Master Plan.





# ADJACENT PROJECTS + INITIATIVES

## 721 N. MAIN + AFFORDABLE HOUSING DEVELOPMENT

721 North Main is a city-owned property that was previously a municipal maintenance yard and is currently used for permit parking and storage. The site is predominately in the floodplain and has been the subject of numerous studies and plans over the years.

In 2013, the city completed a study looking conceptually at the portion of the site within the floodplain and providing recommendations for long-term use as public open space and floodplain wetlands.

Starting in 2020, and continuing in 2021, the city studied the upland portions of the site adjacent to Summit St to understand the feasibility and capacity for an affordable housing project.



- Floodway and Floodplain
- 721 North Main
- Potential Developable Parcel

**APARTMENTS:**  
# of Units: 10-20, all affordable



# ADJACENT PROJECTS + INITIATIVES

## DTE / BROADWAY PARK REDEVELOPMENT

The DTE Broadway site is in the process of being redeveloped. A former industrial site, extensive remediation efforts are positioning the site to be used for mixed-use and recreational purposes.

This development project brings new residents, commercial uses, and activity to the riverfront, and will create one of the first commercial food and beverage opportunities situated immediately next to and overlooking the Huron River.

The western portion of the site is planned to become public open space, providing new amenities and recreational assets along the Huron River. The public open space areas will connect to the MDOT berm pedestrian tunnel and to the Argo Dam recreational zone.





# ADJACENT PROJECTS + INITIATIVES

## MDOT'S NORTH MAIN PROJECT

MDOT has identified and begun planning for improvements to the North Main corridor from Huron Street to M-14 (part of the local US-23 business corridor), which is approximately 1.3 miles in length. While the roadway will be fully reconstructed (see notes below).

### Project Anticipated to Include:

- Watermain replacement
- Drainage improvements
- New curb and gutter
- Traffic signal modernization
- ADA ramps and accessibility improvements



Google Street View: looking South along Main Street, at Intersection with Depot Street.



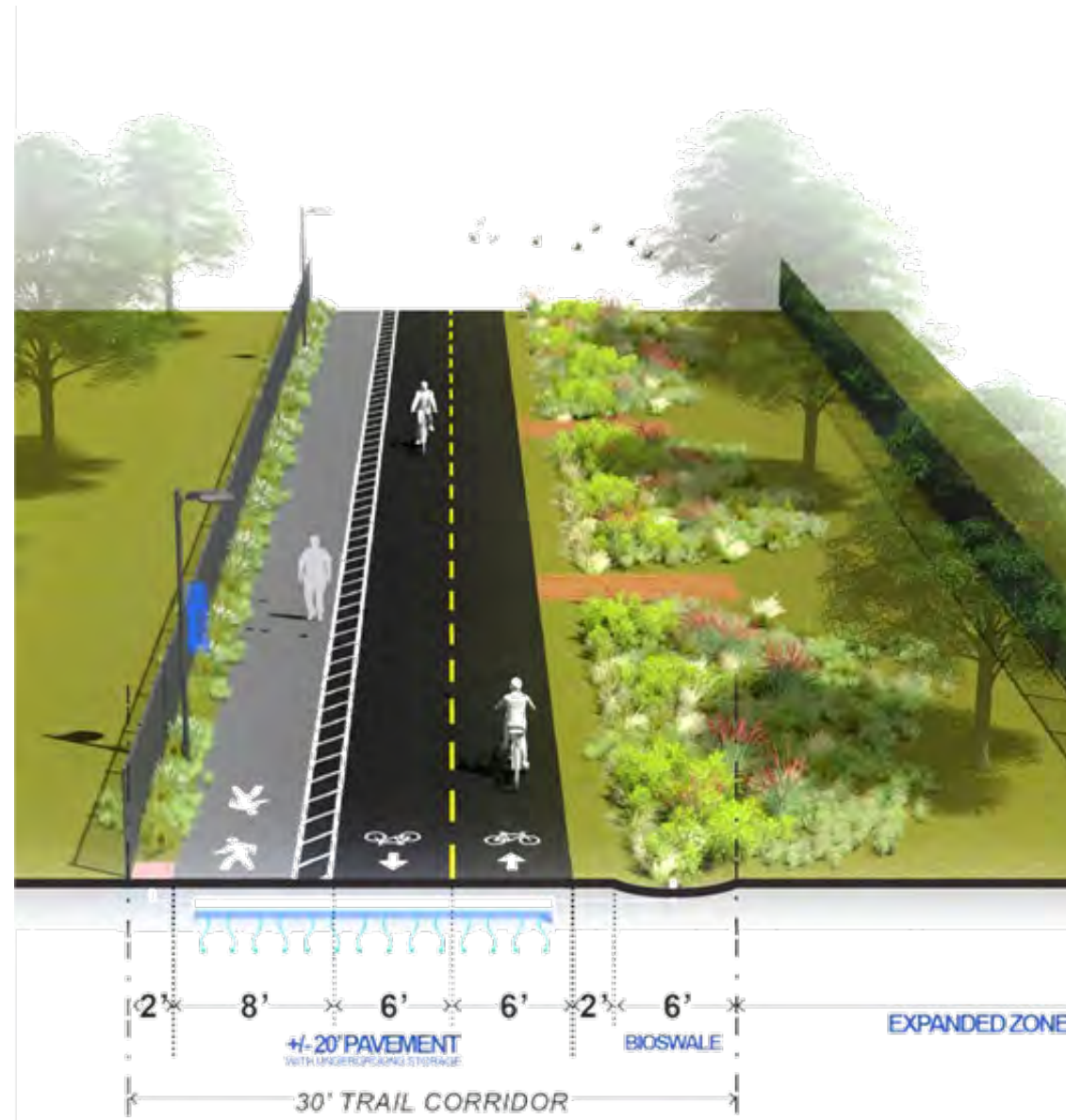
# DESIGN PARAMETERS

## FROM TREELINE TRAIL MASTER PLAN

The Treeline Trail Master Plan identified a target width of 30-feet for the trail corridor, in order to accommodate the trail itself as well as adjacent amenities, such as lighting, landscape, seating areas, wayfinding signage, interpretive signage, and stormwater management.

Given the anticipated high volume of use along the Treeline Trail, the preferred width for the trail was identified as a 20-foot wide trail with separated pedestrian and biking areas (two 6-foot bike lanes and an 8-foot walking zone).

Where trails are elevated, the target width would be a minimum of a 10-foot-wide trail with 2-feet clear on each side (14-feet overall). The trail corridor should still strive to be 30-foot wide in order to accommodate access paths or other side features.



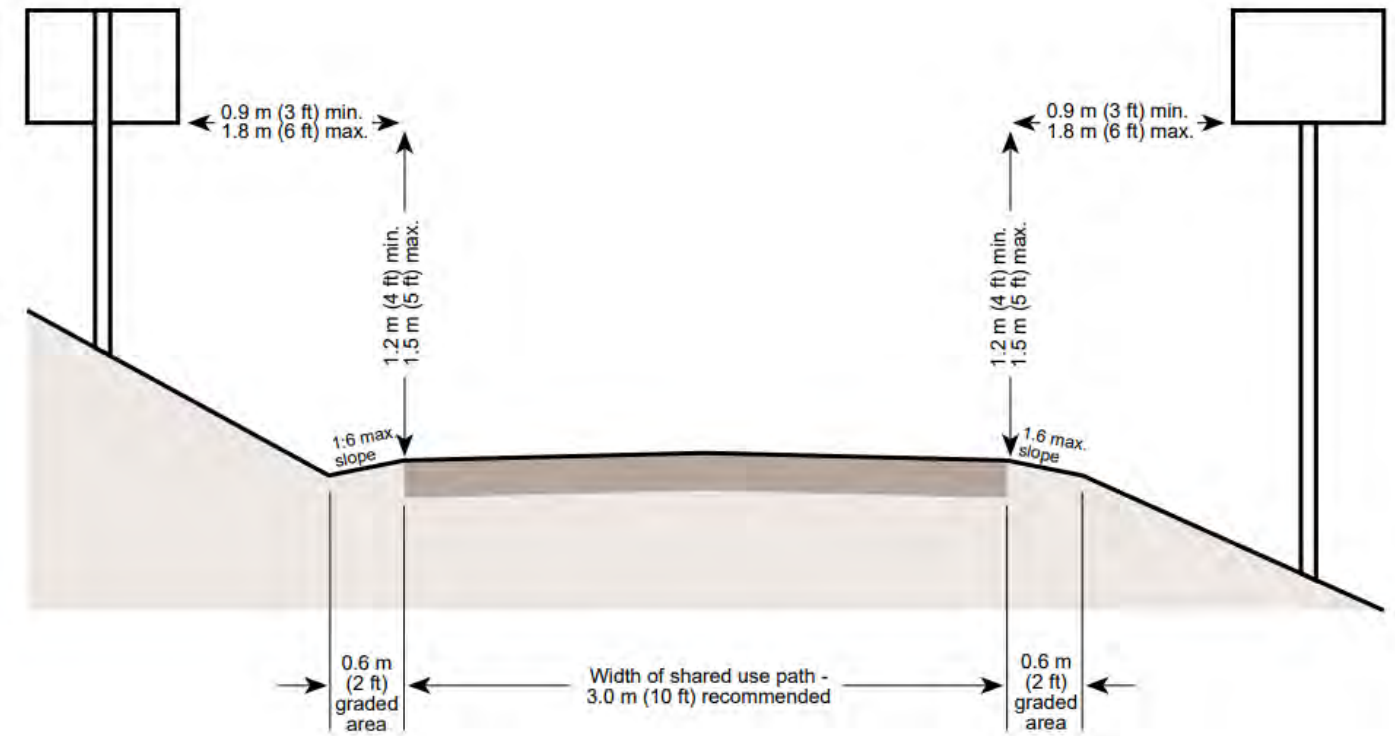


# DESIGN PARAMETERS

## AASHTO STANDARDS: ON-GRADE PATHS

**AASHTO** – American Association of State Highway & Transportation Officials – provides guidance for the design of bike facilities, which establishes standards and requirements that must typically be met for projects seeking public funding support. The 2012 Guide for the Development of Bicycle Facilities identifies the following:

- Trail width, under most conditions, is recommended to be **10 feet paved width** for a two-directional shared use path.
  - In rare instances, a reduced width of 8 feet can be adequate if bicycle traffic is low, and facility will not be used often by pedestrians.
  - Under certain conditions it may be necessary or desirable to increase the width of a shared use path to 12 feet, or even 14 feet, due to substantial use by bicycles, joggers, skaters and pedestrians.
- A **2-foot clear zone** should be maintained on each side of trail
- Vertical clearance for obstructions should be **8 feet minimum**
- Consider design speed of facility based on user type
- Grades should be kept less than 5% wherever possible.
- Design with adequate sight distances
- Ensure adequate signing and marking for wayfinding and safety



Typical Cross Section of Two-Way Shared Use Path on Separated Right-of-Way



# DESIGN PARAMETERS

## AASHTO STANDARDS: STRUCTURES

**AASHTO** – American Association of State Highway & Transportation Officials – Guide for the Development of Bicycle Facilities notes the following with respect to trails on structures:

- The minimum clear width should be the same as the approach on either side of the structure – including the **2-foot wide zone on each side of pathway**, clear of obstruction.
- Railings, fences, and barriers on both sides of structure should be a minimum of **42 inches high** (Note that other regulations may dictate railing height based on conditions of structure crossing).
- Considerations for emergency access or maintenance vehicles if access is needed on the structure itself.
- Use bicycle-safe expansion joints where needed and avoid decking materials that may be slippery when wet.
- Design appropriate drainage system into the structure.
- 14 feet min. width (10-foot trail with 2 feet clear on each side).
- Increased widths may allow for use separation, as well as amenities on the trail both on-structure and at-grade.





# DESIGN PARAMETERS

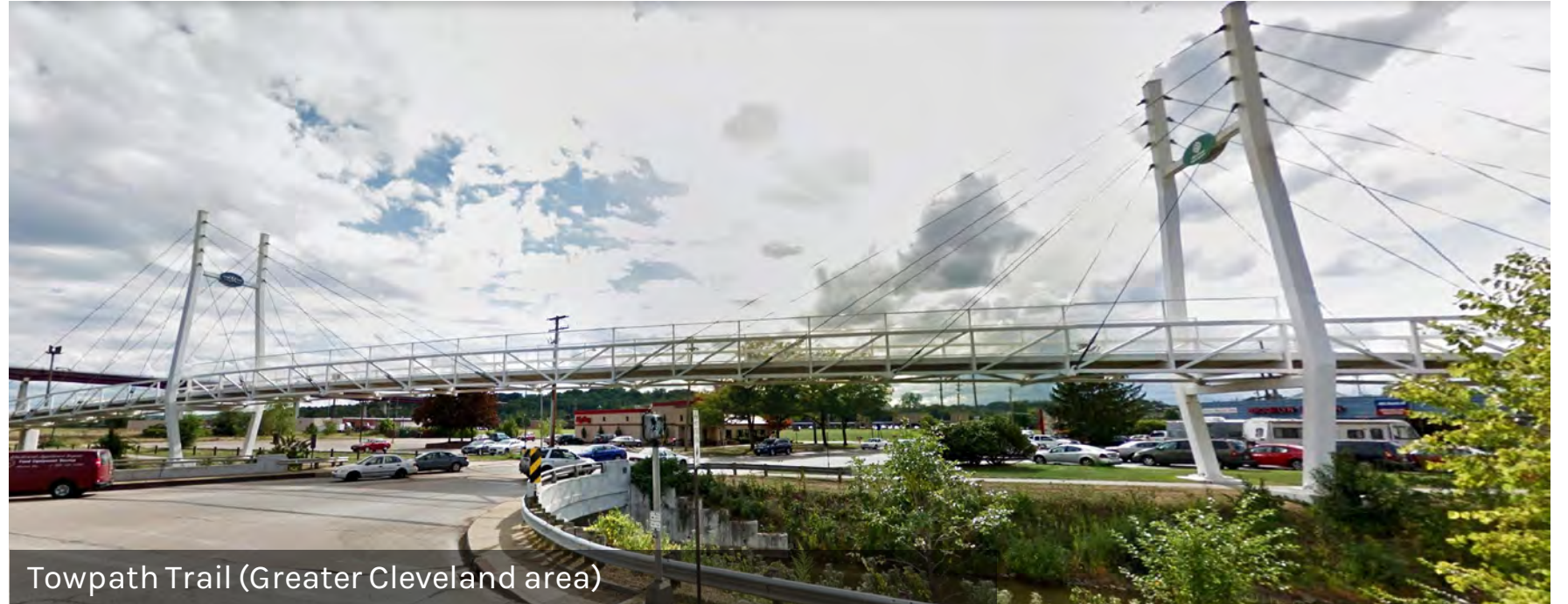
## ADDITIONAL STRUCTURE CONSIDERATIONS

The Treeline Trail is planned to include trail segments with bridges, elevated structures, and ramps in a range of potential configurations.

