

Valley Parkway

Trail Alignment

FINAL REPORT

October 23, 2009

Prepared for:

City of Broadview Heights

City of North Royalton

City of Brecksville

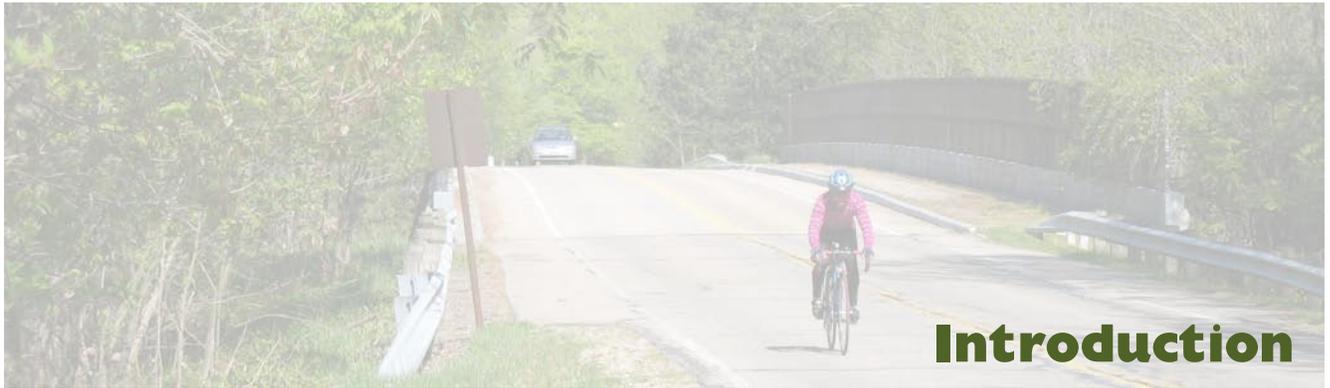
Cleveland Metroparks

Northeast Ohio Areawide Coordinating Agency

Prepared by:

Behnke Associates, Inc.

Hatch Mott MacDonald



The Cleveland Metroparks' Emerald Necklace is the envy of many American cities. The 6-mile long section of Valley Parkway that connects the Brecksville Reservation with the Mill Stream Run Reservation is an important link in the regional loop. The Parkway's 200' wide right-of-way contains a moderately busy two lane roadway, a lightly-used bridle trail, and a abundant amount of mature vegetation, but lacks a trail for safe non-motorized pedestrian use. An All-Purpose Trail would add value to the Cities of North Royalton, Broadview Heights, and Brecksville by connecting their neighborhoods to community resources, both Metropark reservations, the regional trail system ringing Cuyahoga County, the Ohio & Erie Canal Corridor, and the Cuyahoga Valley National Park.

The goal of this study is to determine the best alignment for an All-Purpose Trail (APT) through the corridor, and to identify potential connections to nearby neighborhoods, city centers, schools, places of employment, and recreation areas.

A Transportation for Livable Communities Initiative (TLCI) Grant, administered through the Northeast Ohio Area Coordinating Agency (NOACA,) funded this study. A local match of 20% was provided by the Cities of Broadview Heights, North Royalton, and Brecksville, and Cleveland Metroparks.

Some of the TLCI goals include:

- Enhancing economic viability
- Enhancing citizens' quality of life
- Broadening the range of transportation choices
- Reducing pollution and encourage energy conservation
- Promoting a healthier community
- Improving the safety and efficiency of the transportation system.

As is typically the case for exurbs, the Cities of North Royalton, Broadview Heights, and Brecksville are structured primarily toward the internal combustion engine. When completed, the Valley Parkway Trail will provide a transportation alternative to the automobile, achieve the abovementioned goals, and complete another link in Northeast Ohio's trail network.





Acknowledgements

The following Steering Committee members guided the planning process and development of the report for the study:

Gene Esser

Engineer, City of Broadview Heights

Dave Schroedel

Director of Economic Development
City of Broadview Heights

Tom Jordan

Director of Community Development
City of North Royalton

Victoria McCauley

Engineer, City of Brecksville

James Kastelic

Senior Planner, Cleveland Metroparks

Michelle Johnson

Transportation Planner, NOACA

Tom Zarfoss

Principal Emeritus, Behnke Associates, Inc.

Matt Hils

Principal, Behnke Associates, Inc.

Chris Preto

Engineer, Hatch Mott MacDonald

Existing Conditions Data

The following agencies generously provided data for the existing condition inventory and maps:

City of Broadview Heights Engineering Department

City of North Royalton Community Development
and Engineering Departments

City of Brecksville Engineering Department

Cleveland Metroparks

Cuyahoga County Planning Commission

The Cuyahoga County Engineer's Office

Northeast Ohio Areawide Coordinating Agency

Project Funding

Funding for the project was provided by NOACA and the City of Broadview Heights

Thanks to our citizens

The Committee extends many thanks to the members of the public who took the time to attend the public meetings, and provide their input.





| | | | |
|---|--------|---|--------|
| Introduction | 1 | Appendix A: Stakeholder & Community Engagement..... | 29-56 |
| Acknowledgements | 2 | Appendix B: Existing Conditions..... | 57-58 |
| Contents | 3 | Appendix C: North-South Connectors | 59-64 |
| Terminology..... | 4 | Appendix D: Opportunities & Constraints | 65-72 |
| Stakeholder & Community Engagement..... | 5 | Appendix E: Design Standards..... | 73-78 |
| Existing Conditions..... | 6-7 | Appendix F: Alignment Alternatives | 79-95 |
| Connections..... | 8-9 | Appendix G: Cost Estimates..... | 96-106 |
| Opportunities & Constraints | 10-12 | Figure 1: Study Area | 6 |
| Design Standards..... | 13 | Figure 2: Cuyahoga County Planning Commission Trail System Plan | 7 |
| Alignment Alternatives | 14-19 | Figure 3: Connections to the Corridor | 8 |
| Cost Estimates..... | 20 | Figure 4: North-South Connector Evaluation Matrix | 9 |
| Recommendations | 21-23 | Figure 5: All Purpose Trail Option #1 | 14 |
| Funding & Implementation..... | 24-26 | Figure 6: All Purpose Trail Option #2..... | 15 |
| Appendices | 27-106 | Figure 7: All Purpose Trail Option #3 | 16 |
| | | Figure 8: APT Option Evaluation Matrix | 22 |
| | | Figure 9: All Purpose Trail Detail..... | 73 |
| | | Figure 10: Bridle Trail Option #1 Detail | 74 |
| | | Figure 11: Bridle Trail Option #2 Detail | 74 |





It is important to understand a number of terms specific to trail development:

All-Purpose Trail (APT)

A path segregated from motorized traffic for use by non-motorized and non-equestrian traffic. APT's can be paved or unpaved, and meet certain standards, as discussed in Appendix D.

Bike Lane

A portion of roadway that has been designated by signing, pavement striping, and other pavement markings for the exclusive use of bicyclists.

Signed Shared Roadway

A Roadway with adequate width and in adequate condition to safe bicycle travel.

Bike Route/Bikeway

Any combination of Signed Shared Roadways, Bike Lanes, and APT's which provide non-motorized traffic and non-equestrian traffic with a route between destinations.

Trail Head

A loading and unloading point along an APT, which usually provides parking and information about the trail, and sometimes includes restrooms and concessions.



Trail head at Brecksville Reservation



Trail head at Mill Stream Run Reservation





The City of Broadview Heights sponsored this study, with the Cities of North Royalton and Brecksville, and Cleveland Metroparks as co-sponsors. Representatives of each entity, along with personnel from NOACA, as the funding agency, and consultants Behnke Associates, Inc. and Hatch Mott MacDonald, comprised the Stakeholder Committee. Together, the group guided the planning process and the development of this report. Meeting minutes from the Stakeholder meetings can be found in Appendix A.

The community at-large also contributed to the planning process through a series of three community workshops. Through press releases in local newspapers, flyers, emails to previous public meeting participants, and by holding a workshop in each community, a serious effort was made to involve interested citizens. All comments were considered and incorporated in the pursuant stages of the study. For a complete review of each of the workshops and lists of attendees, refer to Appendix A; a summary follows.

Public Workshop #1

At the first public workshop, the consultants presented the figures and conditions described in the Existing Conditions portion of this report. The consultants then asked for all questions, concerns, and ideas about the project from the attendees.

Public Workshop #2

The second workshop consisted of a presentation of the consultants' observations of opportunities and constraints, as discussed in the respective section of this report.

Many local residents, Parkway corridor users, and equestrian interest group members voiced their needs, concerns and requests.

Public Workshop #3

The consultant presented plans that integrated comments from the previous meetings, and showed three alignment options and multiple interstate highway crossing options, along with the associated costs. The discussion with the attendees focused on implementation and funding.





Existing Conditions

The study area consists of a two-mile wide corridor centered on the six-mile stretch of the Valley Parkway from Ridge Road in the City of North Royalton, through the City of Broadview Heights, to Brecksville Road in the City of Brecksville.

The consultants documented current conditions by compiling Geographical System Information data, and performing a series of walk- and drive-throughs of the study area. A detailed inventory of existing conditions data can be found in Appendices B & C.

In order to understand the project's local and regional context, the consultants reviewed each city's master plans and bicycle plans, Cuyahoga County Planning Commission's greenspace and trail plans, Cleveland Metroparks' master plan, and NOACA's Regional bicycle transportation plan.

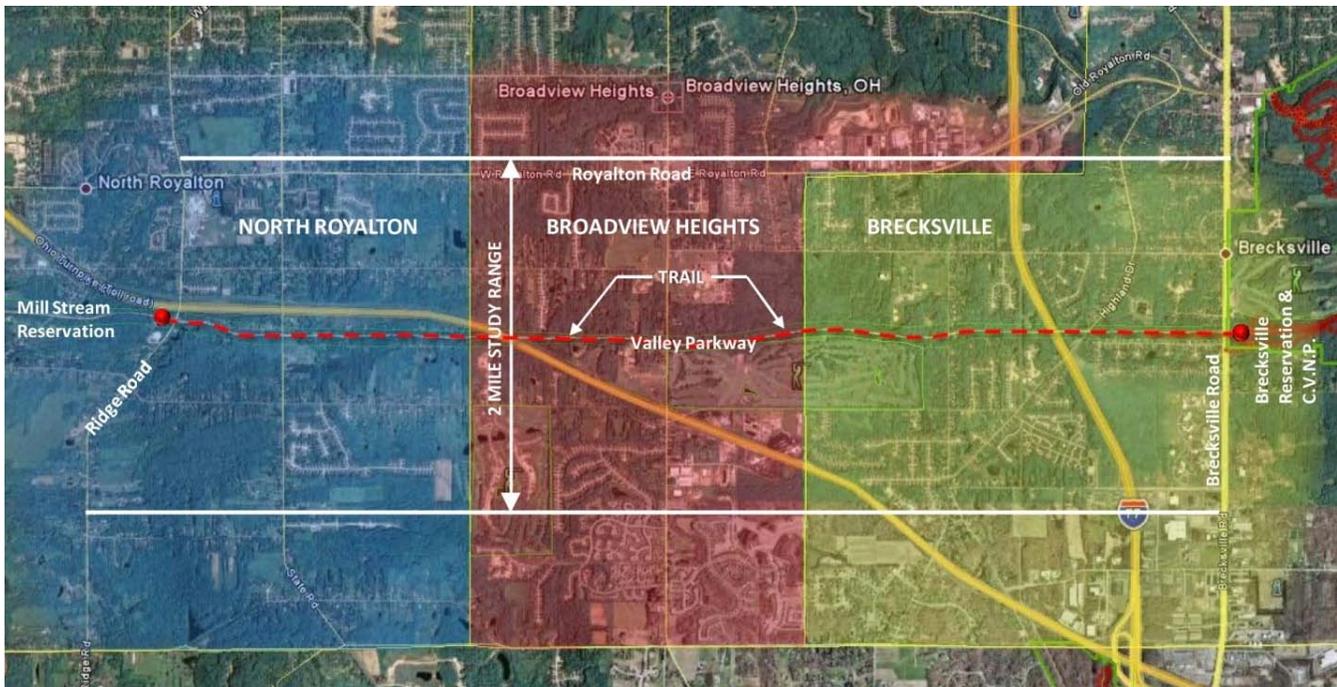


Figure 1: Study Area



From the above-mentioned surveys, several factors become readily apparent:

1. This incomplete section of proposed APT is an important link within the Northeast Ohio trail network and the cities' and Cleveland Metroparks' master plans.
2. Approximately 3,500 households are in the project's study area. At an average of 2.4 individuals per household, the APT could provide opportunities for recreation, exercise, and commuting to 8,400 citizens.
3. Several public roads cross Valley Parkway, with State Road, Broadview Road, and Brecksville Road carrying the highest volumes of traffic.
4. These roads will most likely serve as the main conduits for local neighborhood APT users to access the trail. See the following section for more information regarding connections to the Valley Parkway corridor.
5. The Valley Parkway Right of Way is a minimum of 200' wide.
6. Topography along the corridor is gently rolling to flat.
7. A large number of parcels adjacent to the corridor are residential, with access drives connecting to the Parkway.
8. Vegetation cover along both sides of the Parkway is heavy, with a high percentage in the mature range.
9. Most soils within the corridor are poorly drained, slowly permeable, or both.
10. Several streams cross through the corridor, and at least one significant wetland exists within the corridor.
11. A wide variety of utilities run parallel or perpendicular to the Parkway, including gas, petroleum, electric, fiber optic, telecommunications, and traffic control.
12. An existing bridle trail, south of the Parkway, runs the length of the study area.
13. The corridor crosses under Interstate 80 with one existing 12'+/- wide path on each side of the parkway, and over Interstate 77 with one 10' wide path on the south side of the parkway.
14. Trail heads exist at both the west end of the study area at the Stuhr Woods picnic area, and the in the Brecksville Reservation, immediately east of Brecksville Road. Both trail heads have parking, and only the Stuhr Woods trail head has restroom facilities.

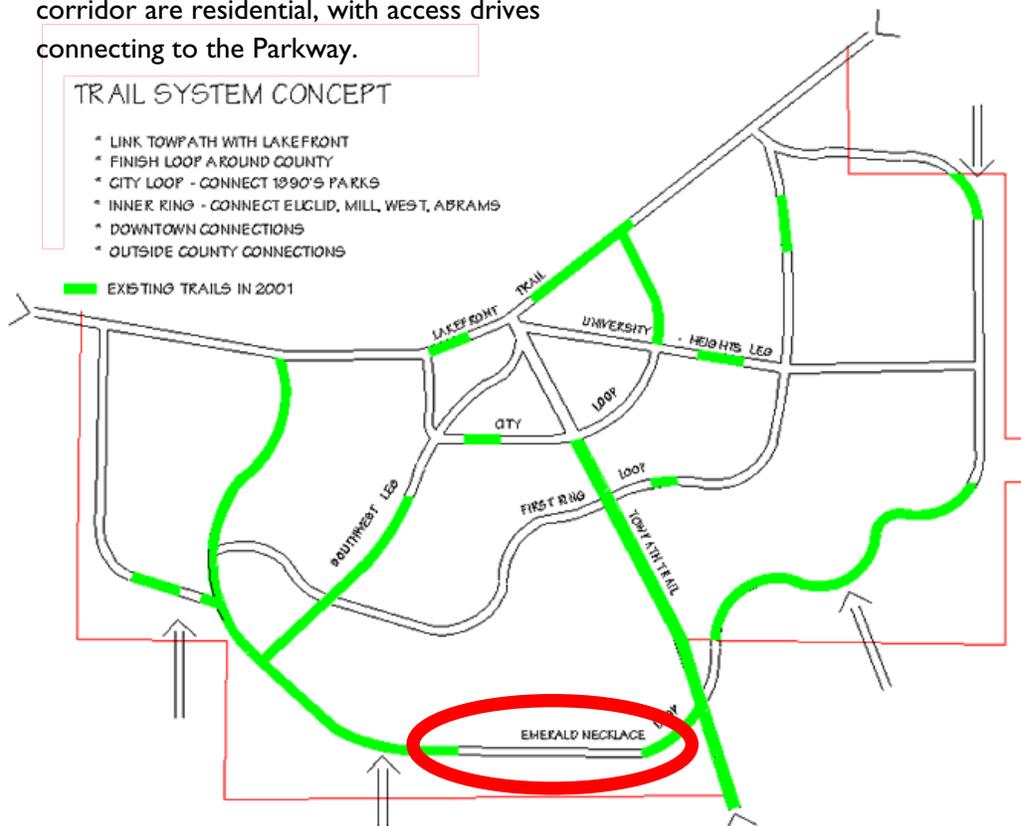


Figure 2: Cuyahoga County Planning Commission Trail System Plan





The Valley Parkway APT will not only link the Cleveland Metropark reservations, the Ohio & Erie Towpath, and the Cuyahoga Valley National Park, but can also serve as a local conduit between neighborhoods and community resources. The presentation slide from Community Meetings #1 &

2 below, demonstrates how recreational users could venture to a city center for a meal, students could bicycle from home to school, families could bicycle to a baseball or soccer game, and commuters could bicycle from home to work.

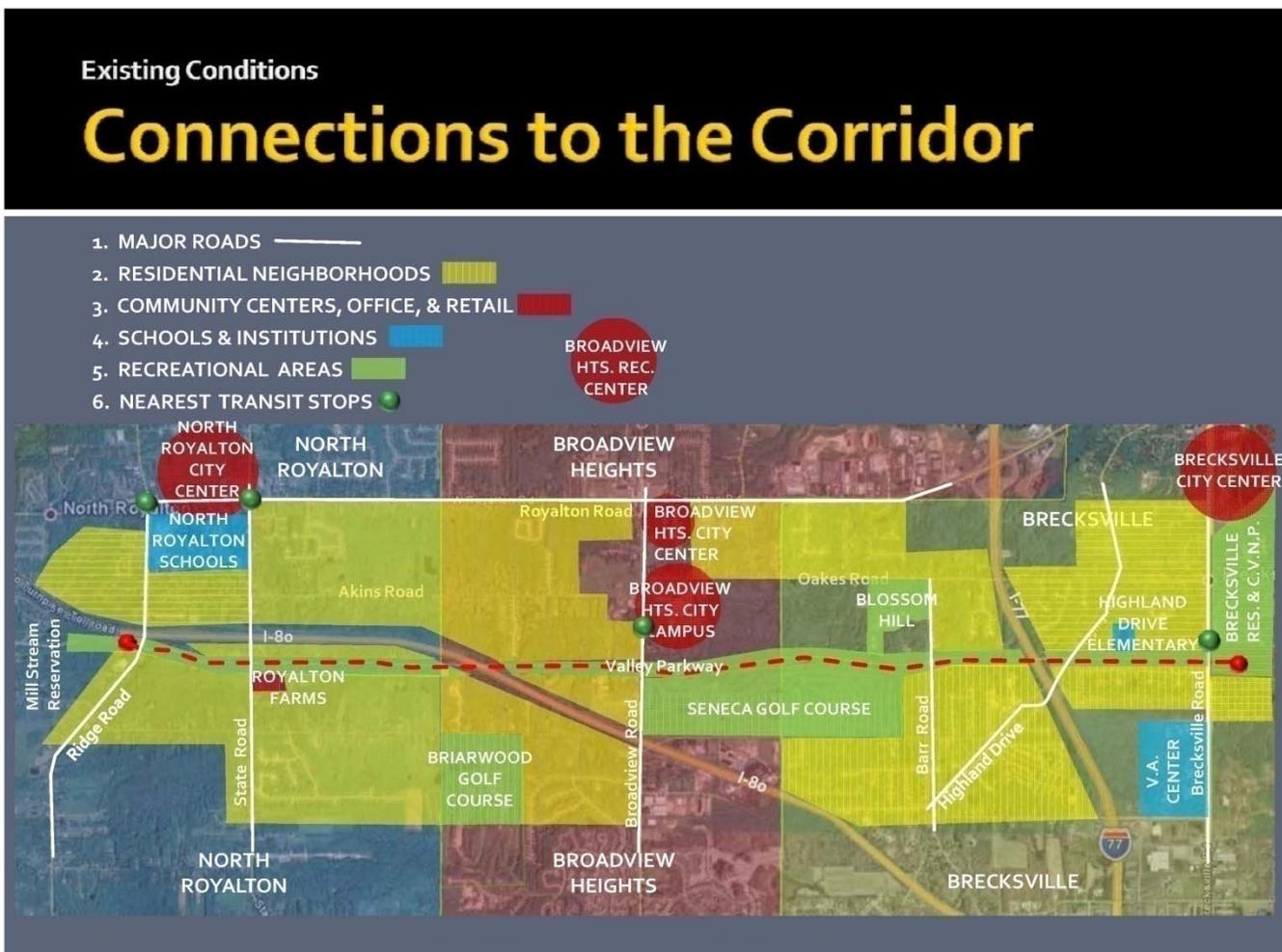


Figure 3: Connections to the Corridor graphic from Community Meetings 1 & 2



Most of these destinations require travel on one of the north-south roads. Existing conditions for alternative transportation on the roads vary widely from generous all purpose trails to narrow shoulders across interstate highway bridges, as is documented in Appendix C. The matrix below evaluates the most feasible and desirable means to provide alternative transportation within the existing corridors.