There is a wide range of potential structure types, from pre-fabricated truss-style bridges to custom designed and articulated structures. The visual character can range from basic and functional to incorporating signature architectural elements.

## STRUCTURE DESIGN CONSIDERATIONS

- The thickness of a bridge structure depends on the span length. 30 to 50-foot spans are typically 3-feet thick, while longer spans may be 4+ feet thick.
- Ramps should strive to maintain 5% or less grade. For example, a 30' elevation change at 5% slope would require 600' of ramp.
- Elevated structures should include larger landings, observation areas, or lookouts, where people can rest and/or enjoy the view without blocking the flow of traffic along the trail.
- Elevated structures should incorporate regular points of access (through stairways or side ramps) wherever possible.





# DESIGN PARAMETERS

## RAILROAD

The study area includes two separate railroad corridors, one owned by MDOT with AMTRAK operating on the line, and the other owned by WATCO with Ann Arbor Railroad operating on the line.

### MICHIGAN LINE (MDOT / AMTRAK)

- Designated High Speed Rail Corridor (6 passenger trains per day)
- Occasional Freight
- Complex Coordination (MDOT, Amtrak)
- Future potential for double track would add another track on the north / east side of the existing alignment

### ANN ARBOR RAILROAD (WATCO)

- Primarily freight Service
- Complex Coordination (WATCO, Ann Arbor Railroad)





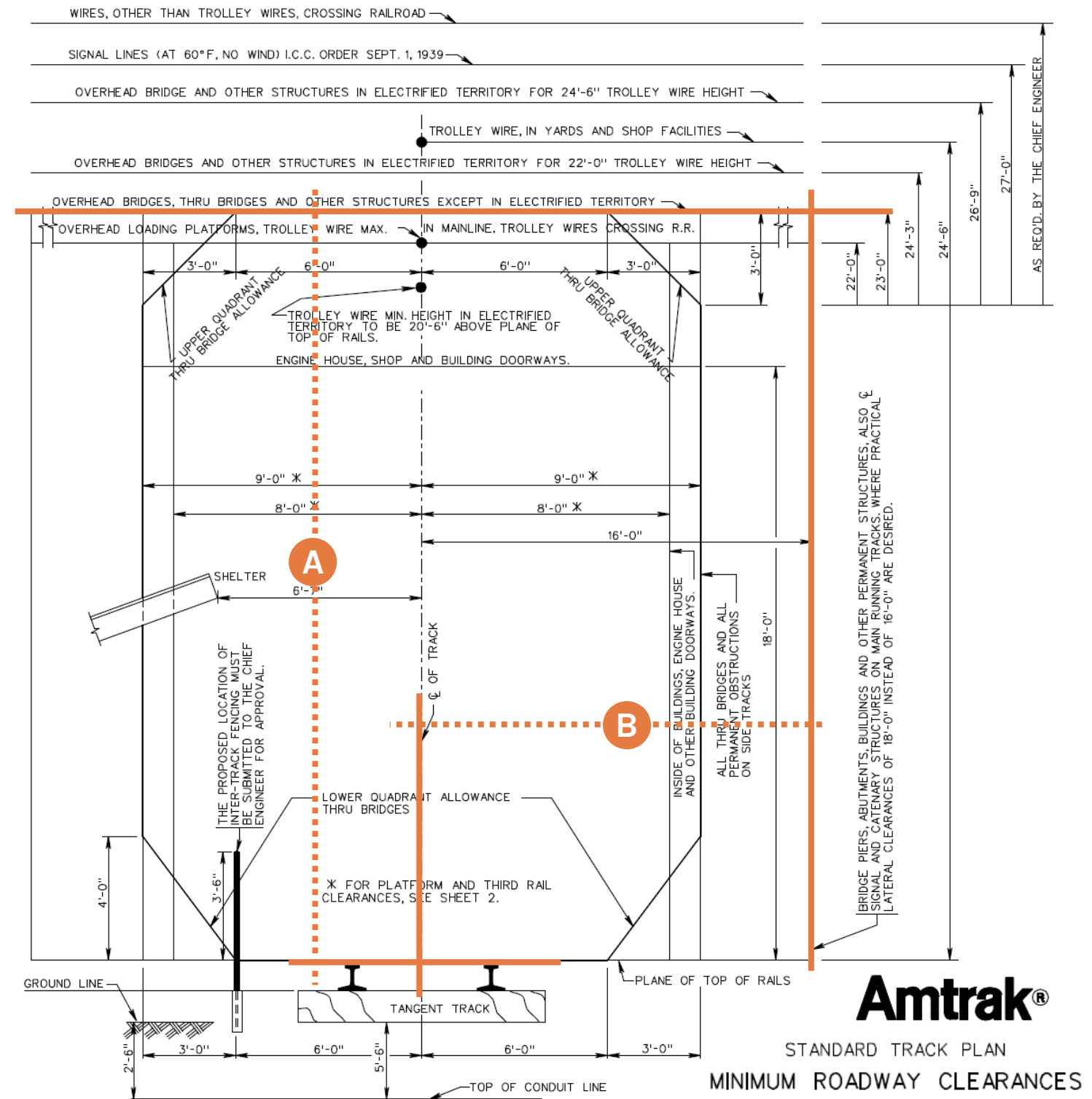
# DESIGN PARAMETERS

## RAILROAD

Building trails and other structures close to railroad tracks creates additional complexities. Bridging over (or under) railroad tracks in a grade-separated manner is typically more straightforward compared to running parallel to railroad. However, in both cases there are critical clearances that must be maintained, and other clearances and setbacks that may be required in order to maintain safe clearances and maintenance room.

Key design parameters near the railroad tracks include:

- A** Vertical clearance = **23 feet and zero inches** clear to bottom of structure minimum.
  - An additional 3-4 feet of vertical clearance is advisable in order to accommodate maintenance and repair work for elevated structures.
- B** Horizontal Clearances
  - MDOT line (with AMTRAK) = 16 feet minimum horizontal clearance from center of tracks is the typically required minimum to be free of other permanent structures. 25 feet is a preferred minimum.
  - WATCO line = 25 feet back from center of tracks preferred, 15 feet minimum that might be permitted near public right-of-way and crossings





# DESIGN PARAMETERS

## ROADWAY & VEHICLE

Elevated structures crossing over roadways are subject to the following design parameters:

- Required roadway vertical clearance = 17 feet clear over roadway
  - An additional 3-4 feet of vertical clearance is advisable in order to accommodate maintenance and repair work for elevated structures.
- 10 feet minimum horizontal clearance for bridge structures (abutments, footings, etc.) from edge of travel lane
  - 14 feet minimum is preferred from edge of travel lane
- Exceptions granted for utility posts and lights (2 foot minimum back from road edge)
- 8 feet minimum clear height under structure for parking / non-truck circulation (10 feet is preferred)





An aerial photograph of a city street grid, showing a mix of residential and commercial buildings, trees, and roads. A large yellow number '3' is overlaid on the image, followed by the text 'ALIGNMENT OPTIONS' in white, bold, uppercase letters.

**3** ALIGNMENT OPTIONS

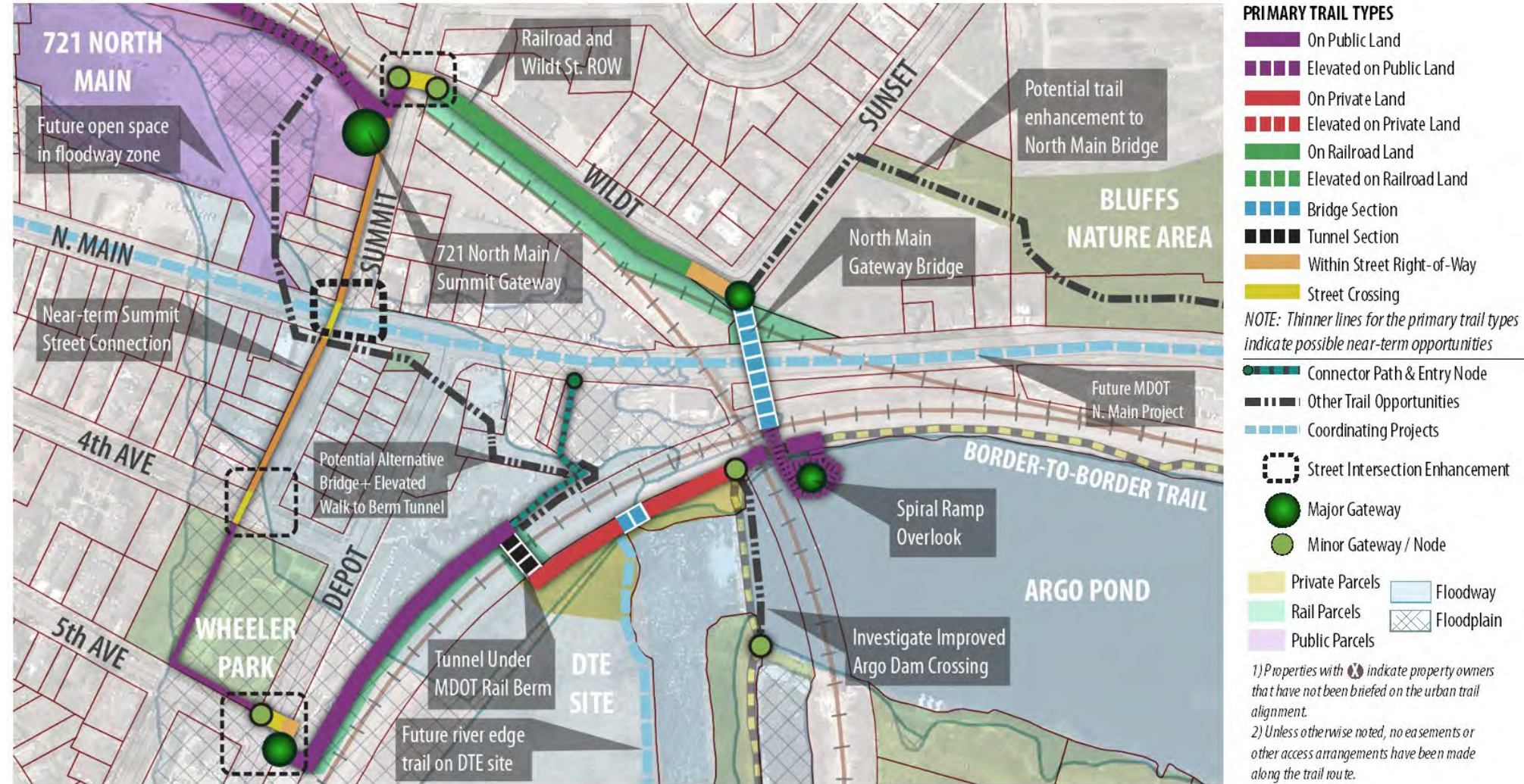


# ALIGNMENT OPTIONS

## BUILDING FROM THE TREELINE MASTER PLAN

The Treeline Master Plan explored multiple route options for this area. As a part of the Phase 1 Alignment Study, the project team reviewed these options as well as other potential routes, looking with fresh eyes to explore, test, and discuss all possible alignments for the Treeline Trail.

The Treeline Master Plan identified a primary route along Wildt Street with a bridge over N. Main and the MDOT railroad corridor. It also identified a potential alternate route running parallel to N. Main and through private property in order to connect to the berm tunnel. Lastly, a nearer-term connector along Summit Street and through Wheeler Park was also identified. These routes were a starting point for identifying additional routes and route variations in greater detail.



Source: Treeline Master Plan – Zone 2 Detailed Plan (2017)



# ALIGNMENT OPTIONS

## DRILLING DOWN INTO KEY OPTIONS

The project team evaluated numerous trail alignment alternatives. All options were tested against the guiding principles and functional objectives, resulting in a narrowing down to THREE main route options:

**OPTION A:** Crossing over the Amtrak/MDOT Rail Line, and over N. Main Street north of the Watco Rail Bridge. At-grade along Wildt Street and connecting to 721 N. Main.