| | Bridge | | | | | | Land Use | | | | Traffic | | Bike Options | | | | | |
|-------------------------|------------------|--------------------|------------------|------------------|------|---------------|------------|-----------|-----------|-------|-------------|-------|--------------|--------|-------|----------------|-------|-----|
| | ROW Width | Road Width | West Sidewalk | East Sidewalk | Curb | Utility Poles | Road Width | West Walk | East Walk | Mixed | Residential | Rural | Suburban | Volume | Speed | Shared Roadway | Lanes | APT |
| Ridge Road | | | | | | | | | | | | | | | | | | |
| I-80 Bridge and North | ¹ 60' | ¹ 22' | Y | Y | Y/N | Y | 22' | 7.5' | 7.5' | | | | | M | M/F | 2 | 1 | 3 |
| South of I-80 Bridge | 60' | 22' | N | N | Y/N | Y | | | | | | | | L | M/F | 1 | 2 | 3 |
| State Road | | | | | | | | | | | | | | | | | | |
| I-80 Bridge and North | ¹ 66' | ¹ 24' | ² Y/N | ² Y/N | Y/N | Y | 24' | 7' | 7' | | | | | M | M/F | 2 | 1 | 3 |
| South of I-80 Bridge | 66' | 24' | N | N | N | Y | | | | | | | | L | F | 1 | 2 | 3 |
| Broadview Road | | | | | | | | | | | | | | | | | | |
| I-80 Bridge and North | ¹ 60' | ¹ 23.5' | Y | Y | Y/N | Y | 24' | 6' | 2' | | | | | M | M | 3 | 1 | 2 |
| South of I-80 Bridge | 60' | 23.5' | | | | | | | | | | | | L/M | F | 1 | 2 | 3 |
| Barr Road | 60' | 21.5' | Y/N | Y/N | N | Y | 22' | 5' | 5' | | | | | L | M | 1 | 2 | 3 |
| Highland Drive | 60' | 21.5' | N | Y/N | N | Y | 20.5' | | 5' | | | | | L | M | 1 | 2 | 3 |
| Brecksville Road | 100' | 63' | Y/N | N | Y | Y | | 5' | | | | | | H | F | 3 | 2 | 1 |

Notes

- ¹ Roadway and Right-of-Way are wider near the Route 82 intersection.
 - ² Sidewalks less consistent as one moves South from Route 82.
 - ³ APT exists from City Hall, south to I-80.
- Traffic volumes and speeds are based on observation and vary considerably due to time and conditions.

Key

- Y = Yes
- N = No
- L = Light
- M = Medium
- H = High
- F = Fast
- APT = All Purpose Trail
- 1 = Most desirable / feasible
- 2 = Lightly desirable / feasible
- 3 = Least desirable / feasible

Figure 4: North-South Connector Evaluation Matrix





Opportunities & Constraints

OPPORTUNITIES

The APT will improve the existing Valley Parkway corridor, but other opportunities also exist. Appendix D discusses the following summary in detail.

Right of Way

The 200' right of way provides ample room for the addition of an APT, without the need for on-street bike lanes.

Seneca Golf Course

The City of Cleveland's Seneca Golf Course's existing parking, restroom, and refreshment facilities, along with its location midway along the

study area make it a preferred candidate for a low-cost trailhead. Pavement and striping improvements would be necessary.

Utility Easements

Gas and overhead electric easements provide north-south clearings for connector routes to adjacent neighborhoods.

Commuting

The APT will offer residents along the corridor who work in one of the corridor or nearby cities an alternative to commuting by automobile.



Seneca Golf Course Entry Drive



Education & Interpretation

Fun educational opportunities along the corridor include:

1. The importance of floodplains where the corridor passes through a 100-year floodplain, just east of State Road.
2. Wetland preservation and restoration at the parcel northeast of the I-80 crossing, or the wetland west of Barr.
3. A field weather station at I-80 and a U.S. weather station east of Broadview Road.
4. Highest elevation in Cuyahoga County at Broadview Road, just south of the parkway.
5. Parkway corridor as a source of Lake Erie/Ohio River watershed headwaters.
6. Proposed solar lighting under the I-80 bridge.
7. Energy transmission through high tension power lines that cross the corridor.
8. Cleveland Metroparks' vegetation and habitat management program.
9. History of the Valley Parkway corridor and area.
10. The Parkway APT's place within the local, regional and national trail network.
11. Interpretive loop trails east of I-80 and West of Barr Road.

Restoration

Much of the corridor was acquired as farmland. When Cleveland Metroparks developed vegetation plans for the parkway, an undulating tree line was utilized to create a combination of open and closed canopy areas to vary a driver's visual experience. New prairie and woodland plantings should be incorporated to naturalize a few existing open areas (for example, northeast and northwest of the I-80 underpass,) and a few remaining straight woods edges and to mitigate the impact of clearing for the new APT.



High Tension Power Lines & Easement West of I-77



Weather Station West of I-80



CONSTRAINTS

A number of barriers and challenges exist within the study area. See Appendix C for details.

Drainage

Swales and drain inlets run the length of both sides of the Valley Parkway. If a new trail or sections of it will be immediately adjacent to the Parkway, the swales and inlets will have to be moved or piped.

Typically, culverts under the Parkway extend beyond the road edge farther on the south side than the north side, to accommodate the existing bridle trail. This could aid an alignment south of the parkway, but a north alignment will require extensions of most of the culverts.

The proposed alignment will have to circumvent one wetland north of the Parkway, immediately west of Barr Road. There no other significant wetlands.

The parkway corridor passes through a 100-year floodplain east of State Road. Due to the projected low frequency of flooding, this should not affect the placement or design of the APT.

Soils

Due to poorly-drained soils, the design of all new paths should incorporate sound stormwater management practices.

Natural Resources

Cleveland Metroparks' primary mission is the protection of natural resources. The existing clearing for the roadway bisects the 200' wide corridor, and leaves a relatively thin strip of wooded area on either side. The challenge in siting an APT within this corridor lies in balancing the user experience (for example, separation from the road, travel through varying habitat types, and copious shade,) with preservation of enough vegetation to maintain the natural corridor feel, especially during the winter season when the vegetative effects are drastically reduced.

Utilities

All underground utilities will have to be located carefully during the design and construction phase, to avoid costly service interruptions and repairs.

Bridle Path

If the APT were to be built on the south side of the Parkway, at least portions of the bridle path will have to move, to maintain separation between the APT and bridle users.

Pedestrian-Vehicular Conflicts

The biggest issue will be to provide a safe environment for the APT and bridle users, relative to vehicles. This will be necessary in four areas:

1. Each residential and service access drive along the corridor will create an intersection with the APT. 13 exist on each the north and south sides of the parkway, within the study area.
2. All locations where the APT and bridle trail must cross roadways will have to be evaluated for signage and/or signalization improvements. At the time of this report, signalization appears to be warranted at Broadview Road, due to 2007 traffic counts and poor sightline distances both to the north and south.
3. The I-80 underpass paths on both sides of the Parkway are wet, dark, unfriendly, and do not meet current bikeway width standards.
4. The I-77 overpass is much too narrow to accommodate APT and bridle users safely, and does not meet current design standards.





The proposed alignment options adhere to and the final, constructed APT should adhere to the following standards and guidelines (See Appendix E for details):

AASHTO & ODOT

1. 10' standard width
2. 2' shoulder on each side
3. 3' clearance from edge of road
4. 42" high barrier where APT is less than 5' from the edge of the Parkway shoulder
5. Do not mix equestrian and bicycle traffic.
6. Lighting is recommended for tunnels 5 times longer than they are high.

Cleveland Metroparks

1. Maintain the existing bridle trail somewhere in the corridor.
2. The APT should be on the opposite side of the Valley Parkway from the bridle trail, wherever possible.
3. The APT should be a minimum of 10' from the road edge, for snow storage and separation from vehicular traffic.
4. Minimize the disturbance of existing vegetation and wetlands. Where vegetation is disturbed, install new plantings to maintain the density of the vegetative buffer.

Ohio Horseman's Council

1. Maintain a minimum of 20' between the bridle trail and the Parkway.
2. Maintain 10' minimum between the bridle trail and the APT.
3. Where the bridle trail and APT must be closer, provide a visual barrier between the two.
4. Clear vegetation 5' wide for a single track trail
5. Clear vegetation 8' wide for a double track trail
6. Trail should be firm, but have a natural appearance and feel.





Alignment Alternatives

ALL-PURPOSE TRAIL OPTIONS

With all existing conditions data, public input, and design standards in mind, the consultants developed three options for the APT alignment and multiple options for passing under I-80 and over I-77. See Appendix F for plans, sections and details.

APT Option I

Option I maintains the bridle trail in its current location, and places the APT on the north side of the Parkway.

Pro's:

1. The APT and bridle trail are on opposite sides of the road.
2. The cost of the trail construction is the least expensive of the three options.

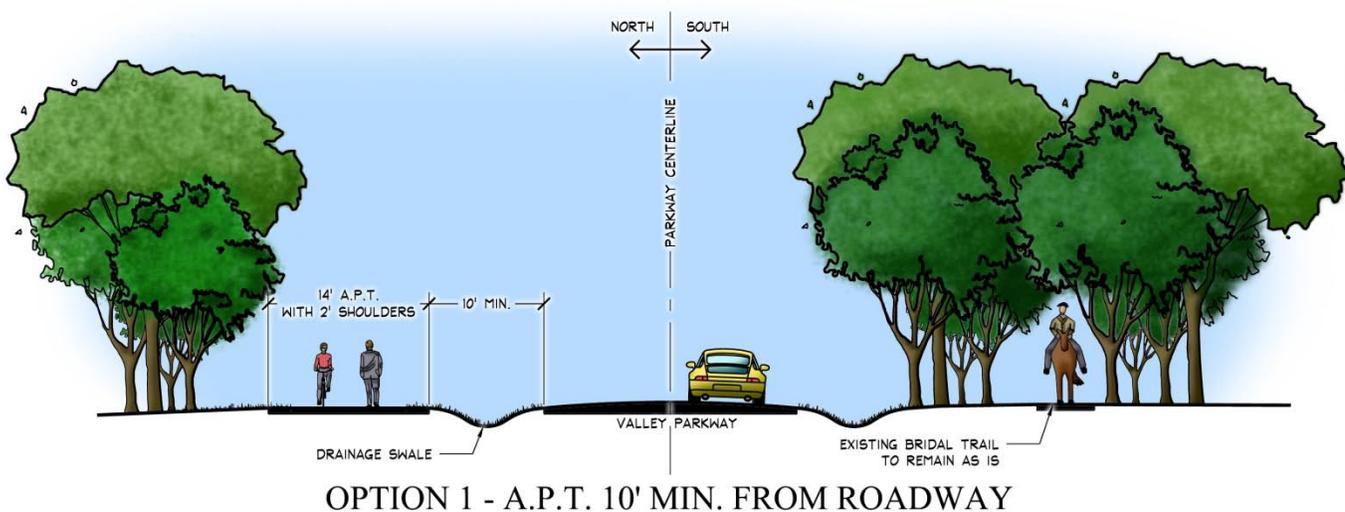


Figure 5: All Purpose Trail Option I



APT Option 2

In Option 2, the bridle trail stays south of the Parkway, and the APT is also south of the Parkway, between the road and the bridle trail.