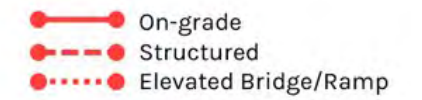
**OPTION B:** Crossing over the Amtrak/MDOT Rail Line, and over Main Street south of the Watco Rail Bridge. Continues to Summit Street as an elevated path.

**OPTION C:** Connecting to the existing berm tunnel, switchback west along Amtrak/MDOT Rail Line, remaining elevated until 721 Main Street.

In addition to the main options above, an on-grade option was considered and refined during the process as a potential fallback or alternative approach.

**ON-GRADE ALTERNATIVE:** Connecting to the berm tunnel path at-grade at Depot Street. Continue through Wheeler Park and on-grade connections.

All alignment options were iteratively refined during the process and are presented on the following pages in their final conceptual form.



The thumbnail images at left show several variations and ideas explored and assessed within each of the options.



# OPTION A

## ROUTE ALTERNATIVES

OPTION A is consistent with the primary alignment proposed in the Treeline Master Plan.

1. The trail starts in 721 N. Main, traversing along the west edge of the property along a gently sloping elevated ramp up to the Summit Street intersection.
2. Summit Street serves as a gateway along with intersection improvements to improve safety for the road and rail crossing.
3. The trail continues along Wildt Street, using a combination of the road right-of-way and WATCO property. The on-grade trail could be wider along this section while still being set back and secured from the railroad tracks. Landscape improvements along Wildt Street could allow for aesthetic improvements and opening views down the bluff.
4. Wildt and Sunset is another gateway point. A sidewalk extension provides a connection to Bluffs Nature Area and ramps/stairs create an access point down the slope to N. Main Street.
5. A signature bridge provides access over N. Main and the MDOT railroad corridor. Opportunities for using undeveloped land areas for landscape and access.
6. A spiral ramp structure over Argo Pond integrates a large overlook gathering space, with dramatic views across the pond and towards the city skyline. The spiral ramps connects down to the Border-to-Border Trail (See Design Aesthetics)

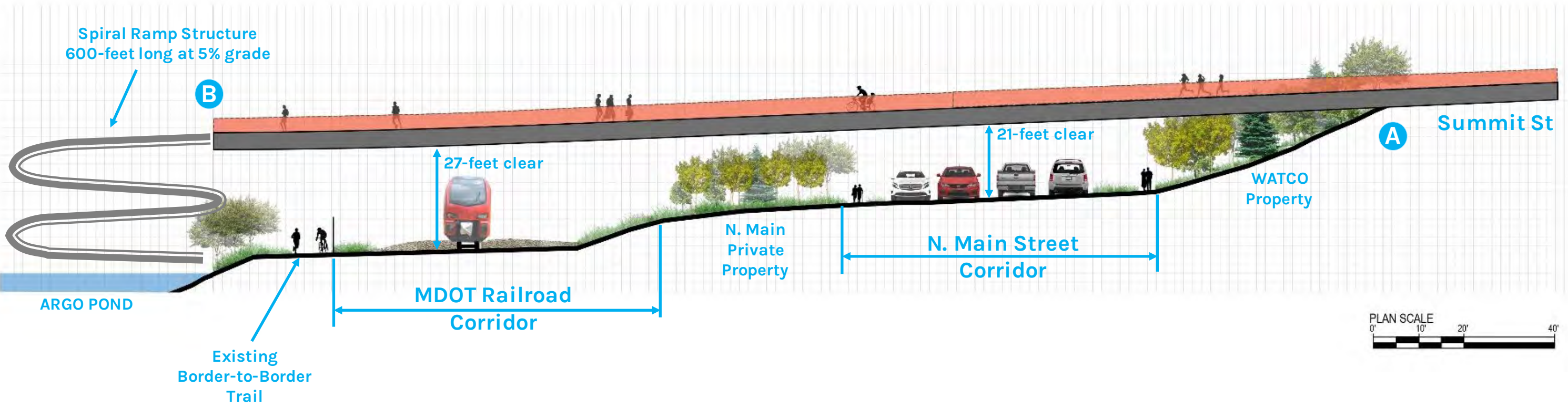
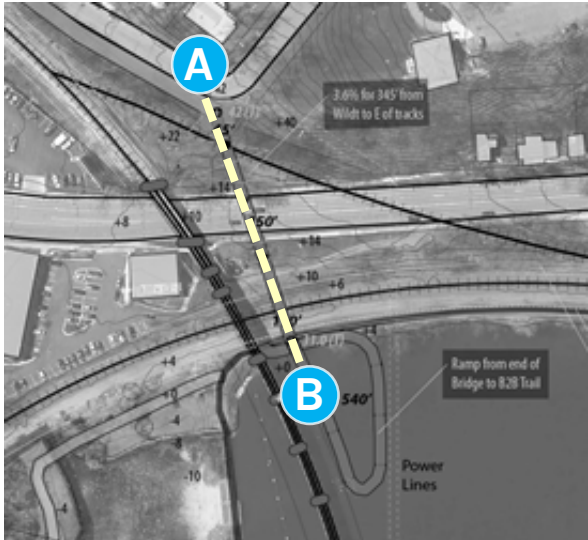




# OPTION A

## PROFILE

This cross-section shows the portion of the Trail from the gateway at Summit Street to the Border-to-Border Trail. This includes a longer spanning bridge / elevated section over N. Main Street and the MDOT railroad corridor, connecting to a spiral ramp structure over Argo Pond (next to the shoreline).





# OPTION A

## VIEW FROM BORDER-TO-BORDER TRAIL TOWARDS SPIRAL RAMP



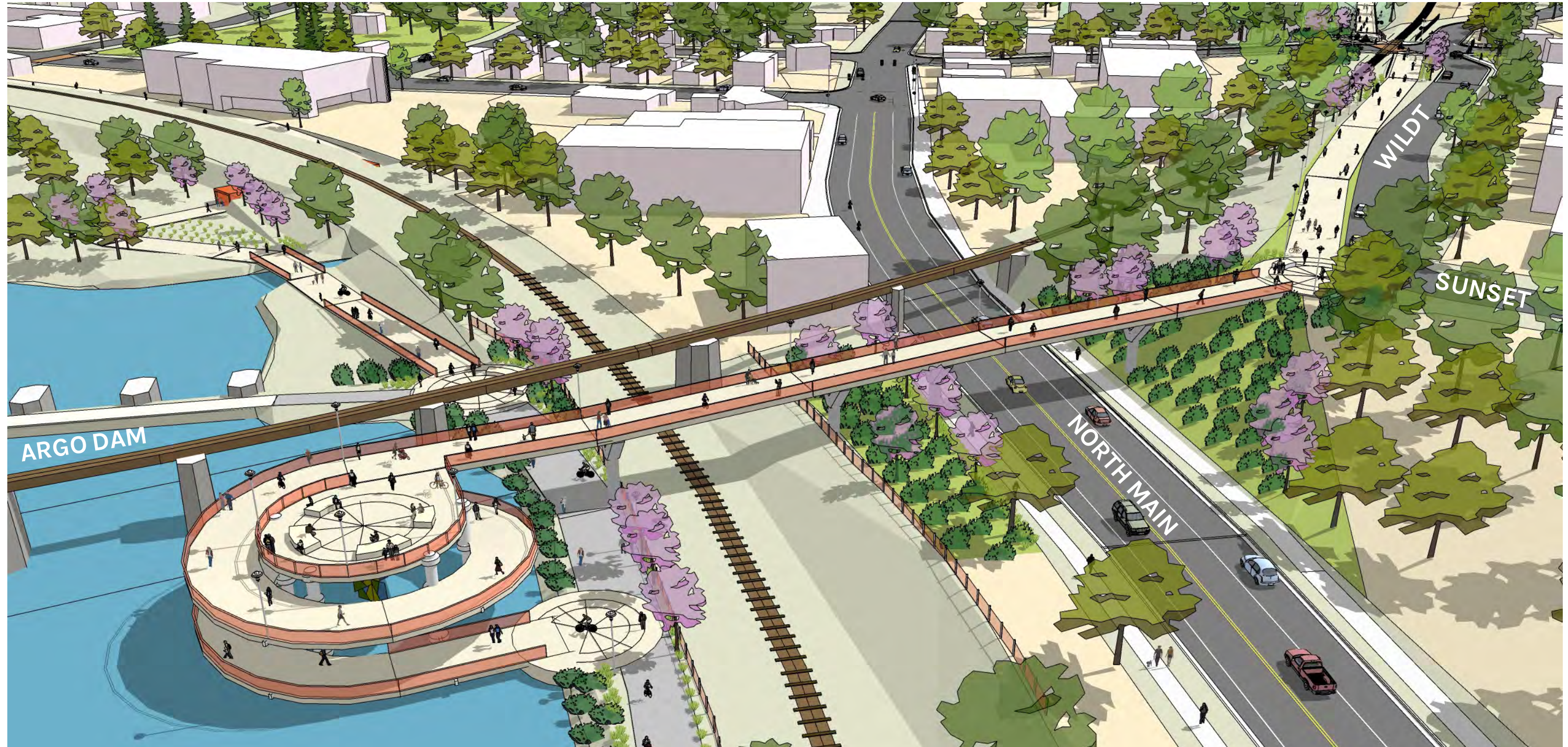


# OPTION A OBSERVATION DECK / GATHERING SPACE





# OPTION A OVERVIEW ELEVATED SECTION





# OPTION B

## ROUTE ALTERNATIVES

Option B is a new option that was not previously considered during the master plan process.

1. The trail starts in 721 N. Main, traversing along the west edge of the property along a gently sloping elevated ramp up to the Summit Street intersection.
2. Summit Street serves as a gateway along with intersection improvements to improve safety for the road and rail crossing. The configuration requires crossing the railroad tracks twice (within the public ROW).
3. The trail turns and runs parallel to the railroad and within the WATCO property. This zone is currently used for parking, but an elevated trail and reconstructed retaining wall can maintain that use.
4. The trail straddles WATCO property and the 907 N. Main Property. The trail integrates with property redevelopment, providing an access point directly onto the trail, which could be accompanied by retail or commercial space.
5. The trail passes over N. Main and enters the 924 N. Main property. The trail can be designed in tandem with property development, creating an opportunity for access directly onto the trail and interface with commercial uses.
6. Trail passes over the MDOT railroad corridor and ramps down. Creation of an elevated overlook platform looking out over Argo Pond is encouraged. The ramp would circulate downward and connect to the berm tunnel trail. Coordination with the DTE Broadway site is anticipated.

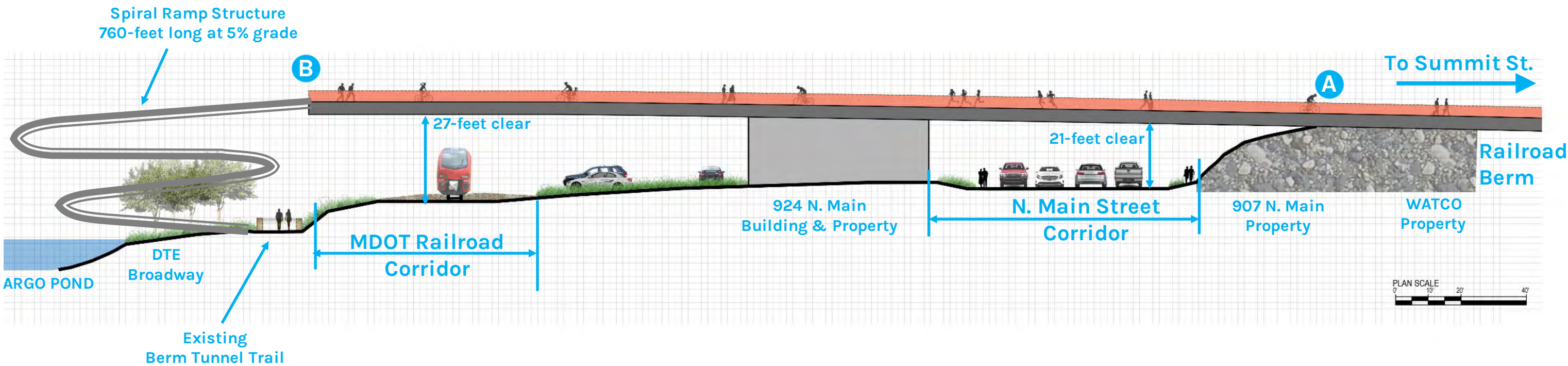
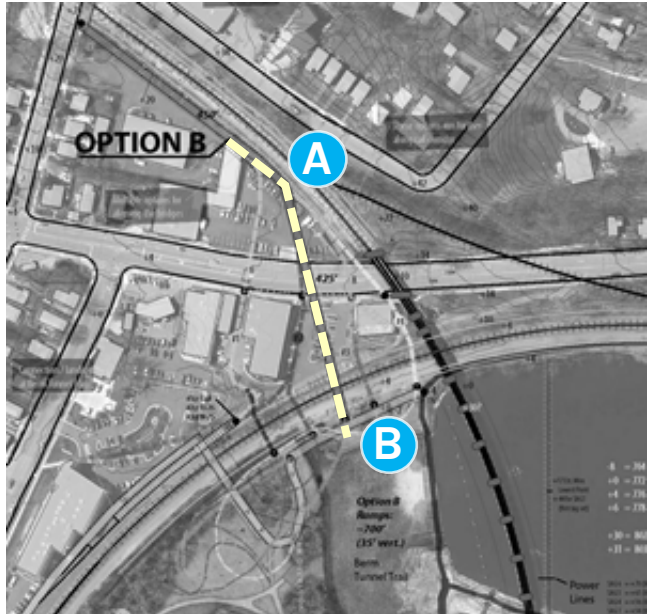




# OPTION B

## PROFILE

This cross-section shows the portion of the Option B Trail from the WATCO railroad berm behind 907 N. Main, crossing MDOT, traversing through 924 N. Main, crossing over MDOT rail corridor, and eventually ramping down into the DTE Broadway site near the Allen Creek outfall and newly built pedestrian bridge.