Where the APT and bridle trail come closer than 10', the bridle trail is shifted south.

Due to the need to relocate portions of the bridle trail, this option is more expensive than option 1, but less than option 3.

Pro: No vegetation is disturbed north of the Parkway.

Con's:

1. The APT and bridle trail are on the same side of the road.
2. Vegetation disturbance is concentrated south of the Parkway; therefore the visual impact will be greater.

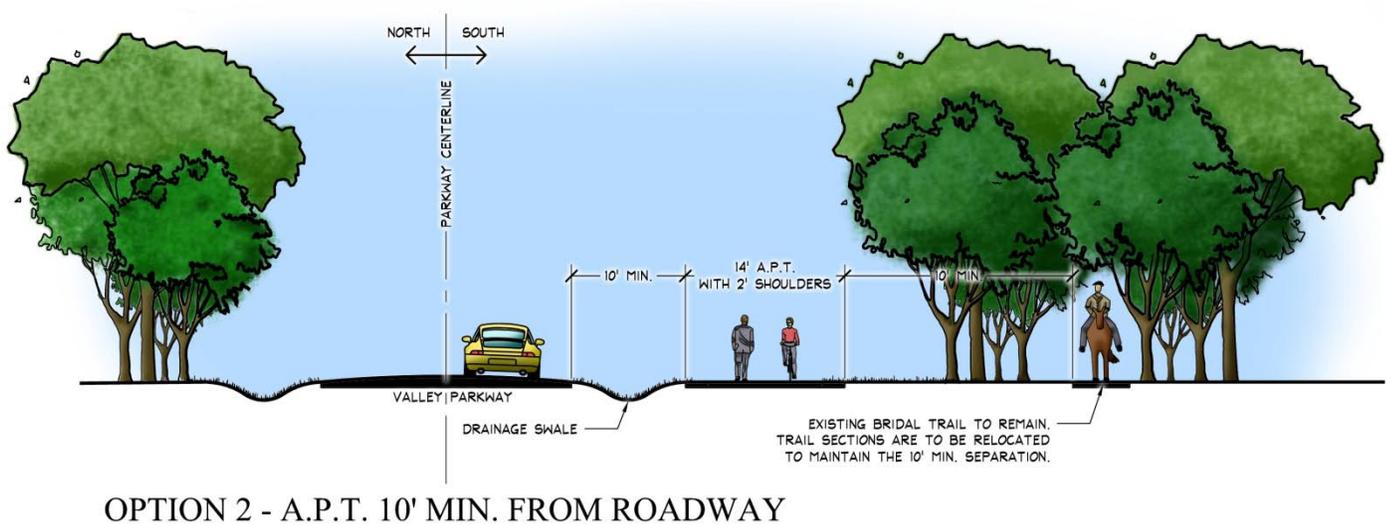


Figure 6: All Purpose Trail Option 2



APT Option 3

Option 3 relocates the bridle trail to the north side of the road, and aligns the APT with the existing bridle trail alignment.

Where the existing bridle trail clearing is not wide enough for the APT, selective additional clearing will occur. The APT alignment can also be adjusted to avoid significant trees.

Pro's:

1. The APT and bridle trail are on opposite sides of the road.
2. The quality of APT user experience is high, since the existing bridle trail alignment meanders in and out of the woods.

Con: This option is the most expensive, due to relocating the full length of the bridle trail.

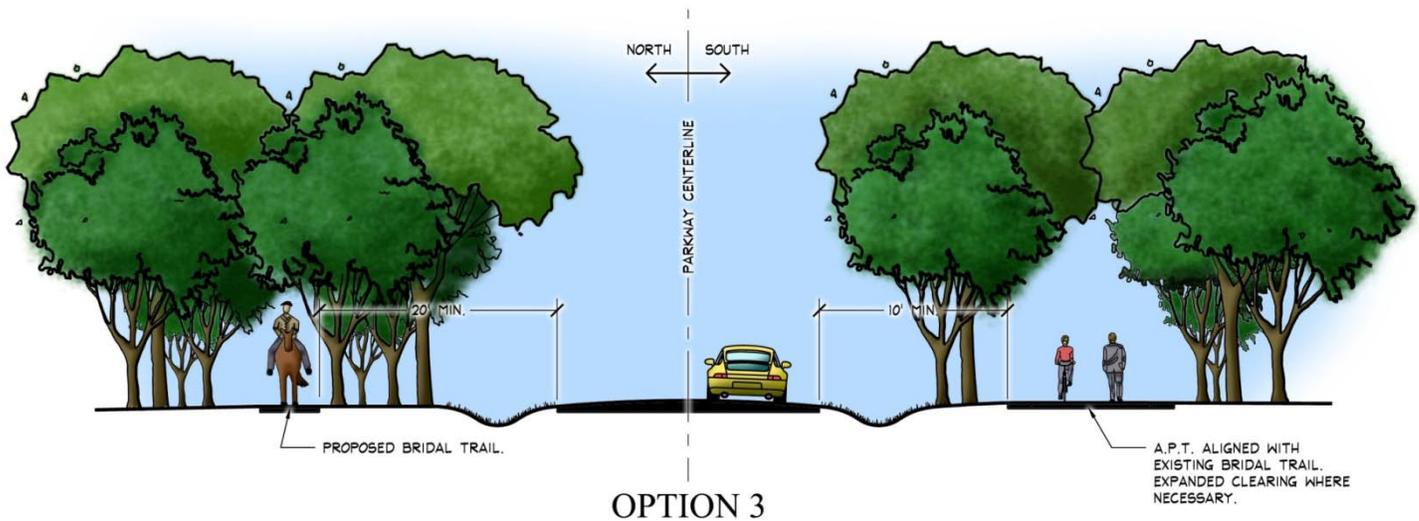


Figure 7: All Purpose Trail Option 3



INTERSTATE CROSSING OPTIONS

The I-80 underpass and the I-77 overpass are by far the biggest challenge to the APT alignment. A number of options exist to cross the highways. See Appendix F for sections and details.

I-80 Option 1

Option 1 upgrades both existing paths under I-80 by improving drainage, paving the APT, improving the bridle trail surface, and adding lighting above both paths. Estimated cost: \$300,000.

Pro's:

1. APT and bridle users are on opposite sides of the road.

Con: The width of the APT does not meet design standards.

I-80 Option 1a

Option 1a upgrades only the south existing path under I-80 by improving drainage, paving the path, and adding lighting above the path. Estimated cost: \$200,000.

Pro: This is the lowest cost I-80 option.

Con's:

1. The width of the path does not meet APT design standards.
2. Bridle and APT users must share the same path under the bridge.



Existing Interstate 80 Underpass

I-80 Option 2

Widen the south path to accommodate both APT and bridle users. The trails are separated by a vertical barrier. Estimated cost: \$840,000.

Pro: The two user groups are separated by a barrier.

Con's:

1. APT and bridle users are on the same side of the road.
2. This is the most expensive option for crossing under I-80.
3. This option may not be feasible from a design standpoint. A closer engineering examination and consultations with ODOT will be necessary during the design stage.

I-80 Option 3

Improve the north path for bridle use, and widen and improve the south path for APT use. Estimated cost: \$340,000.

Pro's:

1. The bridle and APT users are on opposite sides of the road.
2. The APT width meets design standards.

Con: This option is more expensive than option 1.



I-77 Options

The options below discuss how to cross Interstate 77. The approach to the crossing from the east, however, presents an APT design challenge, in how to meet ADA standards (slope not greater than 5%,) minimize its impact on existing vegetation, and minimize costs. On the south side of Valley Parkway, the existing bridle trail travels west from Highland Drive, descends 10'-15' below the parkway, and ascends 20'+/- to the bridge. The drop off from the parkway to the north is greater, at 30'-35'. During the preliminary engineering stage, the designer will develop options and analyze their vegetative and cost impacts. Costs could range from \$75,000 to \$200,000.

While this condition is difficult for the APT, bridle trail users will welcome the steep terrain, to add variety and challenge to their riding experience.

I-77 Option 1

Option 1 retrofits the existing bridge to widen the existing bridle trail 2', pave it, and add a vertical barrier between the trail and the road. Estimated cost: \$900,000,

Pro: This is the least expensive option, other than not improving the bridge at all.

Con's:

1. Both APT and bridle trail users must use the same trail to cross I-77.
2. In APT Options 1 and 3, APT users must cross the Parkway to cross the bridge on a path.



Existing Interstate 77 Overpass

I-77 Option 2

This is the same as Option 1, except the trail is on the north side of the bridge. Estimated cost: \$1.6 million.

Pro: APT users do not have to cross the Parkway in APT Options 1 and 3.

Con's:

1. Both APT and bridle trail users must use the same trail to cross I-77.
2. In APT Options 1 and 2, bridle users must cross the Parkway to cross the bridge on a path.

I-77 Option 3

Widen the bridge to the south, to allow for a separated APT and bridle trail on the same side of the bridge. This option works best with APT Option 2. Estimated cost: \$2.5 million.

Pro's:

1. Both paths meet standard width criteria.
2. Users are separated from each other and from the road with a vertical barrier.

Con's:

1. APT and bridle users are not on separate sides of the Parkway.
2. Widening the existing bridge is expensive.



I-77 Option 4

Widen bridge to the north for a standard width APT, and add vertical barrier between the existing bridle trail and the road. This option works best with APT Option 1. Estimated cost: \$3.1 million.

Pro's

1. Both paths meet standard width criteria.
2. Users are on opposite sides of the road.

Con: Widening the bridge is costly.