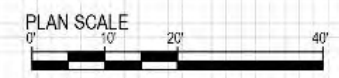
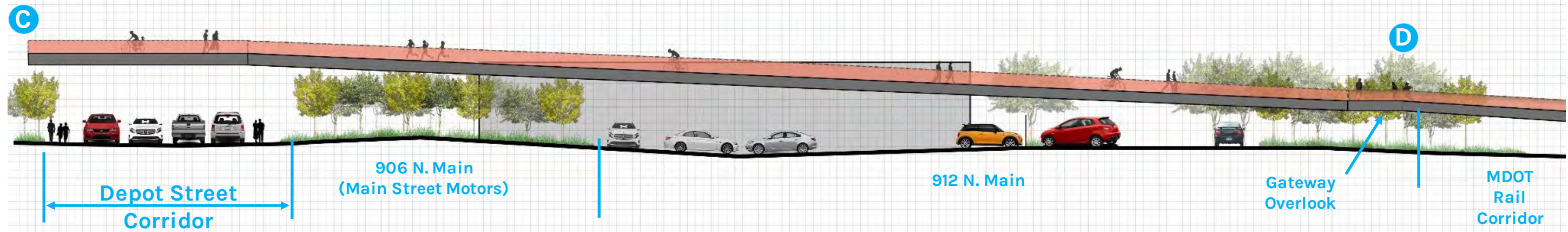
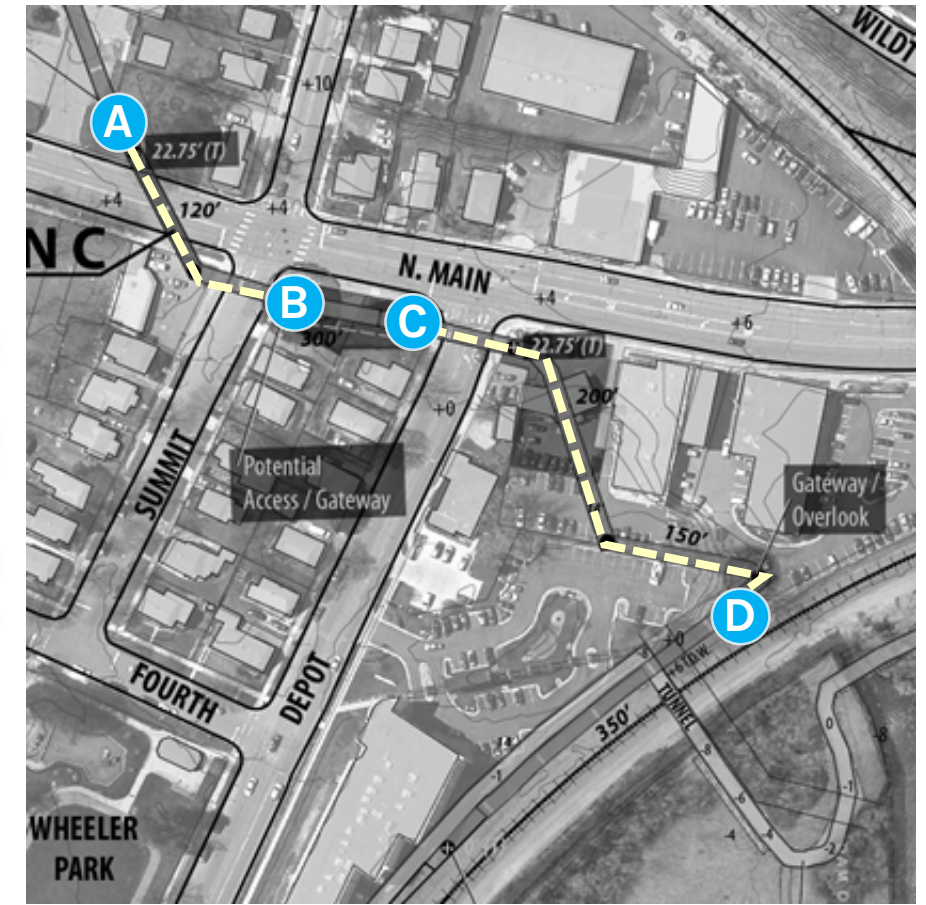
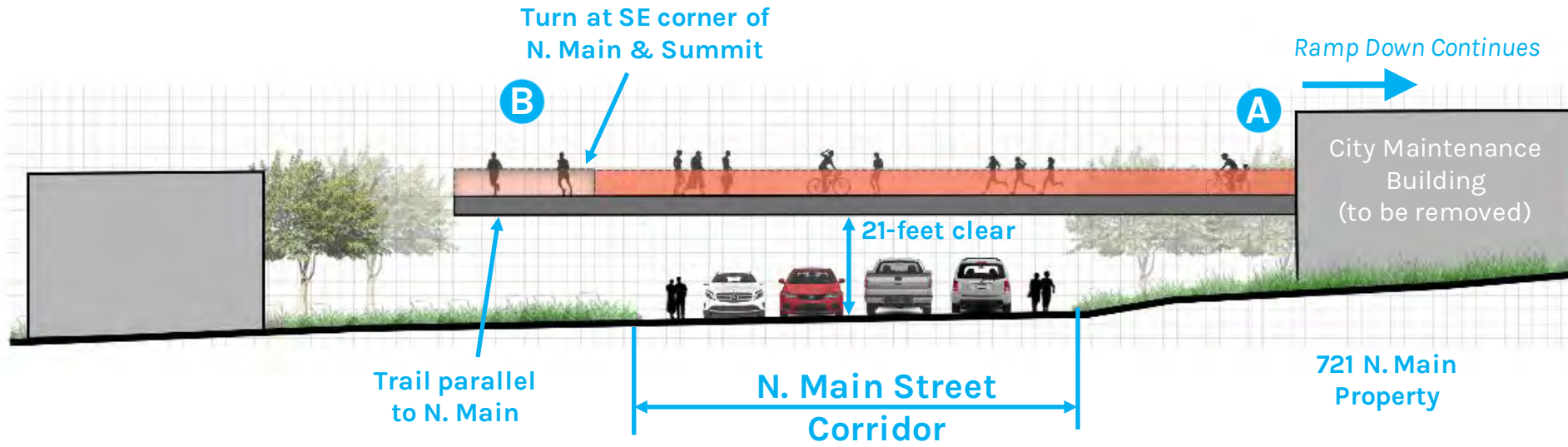






# OPTION C

## PROFILE





# OPTION C

## VIEW OF ELEVATED TRAIL AT NORTH MAIN AND DEPOT





# OPTION C BERM TUNNEL CONNECTION





# OPTION C OVERVIEW ELEVATED SECTION





# ON-GRADE OPTION

## ROUTE ALTERNATIVE

During the planning process, an alternative on-grade option was considered as a contingency if property access related to the primary options (A, B, and C) became infeasible. This on-grade option would utilize public property and street ROW to the fullest extent possible. Note that N. Main and Depot Street are major corridors into town, connecting to M-14 and regional routes.

1. The trail runs through 721 N. Main and connects to the N. Main and Summit intersection. Long-term, a property at corner of N. Main and Summit could be acquired and made into a gateway plaza or pocket park.
2. The trail continues east on Summit Street, utilizing improvements to the crossing at N. Main. On-street parking would be removed from Summit Street on one side, creating space for a separated bikeway and sidewalk to connect to Wheeler Park.
3. The pathway through the park could be expanded and clarified as being part of the Treeline Trail, upgrading park amenities along the trail. The trail turns at Fifth Ave and connect to Depot Street.
4. Improvements at Depot and Fifth Ave would enhance intersection crossing safety, comfort, and could also serve as a gateway point for the Treeline Trail.
5. After crossing Depot, the trail links with the berm tunnel tail and utilizes that connection to the Border-to-Border Trail.





# ON-GRADE OPTION

## SUMMIT STREET CROSS-SECTION

These cross-section show the existing (top) and potential (below) configuration for Summit street between N. Main and Fourth Ave. This block of roadway has a 62 feet wide ROW (slightly narrower than most city streets). Reconstructing the south half of the roadway (left side) could allow for creation of a shared-use side path trail (12-foot wide as shown) with clear zones on either side. A 7-foot wide landscape zone can provide space for plantings and stormwater management.

The roadway continues to provide 2-way traffic, with parking remaining on the north-side of the road. The on-street parking could be dedicated entirely to residential parking permit holders to compensate for spaces lost on the south side of the road.

EXISTING



POTENTIAL





An aerial photograph of a city street grid, showing a mix of residential and commercial buildings, trees, and roads. A large yellow number '4' is overlaid on the image, followed by the text 'ROUTE EVALUATION' in white, bold, uppercase letters.

# 4 ROUTE EVALUATION



# ROUTE EVALUATION

## ENGAGEMENT, ASSESSMENT, PRIORITIZATION

The evaluation of Treeline route options was oriented towards determining both the **feasibility** of each option and the **desirability** of the option from a user experience and performance standpoint.

Three key elements underpinned the evaluation of route options:

### ENGAGEMENT

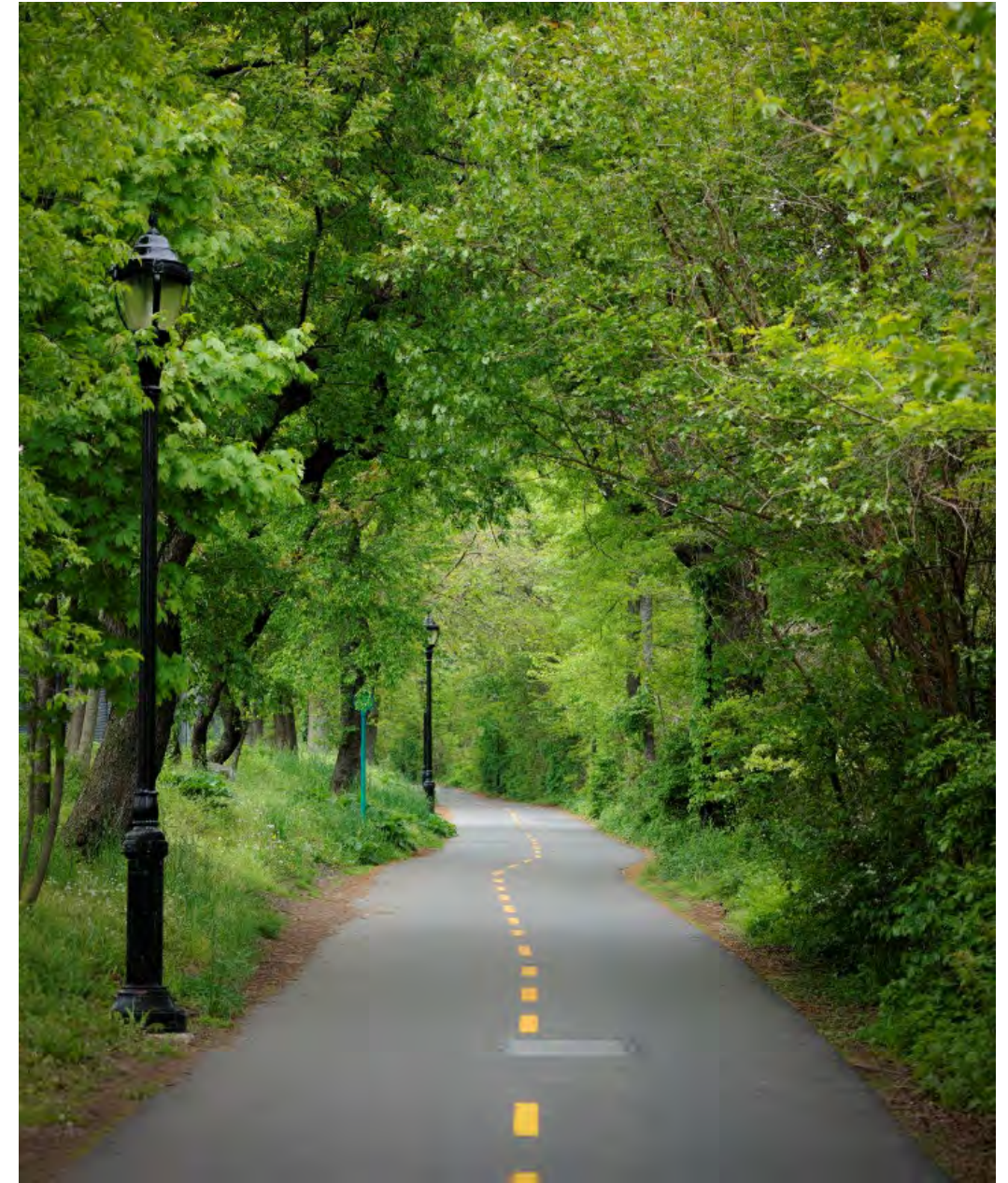
Engaging property owners and public agencies was critical to establishing overall feasibility of the route options, and the likelihood of progressing from concept to completion.

### TRANSPARENCY

Clear criteria were established, based on the guiding principles and functional objectives, to help guide and structure decision making and to aid in narrowing down to a preferred option.

### PRIORITIES

While it was important to assess all options against the guiding principles and functional objectives, the project team conducted a prioritization exercise to understand what criteria were most important as a basis for selecting a preferred option, which is shown on page 51.





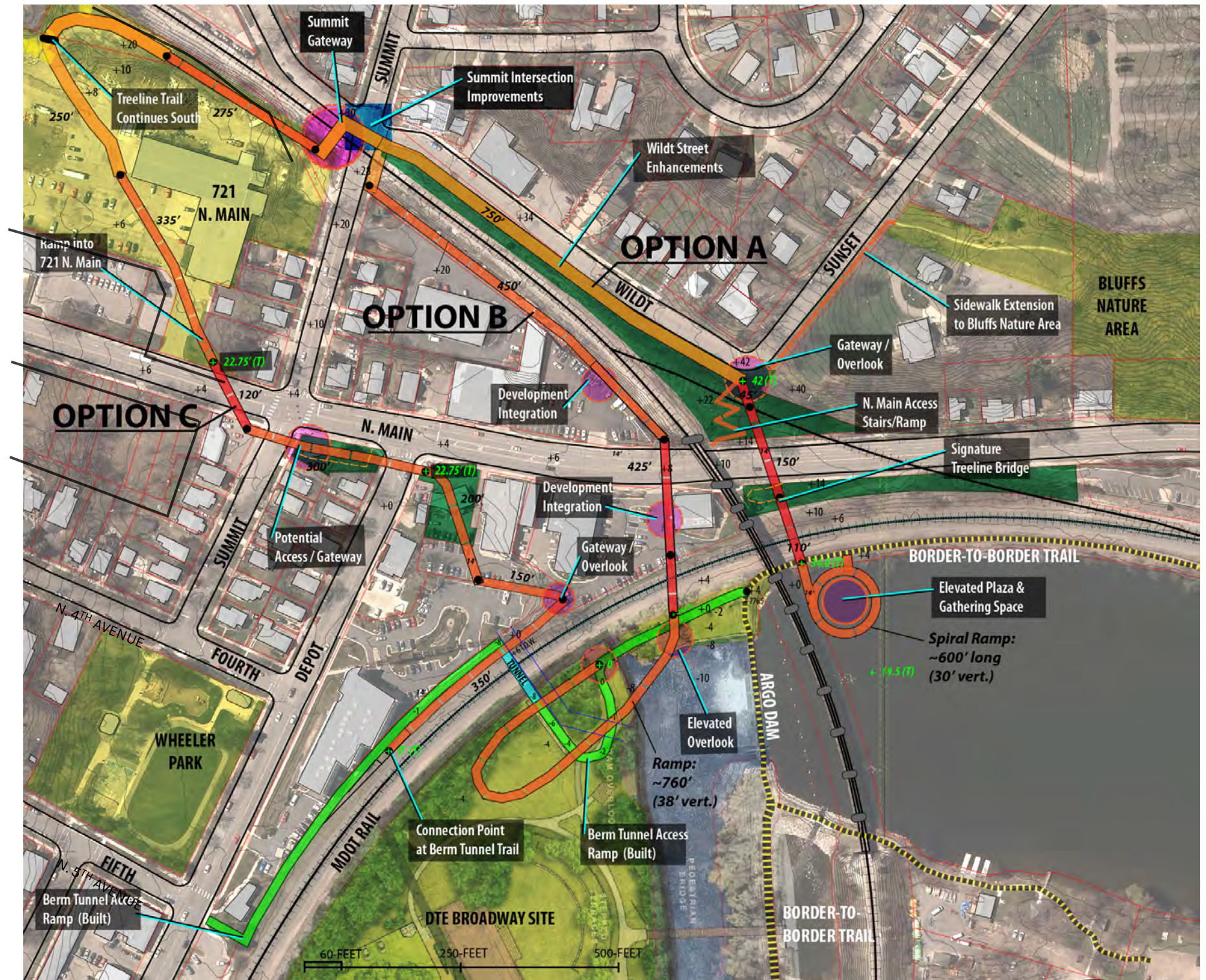
# ROUTE EVALUATION

## STAKEHOLDER ENGAGEMENT

The project team approached all critical stakeholders to gain input as to the **feasibility** of a route passing through a given property. This included private landowners as well as public agencies.

Stakeholders were presented with the route options and technical details associated with each. Discussions were had as to the potential opportunities and challenges each alignment presented related to each property.

**The route options described in this report do not in any way convey agreement to, or acceptance of, the route from the perspective of a given property owner. No agreements have been reached with any of the affected property owners to date.**





# ASSESSMENT CRITERIA

## EVALUATING THE OPTIONS

Assessment criteria were grouped into four different categories.

**Mobility & Connectivity** and **Trail Views & Aesthetics** are important criteria from standpoint of the user experience, safety, comfort, accessibility, and connectivity onto and off-of the trail.

**Technical Feasibility** related to the relative ease of engineering and permitting the project, as well as securing access to private and/or public land in order to have the space to build the trail.

**Cost & Time Frame** assesses the likely fiscal costs and timing for construction.

### MOBILITY & CONNECTIVITY

Bike Access + Comfort

Trail Grade / Slope

Trail Width + Comfort

Safety + Road Crossings

Points of Access/Connectivity

### TRAIL VIEWS & AESTHETICS

View FROM the trail / user experience

Views TO the trail

Noise / Atmosphere

Landscape/Amenities ON the trail

Landscape/Amenities NEAR the trail

### TECHNICAL FEASIBILITY

Engineering Complexity

Agency Permitting

PRIVATE Property Access

PUBLIC Property Access

Utility Impacts

### COST & TIME FRAME

Time Frame for Implementation

Construction Costs

Private Fundraising Potential (donors)


Grants / Public Funding Potential

Maintenance Needs / Cost



# PRIORITIZING CRITERIA

The project team reviewed and ranked the criteria in order of importance. The top two criteria in each category were noted as having a high importance in decision making and assessment of the route options.

 = high importance relative to other criteria

MOBILITY & CONNECTIVITY	TRAIL VIEWS / AESTHETICS	TECHNICAL FEASIBILITY	COST & TIME-FRAME
<b>Bike Access &amp; Comfort</b> 1 2 3 3 3 4 3 1 5 Highs (1-2): 3      Modest Importance Lows (4-5): 2	<b>Views FROM the trail / Unique experience</b> ★ 2 1 1 3 1 1 1 2 1 2 <b>9</b> Highs (1-2): 9 <b>HIGH IMPORTANCE</b> Lows (4-5): 0	<b>Engineering complexity</b> 2 3 3 4 4 3 4 5 2 Highs (1-2): 2      Modest Importance Lows (4-5): 4	<b>Time-frame for implementation</b> 4 1 4 2 1 5 5 4 4 Highs (1-2): 3      Low Importance Lows (4-5): 6
<b>Trail Grade / Slope</b> 5 5 5 4 5 5 4 2 1 1 Highs (1-2): 3      Low Importance Lows (4-5): 7	<b>Views TO the trail from Surrounding context</b> 4 2 5 4 5 3 3 1 4 3 Highs (1-2): 2      Low Importance Lows (4-5): 5	<b>Agency permitting</b> ★ 1 4 2 4 3 2 4 2 2 1 <b>6</b> Highs (1-2): 6 <b>HIGH IMPORTANCE</b> Lows (4-5): 3	<b>Construction costs</b> 3 5 5 4 5 4 3 3 5 Highs (1-2): 0      Low Importance Lows (4-5): 6
<b>Trail Width &amp; Comfort</b> ★ 2 3 2 1 2 2 1 5 4 4 <b>6</b> Highs (1-2): 6 <b>HIGH IMPORTANCE</b> Lows (4-5): 3	<b>Noise / atmosphere</b> 3 3 2 5 2 5 5 5 5 5 Highs (1-2): 2      Low Importance Lows (4-5): 6	<b>PRIVATE property access</b> 4 2 1 1 1 3 2 3 4 3 <b>5</b> Highs (1-2): 5      Modest Importance Lows (4-5): 2	<b>Private fund-raising potential (donors)</b> ★ 2 3 2 1 1 2 3 2 1 2 <b>7</b> Highs (1-2): 7 <b>HIGH IMPORTANCE</b> Lows (4-5): 0
<b>Grade-Separated Road-Crossing</b> 4 4 4 5 4 1 5 4 2 2 Highs (1-2): 3      Low Importance Lows (4-5): 7	<b>Landscape / amenities "on the trail"</b> ★ 1 3 3 1 3 2 2 3 3 1 <b>5</b> Highs (1-2): 5 <b>HIGH IMPORTANCE</b> Lows (4-5): 0	<b>PUBLIC property access</b> ★ 3 1 4 2 2 1 1 1 4 2 <b>7</b> Highs (1-2): 7 <b>HIGH IMPORTANCE</b> Lows (4-5): 2	<b>Grant / public grant potential</b> ★ 1 4 1 5 4 2 1 2 1 <b>6</b> Highs (1-2): 6 <b>HIGH IMPORTANCE</b> Lows (4-5): 2
<b>Points of Access / Connectivity</b> ★ 3 1 1 2 1 3 2 3 5 3 <b>5</b> Highs (1-2): 5 <b>HIGH IMPORTANCE</b> Lows (4-5): 1	<b>Landscape / amenities "near the trail"</b> 3 4 4 2 4 4 4 4 2 4 Highs (1-2): 2      Low Importance Lows (4-5): 7	<b>Trail length</b> 5 5 5 5 5 5 5 5 5 5 Highs (1-2): 0      Low Importance Lows (4-5): 10	<b>Maintenance needs/costs</b> 5 2 3 3 3 1 4 5 3 Highs (1-2): 2      Modest Importance Lows (4-5): 3



# OPTION A

## EVALUATION SUMMARY

### MOBILITY & CONNECTIVITY

- Achieves large smooth curves for pleasant user experience
- Good access for residents in Water Hill area
- Multiple points of access on at-grade section along Wildt Street
- On-grade crossing at Summit is an opportunity to improve the intersection for all users

### TRAIL VIEWS & AESTHETICS

- Signature element on Main Street
- Dramatic views out over Argo Pond
- Trail located in more residential and natural environments, providing a potentially calmer setting
- On-grade section has opportunity for landscape/amenities near trail

### TECHNICAL FEASIBILITY

- Total length = 2,070 linear feet
- Elevated trail = 1,120 linear feet
- Additional engineering and construction complexity for building over the water and down to bedrock
- Two private properties access easements required (WATCO and Peter Allen)
- New structures (bridge footings) in the floodplain will require additional floodplain modeling
- Limited private utilities along route, but overhead power lines over Argo Pond present design challenge

### COST & TIME FRAME

- Cost Range = \$12 - 19 million
- Private funding potential for signature bridge/ramp feature
- Timeline contingent on property access, agency approvals, permitting, and funding

### OVERALL CONSIDERATIONS

Option A reflects the alignment in the Treeline Master Plan. The signature bridge over N. Main and the spiral structure over Argo Pond would create a unique experience and be a destination of its own. The usability and comfort of the trail is high, with opportunities for frequent points of access. The biggest obstacle is the need to secure easements to WATCO rail property, but other properties needs are relatively minor. While constructed within Argo Pond near the shoreline poses unique construction complexities, the methods are known and viable.



# OPTION B

## EVALUATION SUMMARY

### MOBILITY & CONNECTIVITY

- Design goal is large smooth curves for pleasant user experience
- Good access for residents in Water Hill area
- Limited points of access to elevated trail, dependent on private development
- On-grade crossing at Summit presents design challenge

### TRAIL VIEWS & AESTHETICS

- Views of bridge feature may be blocked by WATCO Rail bridge for in-bound vehicles
- Potential for dramatic views from the trail out over Argo Pond
- Trail runs through commercial properties, and aesthetics contingent on the design of future developments.

### TECHNICAL FEASIBILITY

- Total length = 2,050 linear feet
- Elevated trail = 1,850 linear feet
- Three private property access easements required, including WATCO railroad. This option, relative to Option A, was not a preferred design direction.
- Structure below dam may require additional engineering to meet permit requirements
- New structures (bridge footings) in the floodplain will require additional floodplain modeling
- Chance of impacting private utilities

### COST & TIME FRAME

- Cost Range = \$13 - 21 million
- Private funding potential for signature bridge/ramp feature
- Timeline contingent on property access, agency approvals, permitting, and funding

### OVERALL CONSIDERATIONS

Option B reflects a challenging proposition. Development of the trail highly contingent on private property development in order to fully realize the benefits of this trail, the timeline of which poses challenging for moving forward swiftly with implementation. While the elevated walk provides experiential positives, it is also the longest and potentially the most expensive option with the greatest degree of property owner coordination being required.



# OPTION C

## EVALUATION SUMMARY

### MOBILITY & CONNECTIVITY

- No on-grade road crossings
- Limited points of access to elevated trail section
- Switchbacks necessary
- Utilizes berm tunnel as part of main Treeline alignment

### TRAIL VIEWS & AESTHETICS

- Potential for signature bridge over Main Street
- Trail passes through commercial properties and along Main Street, creating an experience more integrated with the surrounding urban environment.