I-77 Option 5

Build a separate pedestrian bridge for the APT, and add a vertical barrier between the existing bridle trail and the road. The pedestrian bridge would be north of the existing bridge for APT Option 1, and south of the bridge for APT Option 3. Estimated cost: \$2.0 million.

Pro's:

1. APT and bridle users are separated.
2. Both trails meet standard width criteria.

Con's:

1. A pedestrian bridge is costly.
2. For APT Option 2, APT and bridle trails would have to cross each other at one or both ends of the bridge.

I-77 Option 6

Move the bridle trail to the north side of the bridge, and build a separate pedestrian bridge for the APT. This works best with APT Option 3. Estimated cost: \$3.0 million.

Pro's:

1. Users are on opposite sides of the road.
2. Both trails meet standard width criteria.

Con: A pedestrian bridge is costly.

I-77 Option 7

Move the bridle trail to the north side, with a vertical barrier between the trail and the road, and widen the bridge to the south to accommodate a standard width APT. This option works best with APT Option 3. Estimated cost: \$4.0 million.

Pro's

1. Both paths meet standard width criteria.
2. Users are on opposite sides of the road.

Con: Widening the bridge is costly.





Cost Estimates

Many combinations of the APT options and interstate highway crossing options described in the previous section are possible. The detailed cost estimates in Appendix G show 31 different scenarios. In general, the APT options will fall in the following ranges:

APT Option 1: \$5.1 – 8.0 million

APT Option 2: \$4.9 – 8.0 million

APT Option 3: \$5.3 – 9.3 million





Recommendations

With as many as 31 combinations of APT and highway crossings possible, the consultants developed a qualitative assessment matrix to determine the most desirable combination. This matrix (Figure 8,) evaluated the following qualities on a scale from 1 (Most desirable) to 5 (Least desirable):

Cost: Estimates for each option combination are shown in Exhibit 'Y'. Low cost = 1, high cost = 5.

Safety: The following factors were included in evaluating safety: Number of Valley Parkway crossings required, proximity of trail to Valley Parkway, separation of bridle and all purpose trail use. Safest = 1, Least safe = 5.

Constructability: Easiest construction (value = 1) includes using the existing Interstate highway over and underpasses, and maintaining the existing bridle trail. The most difficult construction (value = 5) includes significant path widening under I-80, and bridge widening or a new bridge over I-77.

User Experience: The most pleasant experience (value = 1) includes an all purpose trail alignment that meanders in and out of the woods, is on the opposite side of the road from the bridle trail, and its I-80 and I-77 crossings meet all design standards. The least pleasant experience (value = 5) includes an all purpose trail alignment that does not enter the woods, is on the same side of the Parkway as the bridle trail, and has to share a below-standard width trail with bridle users at the interstate crossings.

Design exceptions: While this category was not weighted heavily (values did not exceed 3,) substandard crossings under or over the interstates (or combinations thereof) were assigned a 2 or 3.

Fundability: This evaluation considered all purpose trails as most easily funded (value = 1), and significant interstate crossing construction and bridle trail construction as least easily funded (value = 5).

Vegetation & Natural Resources: This category is not included in the assessment, due to a lack of specific information about individual trees, underbrush, and wetland(s). Evaluation will take place during the preliminary engineering stage.

The results of the evaluation, based on the qualities that were feasible to analyze during this study, demonstrate the APT Option 3 family is most desirable. (See page 16.)



Valley Parkway All Purpose Trail Alignment

Qualitative Assessment (1=Most desirable, 5=Least Desirable)

September, 2009

| | Cost | Safety | Construct-ability | User Experience | Design Exceptions | Fundability | Total |
|----------------------------------|------|--------|-------------------|-----------------|-------------------|-------------|-------|
| TRAIL ALIGNMENT OPTION #1 | | | | | | | |
| 1 | 1 | 5 | 1 | 5 | 3 | 1 | 16 |
| 2 | 2 | 5 | 2 | 5 | 3 | 3 | 20 |
| 3 | 2 | 5 | 3 | 5 | 3 | 3 | 21 |
| 4 | 4 | 2 | 4 | 4 | 2 | 3 | 19 |
| 5 | 3 | 2 | 4 | 4 | 2 | 3 | 18 |
| TRAIL ALIGNMENT OPTION #2 | | | | | | | |
| 6 | 1 | 4 | 2 | 5 | 3 | 3 | 18 |
| 7 | 1 | 4 | 2 | 5 | 3 | 3 | 18 |
| 8 | 2 | 4 | 3 | 5 | 3 | 5 | 22 |
| 9 | 2 | 4 | 3 | 5 | 3 | 5 | 22 |
| 10 | 3 | 3 | 4 | 4 | 2 | 5 | 21 |
| 11 | 3 | 3 | 4 | 4 | 2 | 5 | 21 |
| 12 | 3 | 4 | 4 | 4 | 2 | 5 | 22 |
| 13 | 3 | 4 | 4 | 4 | 2 | 5 | 22 |
| 14 | 1 | 3 | 3 | 5 | 3 | 3 | 18 |
| 15 | 1 | 3 | 3 | 5 | 3 | 3 | 18 |
| 16 | 2 | 3 | 4 | 5 | 3 | 5 | 22 |
| 17 | 2 | 3 | 4 | 5 | 3 | 5 | 22 |
| 18 | 4 | 2 | 5 | 4 | 2 | 5 | 22 |
| 19 | 4 | 2 | 5 | 4 | 2 | 5 | 22 |
| 20 | 4 | 3 | 5 | 4 | 2 | 5 | 23 |
| 21 | 4 | 3 | 5 | 4 | 2 | 5 | 23 |
| TRAIL ALIGNMENT OPTION #3 | | | | | | | |
| 22 | 1 | 4 | 2 | 2 | 3 | 3 | 15 |
| 23 | 1 | 4 | 2 | 2 | 3 | 3 | 15 |
| 24 | 2 | 4 | 3 | 2 | 3 | 5 | 19 |
| 25 | 2 | 4 | 3 | 2 | 3 | 5 | 19 |
| 26 | 4 | 3 | 4 | 2 | 1 | 5 | 19 |
| 27 | 4 | 3 | 4 | 2 | 1 | 5 | 19 |
| 28 | 5 | 1 | 4 | 1 | 1 | 5 | 17 |
| 29 | 5 | 1 | 4 | 1 | 1 | 5 | 17 |
| 30 | 5 | 1 | 4 | 1 | 1 | 5 | 17 |
| 31 | 5 | 1 | 4 | 1 | 1 | 5 | 17 |

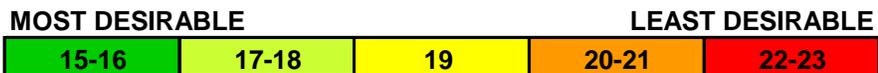


Figure 8: All Purpose Trail Alignment Qualitative Assessment Matrix
 Note: Scenarios relate directly to cost estimate in Appendix G.



The Valley Parkway All Purpose Trail will be an exciting enhancement to two of the jewels of the Emerald Necklace. With all existing conditions, public input, and options in mind, the consultant team generated a list of action items.

This list does not, however, include a firm recommendation on a preferred alignment, due to the inability, at this level of planning, to evaluate the impact each option would have on natural resources. Options are noted as desirable, but a different option or a hybrid of more than one option may be determined as most preferable, once a detailed analysis of natural resource impacts has been performed during the preliminary engineering stage.

Recommendations (in order of priority):

1. APT alignment Option 3, with I-80 crossing option 3 and I-77 crossing option 6 is desirable. Cost: \$9.0 million.
2. The final alignment should minimize close adjacencies (less than 20') to the roadway, and maximize meanderings through wooded areas and open prairies.
3. If the bridle trail is moved to the north side of the Parkway, build the new trail first, to maintain uninterrupted service to equestrian users. No additional cost.
4. Perform a traffic engineering evaluation of each north-south road crossing, to determine the safest and most cost-effective pedestrian and equestrian crossing strategies. Cost: \$20,000.
5. Install APT- and equestrian-crossing-ahead signage on all north-south roads. Cost included in recommendation # 1.
6. Install one-time-only pavement markings at each residential driveway that crosses the APT, to raise awareness of the new APT. Cost included in recommendation # 1.
7. Implement north-south and neighborhood connector bikeways as shown on alignment alternatives in Appendix F. Cost: \$1.3 million.
8. Install pavement improvements and APT and bridle information kiosk at Seneca Golf Course parking lot to establish trailhead. Cost: \$90,000.
9. Install APT and bridle information kiosks at Brecksville Reservation and Stuhr Woods trail heads. Cost: \$25,000-30,000.
10. Implement interpretive and restoration items described in Opportunities and Constraints section of the report. Cost: \$25,000-50,000





In order to transform the recommendations in this report into reality, it is important to identify roles and responsibilities, project phases, funding strategies, and funding sources.

Roles and Responsibilities:

If the applicants initially pursue funding for preliminary engineering only, they should consult with the funding source and Cleveland Metroparks to determine if secured construction funds will improve their chances of securing design funds.

Phasing:

Since the overall project cost is large, the following phases represent a reasonable breakdown into more feasible pieces:

- **Phase 1:** Install APT and traffic controls for crossing north-south roadways, including basic I-80 underpass upgrades, including drainage, lighting, and pavement improvements. This could be broken down further, into each municipality's portion of the work, if necessary.
- **Phase 2:** Install I-77 overpass upgrades.
- **Phase 3:** Install full I-80 underpass upgrades (e.g., widening)
- **Phase 4 :** Install north-south and neighborhood connectors.
- **Phase 5 and later:** Install Seneca Golf Course trail head improvements, information kiosks, and interpretive items.



Funding Strategies & Sources:

Since funding sources provide varying sizes of funds for different uses, it is important to match the appropriate source to each project stage and phase.

- Federal Surface Transportation Program funds are available for design and construction, through NOACA. A 20% match is required.
- Federal Transportation Enhancement (TE) funds may be available through NOACA, if applied for immediately upon approval of this study by NOACA. A 20% match is required.
- Improvements for the portion of I-77 that pass under the Valley Parkway are planned for the near future. The City of Brecksville and Cleveland Metroparks should investigate whether improvements to the parkway bridge and/or the construction of a pedestrian bridge can be included as part of the I-77 improvements project.
- The City of Broadview Heights should contact the Ohio Turnpike Commission regarding potential funds for improvements under the I-80 bridge.
- ODOT Safety Funds could be used for traffic engineering study, design, and improvements at the parkway intersections with the north-south connectors.
- Smaller improvements, such as neighborhood connectors, interpretive items, information kiosks, trail head improvements at Seneca Golf Course could be applied for through Ohio Department of Natural Resources (ODNR), Division of Real Estate & Land Management (DRELM) Programs:
 - Natureworks
 - Land and Water Conservation Fund
 - Clean Ohio Trails Fund
 - Recreational Trails Program

For more information about funding from ODOT, go to:

<http://www.dot.state.oh.us/Divisions/TransSysDev/ProgramMgt/Projects/bicycle/Pages/Default.aspx>

For more information about funding from ODNR, go to:

www.dnr.state.oh.us/tabid/10762/Default.aspx.







Appendices

| | |
|--|--------|
| Appendix A: Stakeholder & Community Engagement..... | 29-56 |
| Appendix B: Existing Conditions | 57-58 |
| Appendix C: North-South Connectors..... | 59-64 |
| Appendix D: Opportunities & Constraints... | 65-72 |
| Appendix E: Design Standards | 73-76 |
| Appendix F: Alignment Alternatives..... | 77-94 |
| Appendix G: Cost Estimates | 95-106 |





Appendix A

Stakeholder & Community Engagement

B E H N K E



MEMO

| | |
|--|--|
| TO: City of Broadview Heights | DATE: May 5, 2009 |
| ATTN: Gene Esser | PROJECT: Valley Parkway Study |
| RE: 5-5-09 Kickoff Meeting--UPDATED 5-19-09, 6-10-09 | PROJECT NO: 0907 |
| EMAIL: epesser@broadview-heights.org | NO. of PAGES: 3 (including cover) |
| FROM: Matt Hills | <input type="checkbox"/> Hard copy to follow |

COMMENTS:

Attendees:

- Gene Esser: 440-838-4705, epesser@broadview-heights.org
- Dobrinka Zlojutro: 440-838-4705, DZlojutro@broadview-heights.org
- Tom Jordan: 440-237-5484, tjordan@northroyalton.org (Mark Schmitzer will be Tom's alternate contact.)
- Victoria McCauley: 440-526-4351, vmccauley@brecksville.oh.us
- James Kastelic: 216-635-3289, jmk@clevelandmetroparks.com
- Tom Zarfoss: 216-589-9100, tzarfoss@behnkeassoc.com
- Matt Hills: 216-589-9100, mhils@behnkeassoc.com
- Michael McCarthy: 216-535-3640, michael.mccarthy@hatchmott.com

The schedule was updated as follows:

- | | |
|--|---|
| <ol style="list-style-type: none"> 1. <u>Existing Conditions Inventory:</u> 5/5 – 6/5 <ol style="list-style-type: none"> a. Kickoff b. Existing Conditions Stakeholder Workshop c. Existing Conditions Community Workshop d. Summary of Existing Conditions 2. <u>Concept Development:</u> 6/8 – 7/10 <ol style="list-style-type: none"> a. Concept Development Stakeholder Workshop b. Concept Plan Community Workshop c. Summary of Concept Plan Development 3. <u>Preliminary Plan</u> 7/10 – 8/7 <ol style="list-style-type: none"> a. Preliminary Plan Stakeholder Workshop b. Preliminary Plan Community Workshop c. Preliminary Plan and Documentation 4. <u>Final Plan & Report</u> 8/10 – 9/18 <ol style="list-style-type: none"> a. Final Plan Stakeholder Workshop b. Final Plan Community Workshop c. Implementation Strategy Stakeholder Workshop d. Final Report, with Implementation Strategies | <p>5/5</p> <p>5/21, 9:00 AM, B.H. City Hall</p> <p>5/27, 7:00 PM, B.H. City Hall (9543 Broadview Road, 2nd Floor Council Chamber Room</p> <p>6/5</p> <p>6/25, 9:00 AM, B.H. City Hall</p> <p>7/1, 7:00 PM, North Royalton City Hall (13834 Ridge Road,) Council Chambers</p> <p>7/10</p> <p>7/23, 9:00 AM, B.H. City Hall</p> <p>7/29, 7:00 PM, Brecksville Administration Building (9069 Brecksville Road) Community Room</p> <p>8/7</p> <p>8/20, 9:00 AM, B.H. City Hall</p> <p>8/26, 7:00 PM, B.H. City Hall, (9543 Broadview Road,) 2nd Floor Elm Room</p> <p>9/3, 9:00 AM, B.H. City Hall</p> <p>9/18</p> |
|--|---|

Behnke Associates
700 West St. Clair Avenue
Cleveland, OH 44113-1230

216.589.9100 Tele
216.589.8560 Fax
Info@behnkeassoc.com Email
www.behnkeassoc.com

Principals
Lee Behnke
Thomas F. Zarfoss
P. Jeffrey Knopp

*Landscape Architecture
Planning*



Jim Kastelic will look into the availability of the Sleepy Hollow clubhouse for the community meetings. If that location is not available, the public meetings will be held at Broadview Heights City Hall.

Jim Kastelic will provide traffic count data for the Parkway.

Tom Jordan and Gene Esser will provide paper copies of existing utility information, and Vicky will provide the information in GIS format.

A project walk through will be scheduled for sometime within the next week. Matt Hils will notify all Stakeholders of the date, in case they want to participate.

Copy Gene on all correspondence. Copy Matt on all consultant correspondence.

The attached press release can be used for the cities' websites, local TV channels, and local publications.

COPY TO: All listed in email

OFFICE USE: Fax sent Hard copy sent

Behnke Associates
700 West St. Clair Avenue
Cleveland, OH 44113-1230

216.589.9100 Tele
216.589.8560 Fax
Info@behnkeassoc.com Email
www.behnkeassoc.com

Principals:
Lee Behnke
Thomas F. Zarfoss
P. Jeffrey Knopp

Landscape Architecture
Planning





MEMO

TO: City of Broadview Heights **DATE:** May 22, 2009

ATTN: Gene Esser **PROJECT:** Valley Parkway Study

RE: 5-21-09 Stakeholder Meeting #2 Minutes **PROJECT NO:** 0907

EMAIL: epesser@broadview-heights.org **NO. of PAGES:**
(including cover)

FROM: Matt Hills Hard copy to follow

COMMENTS:

Attendees:

- Gene Esser, epesser@broadview-heights.org
- Dobrinka Zlojutro, DZlojutro@broadview-heights.org
- Dave Schroedel, dschroedel@broadviewheights.org
- Victoria McCauley, vmccauley@brecksville.oh.us
- Michelle Johnson, mjohnson@mpo.noaca.org
- Tom Zarfoss, tzarfoss@behnkeassoc.com
- Matt Hills, mhils@behnkeassoc.com
- Chris Preto, chris.preto@hatchmott.com

1. Matt Hills previewed the agenda and presentation for the community meeting scheduled for May 27. Stakeholders can access the presentation draft at www.behnkeassoc.com/download/0907/V.P.Presentation#1--DRAFT.zip. Stakeholder Comments included:
 - a. All Purpose Trail definition should exclude equestrian use.
 - b. On the Connections map, change Broadview Heights Municipal Center label to Broadview Heights City Campus.
 - c. Add Broadview Heights Recreation Complex to Connections map.
 - d. Change Broadview Developmental Center label (by Barr Road,) to name provided by Vicky McCauley, and change from a school use to a recreational area on the Regional Context map.
 - e. Ownership of parcel at northwest quadrant of Valley Parkway/Barr Road intersection was clarified.
2. There was discussion about the need for a traffic signal at the Brecksville Road intersection. The study will recommend a signal warrant study to determine the need for a pedestrian-controlled signal at both Brecksville Road and at Broadview Road. NOACA can perform the study(ies) at no charge, if requested.
3. Stakeholders are encouraged to attend the public meeting to field questions, and to help facilitate subgroup discussions.
4. Michelle Johnson suggested providing Community Meeting #1 public notice flyers to the Clippety Clop Shop, an equestrian store, to better notify the equestrian community about the study. Hills sent the flyer to Johnson yesterday afternoon, for Johnson to deliver today.
5. Options for crossing the I-77 bridge were discussed briefly. To ensure thoroughness, Behnke will propose, evaluate, and report all I-77 crossing options. All options for all facets of the alignments will be evaluated for safety, functionality, feasibility, cost, and public and stakeholder input.
6. Vicky McCauley to provide meeting location for Community Meeting #3, on 7-29-09.

Behnke Associates
700 West St. Clair Avenue
Cleveland, OH 44113-1230

216.589.9100 Tele
216.589.8560 Fax
Info@behnkeassoc.com Email
www.behnkeassoc.com

Principals:
Lee Behnke
Thomas F. Zarfoss
P. Jeffrey Knopp

Landscape Architecture
Planning





MEMO

TO: City of Broadview Heights **DATE:** June 8, 2009

ATTN: Gene Esser **PROJECT:** Valley Parkway Study

RE: 5-27-09 Community Meeting #1 Minutes **PROJECT NO:** 0907

EMAIL: epesser@broadview-heights.org **NO. of PAGES:** 2
(including cover)

FROM: Matt Hills Hard copy to follow

COMMENTS:

Attendees:

- Ron Weidig, 9069 Brecksville Road, rweideg@brecksville.oh.us
- Dave Schroedel, 9543 Broadview Road, dschroedel@broadviewheights.org
- Victoria McCauley, 9069 Brecksville Road, vmccauley@brecksville.oh.us
- Don Kishmakton, 4020 Kenwood Drive
- Glenn Goodwin, 7796 Glengate, glenngoodwin@cox.net
- Kriston Miller, 9323 Scottsdale Drive, kristenmiller1@cox.net
- Kelly Chronister, 9323 Scottsdale Drive
- Ken Tyrpak, 421 Lake of the Woods Blvd, ktyrpak@aol.com
- Dick Kerber, 4101 Fulton Parkway, rjk@clevelandmetroparks.com
- Tom Zarfoss, tzarfoss@behnkeassoc.com
- Matt Hills, mhils@behnkeassoc.com

1. Matt Hills opened the meeting at 7:15 pm. All attendees introduced themselves. Matt then proceeded with a PowerPoint presentation (download at www.behnkeassoc.com/download/0907/VPPresentation1.zip.) that focused on the following:
 - o What is the Study?
 - o What is the Process?
 - o Why here? Why a trail?
 - o Definitions
 - All Purpose Trail
 - Connections
 - Trail Head
 - o Existing Conditions
 - Study Area
 - Context
 - Regional
 - North Royalton
 - Broadview Heights
 - Connections
 - Soils
 - Traffic Counts
 - Opportunities and Constraints