### TECHNICAL FEASIBILITY

- Total length = 1,705 linear feet
- Elevated trail = 1,105 linear feet
- Four private properties access easements required
- The ramp down at the south end would be tied to needed improvements on 721 N. Main
- Tunnel may experience periodic flooding
- Careful design considerations for sections of trail running parallel to N. Main to ensure adequate offset/protection
- New structures (bridge footings) in the floodplain will require additional floodplain modeling
- Trail width constrained where it runs parallel to the MDOT rail tracks and may require special permission from MDOT and/or may not meet desired trail width. *See appendix for additional design details.*

### COST & TIME FRAME

- Cost Range = \$9 - 18 million
- Private funding potential for signature bridge
- Timeline contingent on property access, agency approvals, permitting, and funding

### OVERALL CONDITIONS

Option C prioritizes creating a connection to the completed berm tunnel trail, provided by an elevated trail section running parallel to N. Main and utilizing adjacent public and private property. The trail threads its way through a more bustling urban environment, with views of buildings, roadways, and parking area. Landscape areas can be created below the trail on accessed property. The trail has acute physical constraints near the MDOT railroad corridor, where the trail width may need to be narrower than desired and include sharp turns creating less seamless movement for users.



# ON-GRADE OPTION

## EVALUATION SUMMARY

### MOBILITY & CONNECTIVITY

- On-street sections provide multiple user access points from neighborhoods in all directions
- Uses the berm tunnel as part of the main Treeline alignment
- Legible and logical routing
- Three on-grade street crossings

### TRAIL VIEWS & AESTHETICS

- Traverses mainly residential and park environment
- On-grade trail has expanded opportunities for landscape/amenities near trail
- Main trail alignment through Wheeler Park

### TECHNICAL FEASIBILITY

- Total length = **XXX linear feet**
- One private property access easement required, but the option to contain it all within public ROW is possible.
- Least complicated engineering solution

### COST & TIME FRAME

- Cost Range = **\$XX - XX million**
- Public / grant funding potential
- Shortest timeline to implementation

### OVERALL CONSIDERATIONS

The On-Grade Option is considered as fallback option if property access ultimately precludes the feasibility of Options A, B, or C. The alignment is predominately within public ROWs, and could easily move forward with implementation using methods and designs consistent with other built sections of the Treeline Trail. This option has ancillary benefits in terms of improving intersection comfort and safety at N. Main and Summit Street. It is also the only option that incorporates Wheeler Park into the primary alignment of the Treeline.

However, this option falls short of the “transformative and unique experience” guiding principle and does not provide the “must-have” safe and comfortable crossing of Main Street that would be provided with the elevated crossings in the primary options A, B and C.



# ANALYSIS CONCLUSIONS

## EVALUATION SUMMARY

- All options appear **technically feasible** from an engineering and permitting standpoint, though have various difficulties involved. A similar level of technical design and complexity is evident on each option, with a broadly similar range of permitting requirements.
- From a **land access feasibility** standpoint, each option provides a distinct challenge:
  - **Option A:** Coordination with WATCO and securing property access through an active rail corridor
  - **Option B:** Trail construction likely tied to private property redevelopment and associated costs and timing, as well as WATCO property access.
  - **Option C:** Access to the MDOT rail property would be under very constrained conditions, coupled with needing to access multiple private properties. South end is tied to changes to the 721 N. Main property.
- **Costs** for each option are highly variable depending on the ultimate design direction. However, costs fall within similar orders of magnitude across all three options. Additionally, costs were not deemed to be a driving priority factor in option selection.
- The **time frame** for implementation is anticipated to vary by options. Option A is likely the quickest and B the longest to implement. Option C may be similar to option A but can lengthen depending on the pace of property acquisitions.

If multiple options remain feasible from a property access standpoint, and considering that costs were not a driving factor for selection, the following approach is recommended:

The preferred route should be selected based on which option best creates the most impactful user experience and enduring value to the community within an acceptable timeframe for implementation should drive selection of a preferred option.



# ALIGNMENT STUDY RECOMMENDATIONS

## NEXT STEPS TOWARDS IMPLEMENTATION

The findings of this study show a preference for Option A and Option C, which both require additional investigation in order to advance implementation. The following items are important next steps to address for both options to narrow down to the most feasible and preferred route:

- Environmental site investigations for key properties along the alignment of both options. Need to understand what if any contamination is present and what if any remediation steps are needed.
- Property title investigations for selected properties, to confirm limits, extents, and ownership.
- Continued engagement with relevant stakeholders for both options, to better understand individual needs for securing property access – either through easements or purchase.

While the initial intent of this alignment study was to determine a route to move forward into implementation, the unique complexities of this area given physical conditions and property ownership, make it clear that pursuing multiple viable and beneficial options in parallel will be needed until such time that an implementable route can be determined.

The investigations of this alignment study, the parameters uncovered, and the ideas explored will provide the City of the Ann Arbor and the Treeline Conservancy with a robust assessment of the options as a basis for decision making moving forward.





An aerial photograph of a city street grid, showing a mix of residential and commercial buildings, trees, and roads. The image is in a dark, monochromatic blue-grey tone. Overlaid on the lower right portion of the image is a large, bold yellow number '5' followed by the text 'DESIGN AESTHETICS' in a white, bold, sans-serif font.

**5** DESIGN AESTHETICS



# DESIGN AESTHETICS

## TRAIL CHARACTER, AMENITY, EXPERIENCE

The design character of trails and greenways is a vital element of how they create experience, attract people, reflect the local context, and bring value to the community. The character of a trail is largely driven by the flow and movement of the route and viewshed through which it passes. This character and desired experience can be reinforced through paving and structure materials, design details, architectural elements, lighting and amenities, landscape, and the integration of artwork and local expression.

However, these same elements have a significant bearing on the cost and complexity of projects, which is reflected in the wide ranges of costs associated with each option.

This section of the report describes several case studies to provide context for design aesthetics and potential cost implications, and then highlights a range of preferred design approaches discussed during the planning study that help define the character specific to the Treeline Trail.



Dequindre Cut  
Detroit, MI



# DESIGN AESTHETICS

## PRECEDENT STUDY

### Frances Appleton Pedestrian Bridge

Location: Boston, MA

Designer: Miguel Rosales

- 14' wide, and 750' long
- \$12,500,000 total cost
- \$16,700 per linear foot
- Project initiated in 2008
- Opened to public in 2019





# DESIGN AESTHETICS

## PRECEDENT STUDY

### Indianapolis Cultural Trail

Location: Indianapolis, IN

Designer: Rundell Ernstberger Associates

- 8-mile trail length
- \$63,000,000 total cost
- \$1,500 per linear foot
- Mostly on-grade
- Planning begun in 1999, Design and engineering began in 2005 and construction in 2007.
- 25,00 SF of stormwater management facilities





# DESIGN AESTHETICS

## PRECEDENT STUDY

### 606 Bloomingdale Trail ('The 606')

Location: Chicago, IL

Designer: Collins Engineers, Frances Whitehead, and Michael Van Valkenburgh Associates

- 2.7 mile trail length
- \$95,000,000 total cost
- \$6,650 per linear foot
- 20 acres of open space
- Public-private partnership
- Planning begun in the 1990's, the first phase opened in 2015.





# DESIGN + AESTHETICS

## OVERALL CHARACTERISTICS

The project team identified general characteristics as indicative of the desired visual feel for the Treeline Trail. The subsequent pages will explore ways in which the general aesthetic direction may inform various site and trail elements.

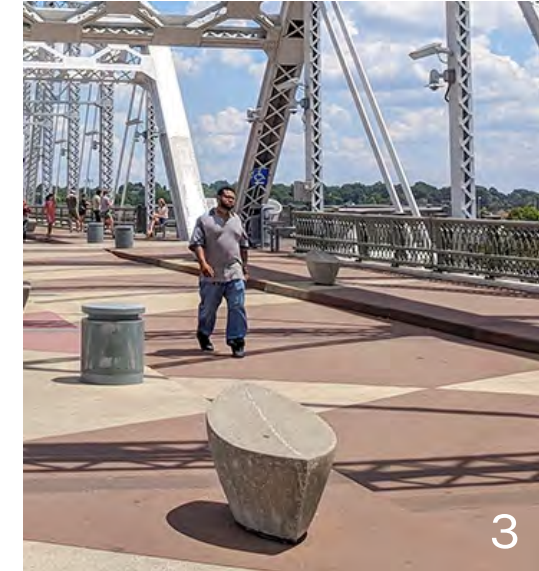
- Aesthetic harmony along the trail
- Coordinated with other sections of the Treeline already installed
- Use of colorful and innovative materials where appropriate
- Modern, unique look
- Bridge structure(s) as opportunity for one-of-a-kind statement piece(s)
- Choose materials with long-term maintenance needs in mind.
- Integrated artistic features





# HARDSCAPE + PAVEMENTS

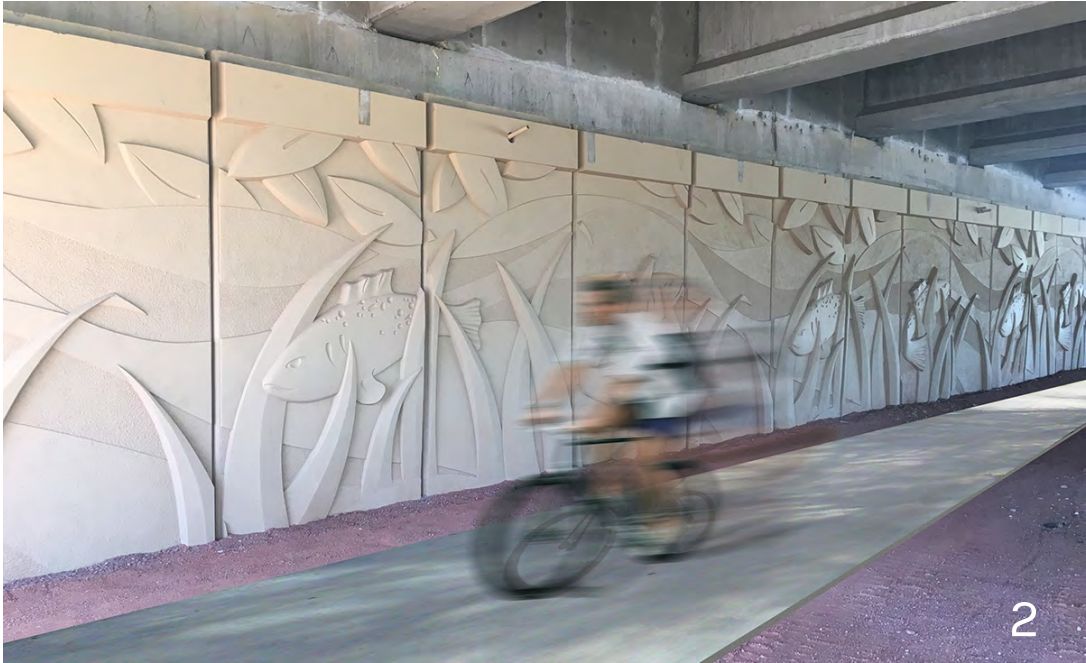
- Durable materials with consideration of long-term maintenance needs
- Asphalt or concrete for main pathways
- Pavers and specialty concrete to highlight nodes, entrances, or gathering areas
- All pavements to meet ADA requirements
- Warm color palette





# WALLS + LANDSCAPE STRUCTURES

- Consider opportunity for inclusion of art or specialty treatments where appropriate
- Prioritize long term maintenance and durability
- Cast-in-place concrete with formliner treatment
- Precast Concrete panels
- Segmental walls considered if aesthetically appropriate for use and location.





# ELEVATED STRUCTURES

## PIERS + BRIDGE SPANS

- Opportunity for structural elements as artistic expression
- Seamless integration of safety requirements with artistic expression

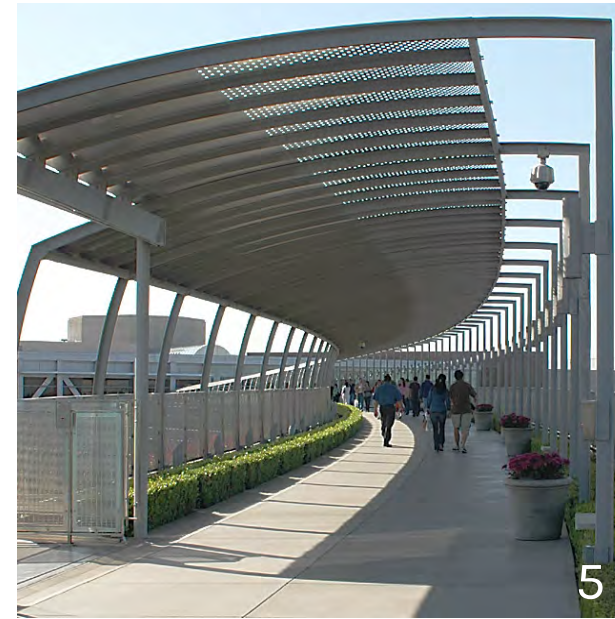
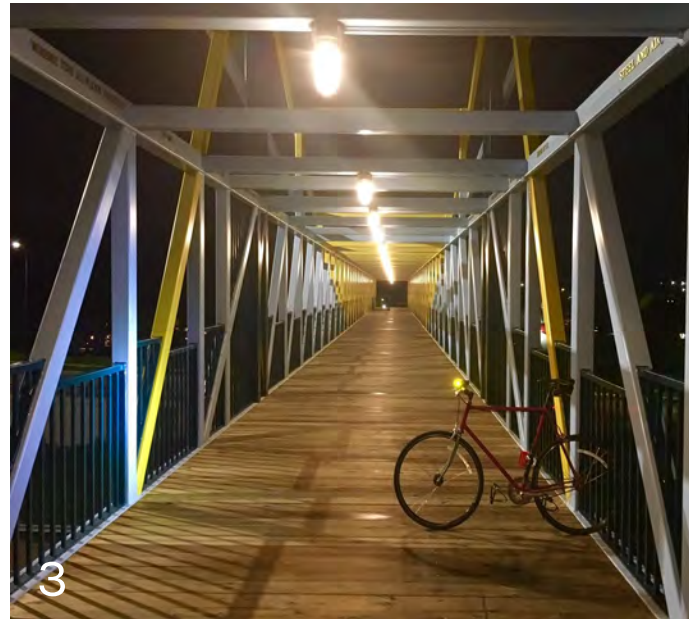




# ELEVATED STRUCTURES

## OVERHEAD ELEMENTS

- Opportunity for signature / gateway elements
- Seamless integration of safety requirements with artistic expression





# ELEVATED STRUCTURES

## RAMP CONFIGURATIONS

- Grade-change devices, ideally kept below 5% slope to allow for maximum accessibility
- Both switchback and spiral options
- Incorporate landings or lookouts where possible to allow users to stop and view without disrupting flow of other users.





# RAILINGS

- Customized to complement bridge expression
- Coordinating color palette
- Meet safety needs while keeping views to and from trail open and clear
- Bridge structure(s) may have enhanced railing not used in other guardrail applications along The Treeline Trail





# PLANTING ON STRUCTURE

- Accommodating planting on the bridges or elevated sections will be dependent on trail width.
- Opportunities for planting within the user area and outside of structure railing
- Railings and enclosures may need to be adjusted to allow for planting while still meeting safety requirements
- Consider irrigation, long-term maintenance needs for successful plantings

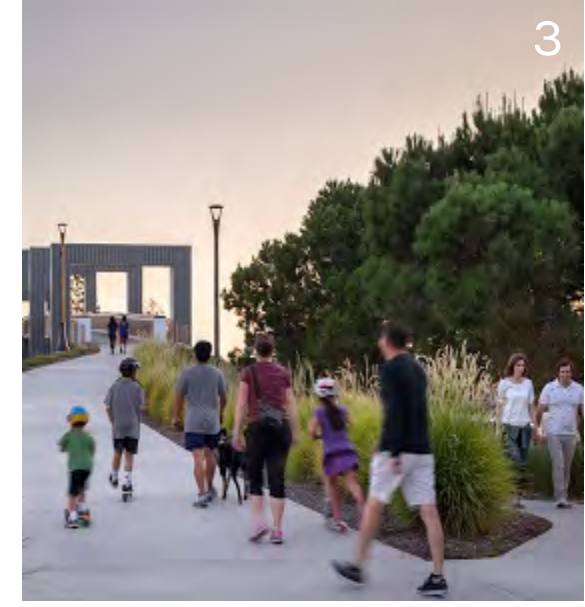




# LANDSCAPE PLANTING

## ON-GRADE, ADJACENT TO TRAIL

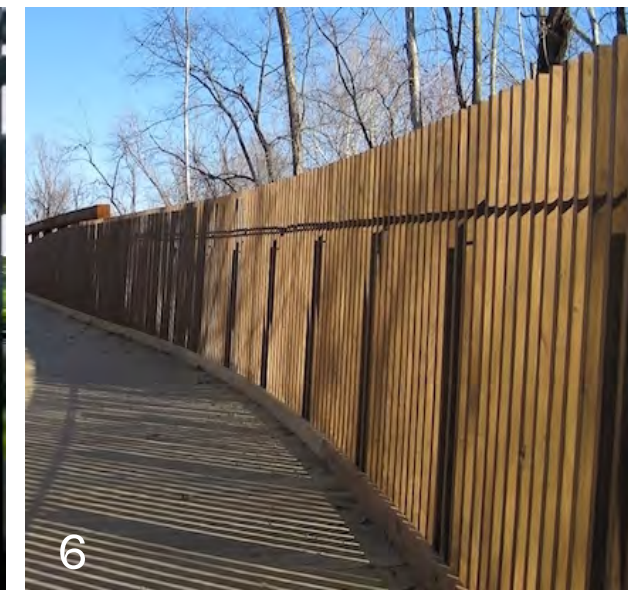
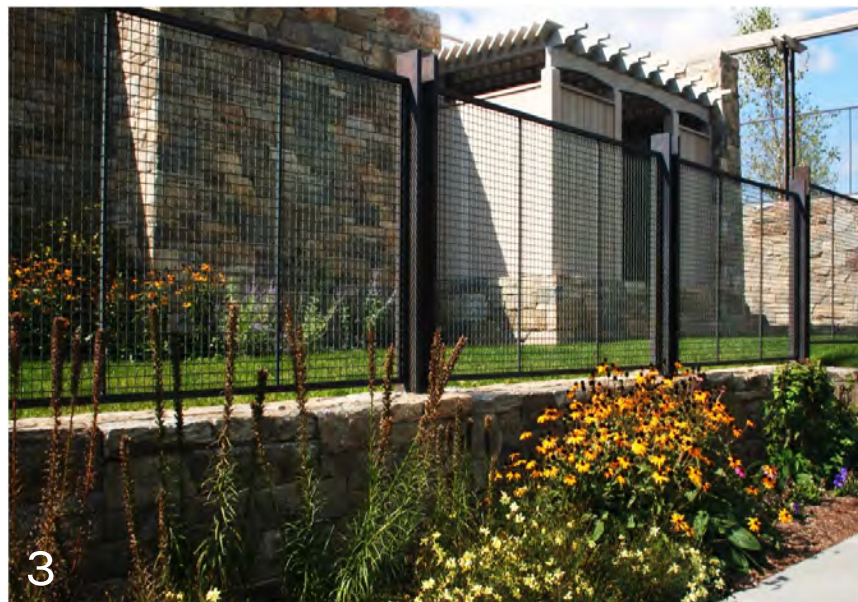
- Native or adapted species appropriate to the usage and site conditions
- Prioritize ease of maintenance and long-term success
- Landscape treatment may intensify at nodes or high-impact areas





# FENCE

- Coordinate with railings and other site materials along route
- Consider openness vs. opaqueness based on location and needs (ie. provide security but allow views, or block undesirable views)





# SEATING

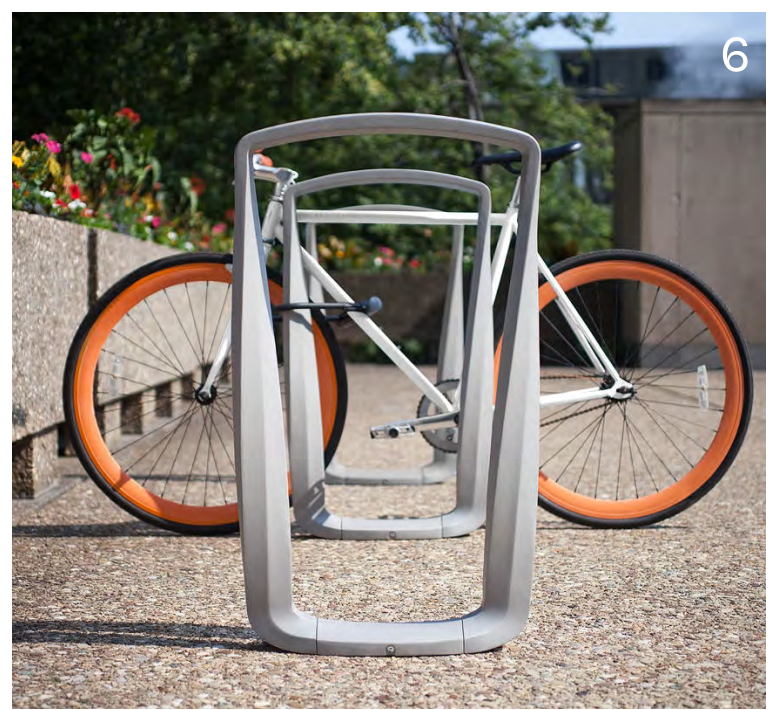
- Wood and metal
- Modern, natural look
- Coordinate with existing site furnishings along built sections of the Treeline
- Consider backed benches at locations where seating needed for longer periods of time





# BIKE-RELATED AMENITIES

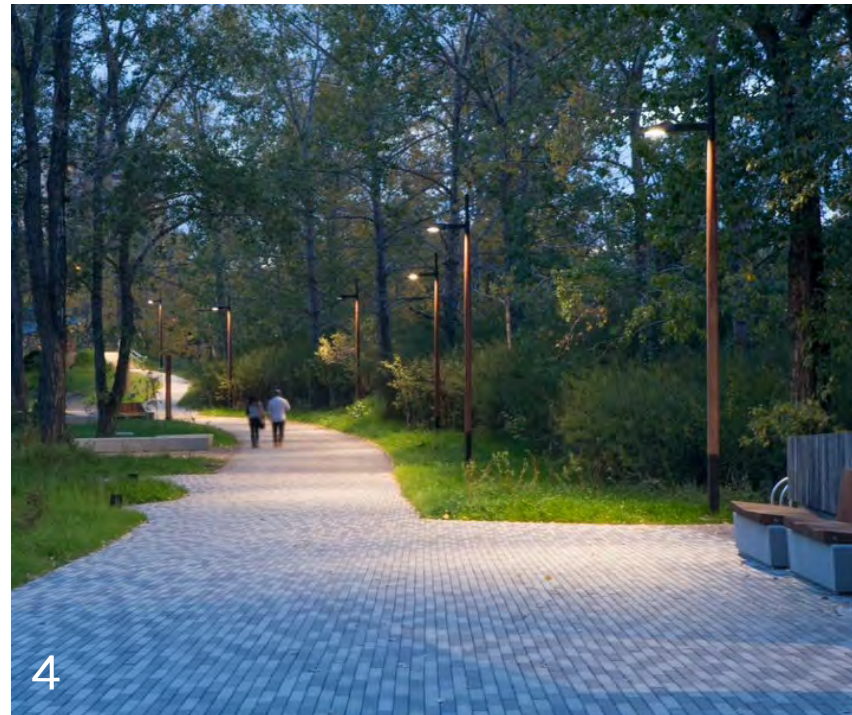
- Bike racks as opportunities for functional art
- Bike fix-it stations at major nodes along trail possible





# LIGHTING

- Metal poles, coordinated with other site amenities
- Integrated into railing where appropriate
- Pedestrian-scale
- Dark-sky compliant
- Simple, modern lighting along trail with opportunity to use accent lighting to highlight signature features such as bridge structures.





# WAYFINDING / SIGNAGE

- Opportunity to create a branded wayfinding and interpretive experience for the Treeline, connect users to local and regional trails.
- Materiality consistent with other trail elements
- Accessible, eye-catching, and informative





# ARTISTIC ELEMENTS

- Opportunities to use art along the trail and at nodes
- Potential to incorporate local storytelling, artistry, and innovation
- Materiality could complement the trail site features, or intentionally be different such as a 'pop' of color
- Long-term maintenance and upkeep to be considered.
- Art elements to be appropriate for high-use, outdoor environments.





An aerial photograph of a city street grid, showing a mix of residential and commercial buildings, trees, and roads. A large, bold yellow number '6' is overlaid on the image, positioned to the left of the main text. The text 'IMPLEMENTATION + ACTION PLAN' is written in a bold, white, sans-serif font, stacked in two lines to the right of the number.