Behnke Associates
700 West St. Clair Avenue
Cleveland, OH 44113-1230

216.589.9100 Tele
216.589.8560 Fax
info@behnkeassoc.com Email
www.behnkeassoc.com

Principals:
Lee Behnke
Thomas F. Zarfoss
P. Jeffrey Knopp

Landscape Architecture
Planning



- Sections 1 through 7 of the Valley Parkway Corridor
2. A group discussion followed that focused on the following series of questions:
- **Should the All Purpose be located on the North or South side of the Valley Parkway right-of-way?**
There were no opinions expressed on this issue.
 - **Should the Bridal Trail be located on the north or south side of the Parkway?**
There was a general consensus the horse traffic is very light. Apparently, most riders are trailing their horses into the Metroparks trailheads at Brecksville or Mill Stream Reservations. There may not be a need for an improved horse trail. Dick Kerber is going to arrange a meeting of the Ohio Horseman's Council to get more information on the level of trail use and to get more involvement in the planning process from riders.
 - **Should either trail cross the Valley Parkway?**
The consensus was that crossings are ok so long as they in safe areas where there is good site distance and the speed of traffic is controlled. Valley Parkway is used as a 'cut through' during rush hour and traffic is heavy and fast. Dick Kerber indicated that Metroparks police do patrol the road and if there are perceived safety issues they could increase surveillance.
 - **If both trails are on the same side of the Parkway, what should their relationship with each other be?**
If there are two discrete trails, they should be separated as much as possible. Horses are easily spooked by traffic suddenly coming out of a blind spot.
 - **What is the best way to address barriers and constraints related to the I-77 Bridge and the I-80 underpass?**
The underpass needs additional lighting to enhance the perception of security. The option of a separate pedestrian bridge over I-77 is probably not viable, due to cost. Horses, bikers and hikers could coexist on one side of the bridge. The underpass may have sufficient room to separate the uses to opposite side of the Parkway.
 - **What are the most important connections to the corridor?**
 - *North on Brecksville Road to the Honey Hut and Starbucks.*
 - *North to Blossom Hill in Brecksville.*
 - *North to Highland Elementary School in Brecksville along an existing gas line easement.*
 - *A southerly linkage following the same gas line easement into the adjacent residential community is possible but likely to meet resistance from adjacent property owners.*
 - *Links to North Royalton City Center would be desirable.*
 - *Link to Seneca Golf Course would be desirable because rest rooms and refreshments are available.*
 - *Narrow shoulders and sidewalks on bridges over Interstate 80 present barriers to North/South connections on Ridge and State Roads.*
3. A brief discussion followed regarding the reasons for the light turn out of participants to the public meeting. It was felt that the lack of any controversial issue was a key factor. Residents would just like us to get on with the project and build it!
4. Matt Hills adjourned the meeting at 8:30 PM.

COPY TO: All Stakeholders

OFFICE USE: Fax sent Hard copy sent

Behnke Associates
700 West St. Clair Avenue
Cleveland, OH 44113-1230

216.589.9100 Tele
216.589.8560 Fax
Info@behnkeassoc.com Email
www.behnkeassoc.com

Principals:
Lee Behnke
Thomas F. Zarfass
P. Jeffrey Knopp

Landscape Architecture
Planning



Valley Parkway
 Community Meeting #1—May 27, 2009
 SIGN IN SHEET

| Name | Postal Address | Email Address |
|---------------------|----------------------------|--|
| 1 Ron Weidig | 9069 Brecksville Rd | rweidig@brecksville.oh.us |
| 2 Dave Schroedel | 9543 Braemar Road | dschroedel@braemar-heights.org |
| 3 Vicky McCauley | 9069 BRECKVILLE RD | vmccauley@brecksville.oh.us |
| 4 Don Kishmacton | 4920 Kenwood Dr. | |
| 5 Glenn Goodwin | 7796 GLENGATE | glenn glenn.goodwin@cox.net |
| 6 KRISTEN MILLER | 9323 SCOTTS DACE DR. | kristenmiller1@cox.net |
| 7 Kelli Charinister | 9323 SCOTTS DACE DR. | K |
| 8 KEN TYRPAK | 421 LAKE OF THE WOODS BLVD | KTYRPAK@AOL.COM |
| 9 Dick Kerber | 4101 Fulton Parkway | rjk@clevelandmetroparks.com |
| 10 MATT HILLS | 1415-B W. 10TH ST. | MHILLS@BEHNKEASSOC.COM |
| 11 TOM ZARFOSS | " | TZARFOSS@BEHNKEASSOC.COM |
| 12 | | |
| 13 | | |
| 14 | | |



Valley Parkway Community Meeting #1—May 27, 2009

Subgroup Discussion Topics

1) Alignment

- a) Should the All Purpose Trail be on the north or south side of Valley Parkway?

ANSWER:

- b) Should the Bridle Trail be on the north or south side of Valley Parkway?

ANSWER:

- c) Should either trail cross the Valley Parkway?

ANSWER:

IF YES, MARK WHICH TRAIL SHOULD CROSS AT WHAT LOCATION, ON YOUR 11X17 MAPS. ALSO MARK ENTIRE DESIRED ALIGNMENT FOR BOTH TRAILS.

- d) If both trails were on the same side of the Valley Parkway, what should their relationship to each other be? How far apart, if they are able to be separate? What width should each trail be? If they have to co-exist, how wide should the path be? What pavement materials?

ANSWERS:

- e) Discuss the best way to address the following barriers and constraints.
i) I-77 Bridge
ii) I-80 Underpass

ANSWER:

MARK ANSWERS ON YOUR 11X17 MAPS, IF DESIRED.

(OVER)



2) Connections

a) Destinations

ON THE 11X17 “CONNECTIONS TO CORRIDOR” SHEET, EACH PERSON PLACE THREE STICKY DOTS ON THE DESTINATION(S) YOU FEEL IS/ARE MOST IMPORTANT TO CONNECT TO THE VALLEY PARKWAY TRAIL .

b) Routes

MARK ON 11X17 SHEETS PREFERRED ROUTES TO & FROM THE DESTINATIONS.

NOTE THE FORM OF THE ROUTE:

- (1) Pedestrian Sidewalks
- (2) Bike Routes
- (3) Bike Lanes
- (4) All Purpose Trails

c) Intermediate trail head--is it necessary/desired?

ANSWER:

- i) If yes, which location? (circle one, below.)

BY INTERSTATE 80

AT BARR ROAD INTERSECTION

3) Other

a) Interpretive elements

MARK ON 11X17 SHEETS THE LOCATIONS AND DESCRIPTIONS OF INTERPRETIVE ELEMENT IDEAS.

b) Concerns / Questions / Comments

WRITE ALL OTHER CONCERNS / QUESTIONS / COMMENTS YOU MAY HAVE HERE, AND ON THE BACK OF THIS PAGE.





MEMO

TO: City of Broadview Heights **DATE:** July 9, 2009
ATTN: Gene Esser **PROJECT:** Valley Parkway Study
RE: 7-1-09 Community Meeting #2 Minutes **PROJECT NO:** 0907
EMAIL: epepper@broadview-heights.org **NO. of PAGES:** 18
(including cover)
FROM: Matt Hills Hard copy to follow

COMMENTS:

Citizen Attendees:

- See Attachment 'A'.

Stakeholder Attendees:

- Gene Esser (City of Broadview Heights,) Tom Jordan (City of North Royalton,) Dick Kerber (Cleveland Metroparks,) Jim Kastelic (Cleveland Metroparks,) Chris Preto (Hatch Mott MacDonald,) Tom Zarfoss (Behnke Associates,) Matt Hills (Behnke Associates)

1. Mayor Stefanik opened the meeting at 7:15 pm. Councilman Kasaris spoke briefly. Community Development Director Tom Jordan introduced the project, its purpose and its livable community context. Matt Hills then proceeded with a PowerPoint presentation (download at www.behnkeassoc.com/download/0907/VPPresentation2.zip.) that focused on the following:
 - o What is the Study?
 - o What is the Process?
 - o Why here? Why a trail?
 - o Definitions
 - All Purpose Trail
 - Connections
 - Trail Head
 - o Existing Conditions
 - Study Area
 - Connections
 - o Constraints
 - Drainage & Topography
 - Floodplain & Wetlands
 - Soils
 - Vegetation
 - Utilities
 - Pedestrian-Vehicular Conflicts

Behnke Associates
700 West St. Clair Avenue
Cleveland, OH 44113-1230

216.589.9100 Tele
216.589.8560 Fax
Info@behnkeassoc.com Email
www.behnkeassoc.com

Principals:
Lee Behnke
Thomas F. Zarfoss
P. Jeffrey Knopp

Landscape Architecture
Planning



- Opportunities
 - Public properties & Rights of Way
 - Interpretive Opportunities
 - Restorative Opportunities
 - Design Standards
 - AASHTO & ODOT
 - Metroparks
 - Alignment Option Concepts
2. A group discussion followed that focused on the following:
- a. Several representatives of the Ohio Horseman's Council (OHC) and several equestrian people spoke, and had the following comments:
 - i. There are approximately 150 members in the OHC.
 - ii. 37% of the OHC members have logged 5,188 miles in the Brecksville Reservation and 4,299 miles in the Mill Stream Reservation.
 - iii. Edgerton Road is the dividing line between the Mill Stream Run and Brecksville Reservations.
 - iv. Horses can get easily spooked by walkers, bicycles, dogs, strollers, etc., so separation of Bridle Trail (BT) users from All Purpose Trail (APT) users is important.
 - v. BT crossings with APT's are very dangerous and should be avoided.
 - vi. The OHC prefers BT's and APT's to be on opposite sides of the Valley Parkway.
 - vii. Where BT and APT must be on the same side of the Parkway, a 10', minimum, vegetative buffer is preferred.
 - viii. Where a buffer is not possible, a vertical barrier (e.g., a 3-rail fence,) helps keep the two uses separate.
 - ix. If some or the entire bridle trail were to be relocated within the Parkway corridor, the majority of equestrian people at the meeting were interested a continuous, single track, primitive-style trail, on a soft, natural surface, within a natural (undeveloped, preferably in the woods,) setting. The ground should be firm enough to handle horses' weight, but not a "hard" surface, like compacted gravel. The trail should be 3'-5' clear.
 - x. The BT users also desire separation from vehicles.
 - xi. If a portion or all of the bridle trail were to be relocated, building the new bridle trail prior to decommissioning the existing bridle trail is desired.
 - xii. Three areas within the study area are currently rider-unfriendly:
 1. The blind spot along Broadview Road, at the Parkway intersection makes it difficult to cross Broadview on a horse safely.
 2. The I-80 underpass is dark and noisy.
 3. At the I-77 bridge, the 10" elevation difference between the trail and the road and the direct adjacency of the trail to the road make the overpass uncomfortable. Eliminating the 10' curb and erecting a visual barrier between the trail and the road would help.
 - xiii. The Cuyahoga County Chapter of the OHC submitted a petition with signatures (See Attachment 'B',) which discusses many of the items listed above.
 3. Matt Hils asked the question: "If the bridle trail were to be moved to the north side of the Parkway, are there any significant reasons why it would not work/not be acceptable to the equestrian community?" Aside from the fact that the bridle trail has been on the south side for many years, no one voiced any concerns, as long as it addresses the issues listed in items 2, a, iv through xi.