**6** **IMPLEMENTATION +  
ACTION PLAN**



# IMPLEMENTATION

## ACTION PLAN

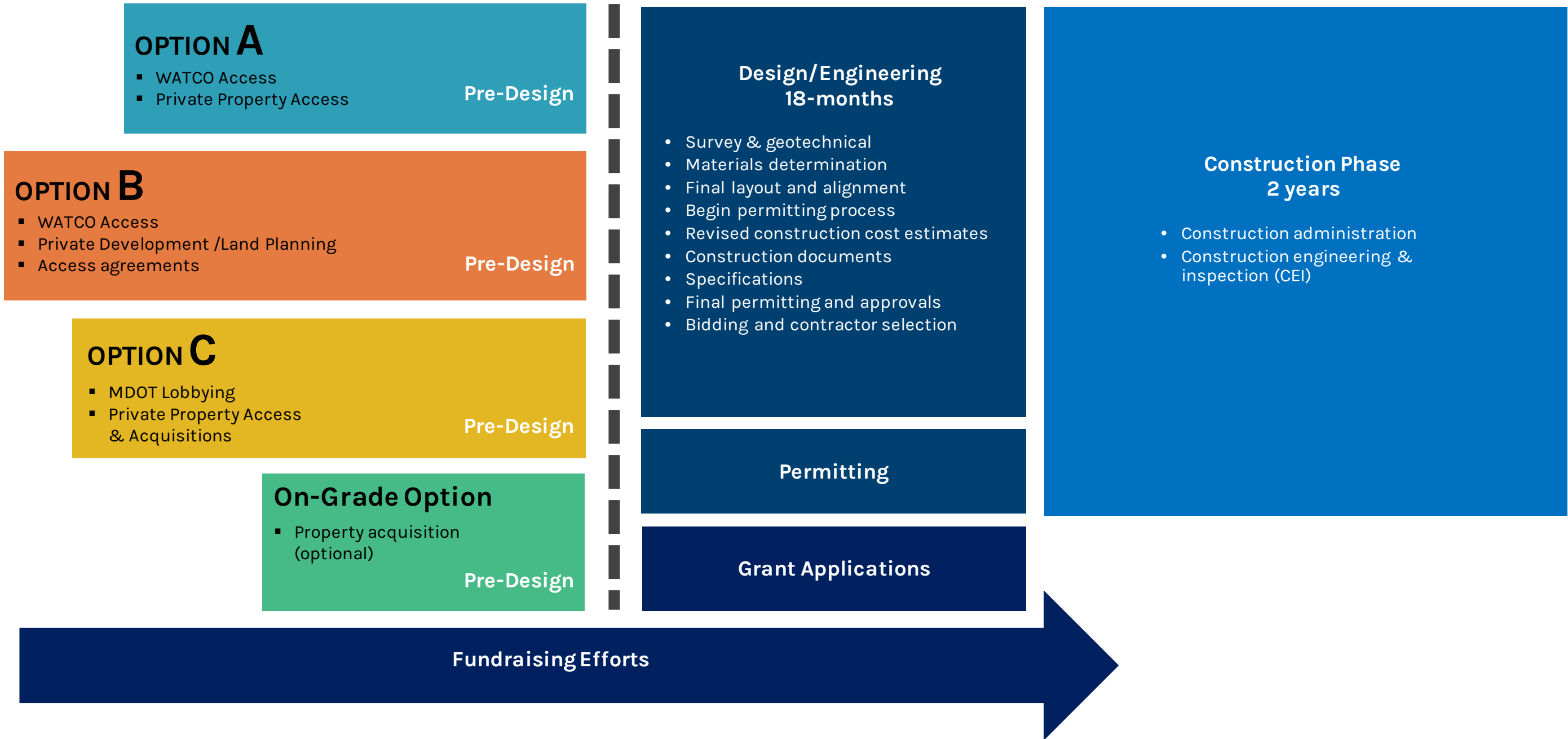
Once a preferred option is selected, the City of Ann Arbor and the Treeline Conservancy can focus on the critical path items needed to advance implementation. The following key topics need to be considered:

- **TIMELINE:** Establish a detailed timeline for implementation. The conceptual timelines (see next page) describe a general timeline, in recognition of a pre-design phase contingent on property access, a 18-24 month design, approval and permitting process, on-going fundraising and grant efforts, and a 2-year construction timeframe.
- **PERMITTING:** Anticipating permitting needs are detailed in this section. These permitting activities would take place during the design/engineering phase, as requirements are typically contingent on more detailed designs being established.
- **FUNDING:** A range of public and non-profit funding sources will need to be aggressively pursued. Many of these sources are outlined later in this section.





# TIMELINE(S)





# PERMITTING

## IMPLEMENTATION

- **EGLE Permit**
  - **Floodplain** – (Part 31) Needed when modifications are made within the floodway / floodplain and Argo Pond. Requires no increases to the flood elevations, maintaining floodplain storage volumes...should not be an issue for any of the options.
  - **Threatened & Endangered Species (T&E)** – Investigate for presence of certain fauna, mussels, animals. If found, typically requires construction date restrictions and/or species relocation prior to construction...should not be an issue for any of the options.
  - **Inland Lakes & Streams** – (Part 301) – Aquatic mussel survey likely required
- **Wetlands** – (Part 303) Investigate for presence of wetlands in the project area. If found, mitigation measures may be required. Federal funding carries more stringent mitigation requirements. Will also need to adhere to local wetland mitigation requirements if applicable (City of Ann Arbor).
- **FERC Coordination (Federal Energy Regulatory Commission)**
  - Needed for options that are in proximity to the dam.
- **MDOT Local Agency Program (LAP) Process**  
Must Obtain NEPA Clearance
  - Needed for projects using state/federal funding.
  - Would seek a Categorical Exclusion (CE). Could potentially require an Environmental Assessment (EA). Environmental Impact Statement (EIS) unlikely to be needed.
  - Environmental Review / Sediment Characterization
  - State Historic Preservation Office (SHPO) Clearance Letter
  - USFW Clearance Letter



# FUNDING – PUBLIC GRANTS: STATE & LOCAL

## IMPLEMENTATION

- **Transportation Alternatives Program (TAP) Grants (\$)**
  - Through MDOT but uses federal funding
  - \$22.1M statewide in 2020, with \$11.4M in matching funds (e.g. Iron Belle \$2.7M)
  - [https://www.michigan.gov/mdot/0,4616,7-151-9621\\_17216\\_18231---,00.html](https://www.michigan.gov/mdot/0,4616,7-151-9621_17216_18231---,00.html)
- **MDNR Grants (\$-\$\$)**
  - Trust Fund: \$15-300K for project development, no limit on land acquisition grants
    - [https://www.michigan.gov/dnr/0,4570,7-350-79134\\_81684\\_79209\\_81657---,00.html](https://www.michigan.gov/dnr/0,4570,7-350-79134_81684_79209_81657---,00.html)
  - Recreation Passport Grant Program (up to \$150k)
- **Brownfield Funding through Mi EGLE (\$-\$\$)**
  - Up to \$1M grant + \$1M loan per projects - more under special circumstances
  - Act 381 Brownfield TIF financing
  - [https://www.michigan.gov/egle/0,9429,7-135-3311\\_29262---,00.html](https://www.michigan.gov/egle/0,9429,7-135-3311_29262---,00.html)
- **Washtenaw County Connecting Communities Grant (\$)**
  - ~\$500k per year available, typically fund ~10 projects per year
  - <https://www.washtenaw.org/953/Connecting-Communities-Grants>



# FUNDING – PUBLIC GRANTS: FEDERAL

## IMPLEMENTATION

- **FEMA Grants (\$-\$\$\$)**
  - Hazard Mitigation Grant Program – can fund structure acquisition & removal
  - Floodplain Mitigation Assistance (FMA) Grant – mitigation projects that reducing flood zone
  - Building Resilient Infrastructure & Communities (BRIC) grants
  - <https://www.fema.gov/grants/mitigation>
- **Build Grants / INFRA Grants** – Highly competitive federal grant program (\$\$\$)
  - \$5M - \$25M awards in urbanized areas, not more than \$100M to a single state
  - <https://www.transportation.gov/BUILDgrants>
  - <https://www.transportation.gov/buildamerica/financing/infrastructure-grants/infrastructure-rebuilding-america>
- **Federal CRISI Grant** (Federal Railroad Administration) (\$\$)
  - <https://railroads.dot.gov/grants-loans/competitive-discretionary-grant-programs/competitive-discretionary-grant-programs>
  - Focused on rail safety, efficiency, or reliability – could help with crossing improvements
- **CMAQ** – Congestion Mitigation air Quality (Federal Program) (\$\$)
  - Would be difficult to apply for – project needs to be listed in MPO transportation plans



# NEXT STEPS

## ACTION ITEMS

### PUBLIC ENGAGEMENT & APPROVALS

- Public outreach and engagement
- Board Approvals
- City Council Approval

### PRE-DESIGN & PROPERTY ACCESS

- Additional Stakeholder meetings as needed with critical property owners (WATCO, MDOT, etc.)
  - Access acquisition
  - Easement(s) establishment
- Continued utility and agency coordination.
- Environmental assessments for soil and/or remediation needs.
- RFP for engineering services to begin design of preferred option.

### FUNDING & RESOURCE MOBILIZATION

- Establish timelines for grant submissions. Reach out to local and state granting entities (including philanthropic organizations)
- Continue to advance private fundraising efforts
- Endowment establishment
- Fundraising plan development, capital campaign



An aerial photograph of a city, likely a university campus, showing various buildings, roads, and green spaces. The image is in a dark, monochromatic blue-grey tone. Overlaid on the lower center of the image is a large, bold yellow number '7' followed by the word 'APPENDIX' in white, uppercase, sans-serif font.

**7** APPENDIX



# OPTION C

## CONCEPT PLAN

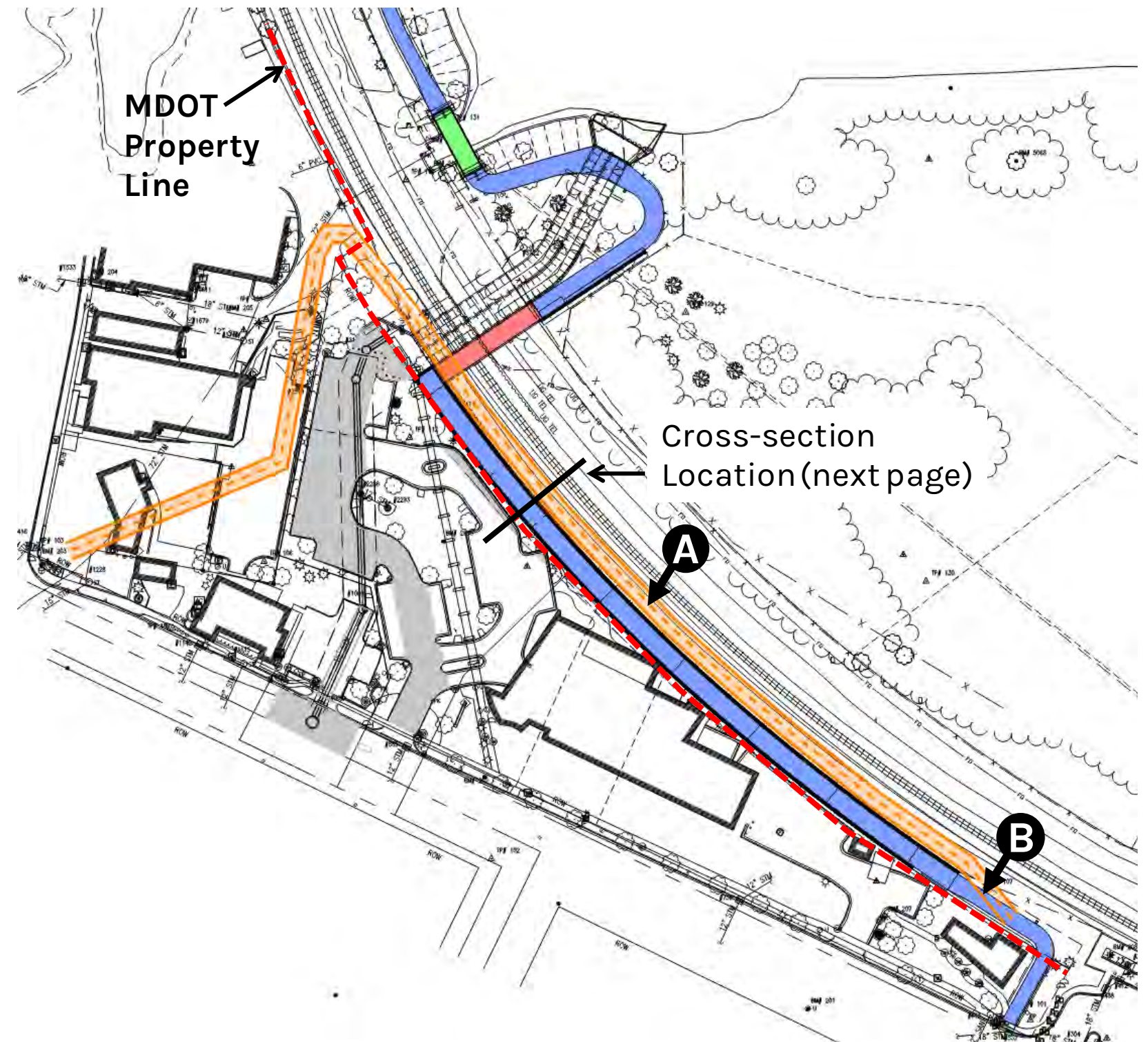
One challenging aspect of Option C is how the new trail would connect to the existing berm tunnel trail. The new trail is located within the MDOT corridor between the berm tunnel trail and railroad track. This places the trail within 25 feet of the railroad tracks. There are two options for how the trail could then connect to the existing berm tunnel trail.

### **A** Preferred Tie-in Location

- Requires very steeply ramping down and creating a second retaining wall to make the tie-in.
- May require re-aligning a portion of the older retaining wall in order to provide for better visibility at the connection point.
- Provides a more direct connection but requires more infrastructure modifications and may limit flexibility adjacent to the railroad.

### **B** Alternate Tie-in Location

- Stays on the surface, following the grade of top of the railroad berm until it meets the existing opening at end of the berm tunnel trail.
- Requires additional fencing between pathway and the railroad, but no second retaining wall needed.
- Pathway may allow for accommodation of railroad maintenance activity, which might make the option more viable from MDOT's standpoint.





# OPTION C

## CONCEPT SECTION TIE-IN **A**

### CROSS-SECTION

- The preferred approach is to provide a full 14-foot wide clear zone for the new trail connection, consistent with the existing berm tunnel trial. This requires adding a second retaining wall next to the railroad tracks. The nearest edge of this wall would be approximately 11-feet clear from the center of tracks.
- This approach would locate trail facilities (wall, paving, and fencing) within 16-feet of the center of the rail tracks, which may not be viable given AMTRAK's usual clearance preferences.