Behnke Associates
700 West St. Clair Avenue
Cleveland, OH 44113-1230

216.589.9100 Tele
216.589.8560 Fax
Info@behnkeassoc.com Email
www.behnkeassoc.com

Principals:
Lee Behnke
Thomas F. Zarfoss
P. Jeffrey Knopp

Landscape Architecture
Planning



4. Comments from other non-equestrian attendees included;
 - a. A local resident who walks the Parkway regularly between Highland Drive and Brecksville Road has observed a usership ratio of 50 walkers to 1 equestrian rider. After the meeting the resident gave Matt photos of the “walking trail” he uses. (See Attachment ‘C’)
 - b. The APT should be in the woods/shade as much as possible, be as level as possible, and with no/minimal Valley Parkway crossings.
 - c. The Plan should provide for as many different user types as possible.
 - d. The APT and BT should be kept separate.
5. Matt Hills adjourned the meeting at 8:30 PM.
6. After the meeting, Kathy King, Cuyahoga County President of the OHC, gave Behnke Associates literature on the OHC and “Multi-use Trail Manners.” (See Attachment ‘D’)
7. Ms. King stated she and some of her fellow equestrian members would scout a possible BT alignment for the north side of the Parkway, and report back to Behnke what they found.

COPY TO: All Stakeholders

OFFICE USE: Fax sent Hard copy sent

Behnke Associates
700 West St. Clair Avenue
Cleveland, OH 44113-1230

216.589.9100 Tele
216.589.8560 Fax
Info@behnkeassoc.com Email
www.behnkeassoc.com

Principals:
Lee Behnke
Thomas F. Zarfoss
P. Jeffrey Knopp

Landscape Architecture
Planning



Valley Parkway
Community Meeting #2—July 1, 2009
SIGN IN SHEET

| Name | Postal Address | Email Address |
|----------------------|--|----------------------------------|
| 1 LARRY ANTOSCIEWICZ | 12271 Eagle Nest Dr. | WARD5@NorthW.Roy144897.org. |
| 2 Patrick Jones | 3252 Helen Ln. Nk. 44133 | |
| 3 Marty Lesker | 6380 Lewis Rd Olusol Twp | |
| 4 SANDY McVANEY | 16941 Bennett Rd N. Royalton | 44133 SANDY K9362@msw.com |
| 5 MARTHA MURPHY | 6856 ANTHONY Lane P. Hts | 44130. |
| 6 Susan Bellis | 2783 Atkins Rd. Broadview Hts | 44147 3 GSPS@Sbc.Globa.net |
| 7 Bonnie Evans | 1745 Middleton Rd Hudson Ohio | 44236 Bevans x 2 a.windstream |
| 8 Judy Long | 13300 Longspur Ct Valley View, Oh | 44125 Jlong3@Tune.com |
| 9 Jay Koo | 18965 Chiles the Rd. Chagrin Falls, Oh | 44083 bayraze@windstream |
| 10 Max Schlessel | 3695 Mercury Dr. N. Royalton, Oh | 44133 max4prezz@wideopenwest.com |
| 11 Richard Lundstedt | 9513 Highland Drive Brecksville Oh | 44114 Rlunsted417@netscape.net |
| 12 | | |
| 13 | | |
| 14 | | |



| | Name | Postal Address | Email Address |
|----|-------------------|---|------------------------|
| 15 | CAROL MILLER | 24525 BARRETT RD OLINSTEAD TWP 44132 | |
| 16 | Kathy King | 11134 Edgemoor Rd N Royalton Kings3horses@ | yahoo.com |
| 17 | Penny Passalacqua | 34750 Forest In Solon PENNYONE@sbglobal.net | |
| 18 | SIM Sites & Shaw | 3566 Atkins A N Royalton OH | |
| 19 | Margaret Koffe | 1239 Broadway Bedford 44146 OH | |
| 20 | Linda Golding | 16650 Auburn Rd Chagrin Falls 44023 | MrCooksMom@aol.com |
| 21 | Dennis D. Vardo | 14099 ARLWAY CV N.R. 44133 | |
| 22 | Paula Kume | 12690 W. Star 44133 | |
| 23 | JOHN E. COLONYE | 7615 ANDOVER LANE 44133 | |
| 24 | Chris Pao | 18013 Clevedon Pkwy S.W. 200 Channah OH 44135 | chris.pao@hathnott.com |
| 25 | H. K. A. ROLEWST | 15930 R. D. GEE 44133 | |
| 26 | Mauree Baystak | 4860 Bunbury 44133 | |
| 27 | JOE MINICK | 12400 DEER CREEK DR. 44133 | JMINICK94@yahoo.com |
| 28 | | | |
| 29 | | | |
| 30 | | | |
| 31 | | | |

Appendix A: Stakeholder & Community Engagement



Please PRINT Name and Address

11581
DM CASARIS Beckenham Reynolton 44133

8863 Michaela Ln
Nancy Zikmanis Bdv Hts 44147

Jessica Zikmanis 8863 Michaela Lane Bdv Hts 44147

Patty Bamboon 13790 Rustic Dr. North Royalton 44133

Gary Bamboon 13790 Rustic Dr. North Royalton 44133

ALLAN KING 11134 EDGENTON RD N ROYALTON 44133



Kathy King, Cuyahoga County President
Ohio Horseman's Council
11134 Edgerton Rd.
North Royalton, Ohio 44133
216-990-9880



Placement of the All Purpose Trail Study Brecksville Reservation

Meeting to be held at North Royalton City Hall
July 1, 2009 7 pm

We the undersigned request the All Purpose Trail that is proposed for the Cleveland Metropark-Brecksville Reservation be located on the north side of the Parkway for numerous reasons. The bridle trails on the south side of the parkway have been there for years and are enjoyed by riders, runners or walkers.

The beauty of this section of trail is the tranquility, the scenery and the soft, natural single file trails that meander through the woods. This section of park offers what other reservations are requesting - natural surfaces for a more rural feel when they ride. The hard surfaces can harm a horse legs and wide well maintained trails do limit the rural feel of the park.

More important is the safety factor. Whether walking or trotting a horse, the animal can spook at sudden movement. This is due to their being "animals of prey". Seeing joggers, walkers, strollers, bikes and roller bladers that may use the trail would be a safety issue not just for the equestrian but also for those on foot. With an increase in visitors to the park to use the trails also increases the traffic- speeders. There are several road crossings to navigate and for safety for all it is better to not all be bunched on one side of the road- especially at blind crossings such as Broadview Road.

There is also the issue of more people in the park leaving trash behind on the trails. Bottles, potato chip bags, bags left with dog feces unfortunately are found on the trail regularly and would increase with the additional people visiting the trail. The I-80 underpass is already a concern for riders. To expect a horse to travel in the dark, underneath this along with bikes, walkers, strollers and overhead noise is just not a good mix.

There are 90 miles of bridle trails in the Metroparks. One can ride from the South Chagrin Polo Field to Rocky River Stables and see why this park is referred to as "The Emerald Necklace" that drapes around Cleveland. It is a wonderful asset for the horse community both near and far.

Currently the ATP already is situated on the north side. Please preserve the natural setting of the designated bridle trails for riders and for



the many that like to experience the more tranquil setting while walking peacefully on these trails and place the APT on the north side of the Parkway. Most important, keep all park visitors safe while enjoying the park, even if there is a bit more cost involved.

| | NAME | ADDRESS | PHONE |
|----|--------------------|---|--------------|
| 1 | Emily Heath Wilson | 18185 Bowman Rd Strongsville | 440-572-5673 |
| 2 | Bonnie Eozus | 1745 Middleton Rd | 330 650 4933 |
| 3 | ANNA B FITZGERALD | Hudson, 35209 Cooley Rd | 440-724-8596 |
| 4 | Jane Thomas | COLUMBUS, OH 44044 6730 STRATHMORE DR VALLEYVIEW 44125 | 216 447-1169 |
| 5 | Judy Gora | 13300 Longskun Ct, Valley View | 216-524-7631 |
| 6 | Denise Crowley | 3824 Sa Vage ST Berea OH 44017 | 440-759 7695 |
| 7 | Polly Raman | 3889 Walter Rd N. Olmsted OH 44070 | 440-777 2684 |
| 8 | Janet Lawson | 10342 Stamford Ct, Strongsville OH 440.268.9765 | |
| 9 | KIRSTEN RITCHIE | 26642 LK OF THE FALLS BLVD. OLMSTED FALLS | 440-463-4440 |
| 10 | Jane Marek | 4062 daisy ave 44141 | 440.546.1216 |
| 11 | Tom Kicielinski | | |
| 12 | Margaret Wolfe | 1239 Broadway Bedford 44146 | 440 732 0710 |
| 13 | Frank Q Joga | 28025 CANNON RD Solon 44135 | 4 2489 |
| 14 | Ann Dinger | " " " " " | 4402480255 |
| 15 | SUSAN SCHWITKE | 11291 HANDHE RD STRONGSVILLE | 440 238 0464 |
| 16 | Niki Sackman | 26335 Cranage Rd. Olmsted Falls | 440 235 1553 |
| 17 | Linda Monaro | 494 Brooklawn Berea OH 44-234-9527 | |
| 18 | Barb Buynalc | 27178 Bagley Rd. O.F. 44138 | 440-235-1285 |
| 19 | Sabrina medita | 24147 Lebern Dr. N. Olmsted OH | 440-454-3069 |



| NAME | ADDRESS | PHONE |
|------------------------|---|---------------|
| 20 BARB ZORE | 4163 W. 215 ST, FAIRVIEW PK 44126 | 440331-6081 |
| 21 Elaine Teolakis | 12700 Lake Ave #1502 Hwtd. 44107 | 440554-3838 |
| 22 Cindy Wondrus | 13612 game wld col. station 44028 | 440236-3785 |
| 23 TERESA Bonin | 22956 MASTICK Rd, FAIRVIEW PARK, OH 44126 | 4-979-9257 |
| 24 CYNTHIA GREENE | 10242 ECHO HILL DR., BRKSVL 44141 | 440-263 8099 |
| 25 Dottie Gilchrist | 1967 E Wallings Rd Brad Hts | 440526-3931 |
| 26 Jim Gilchrist | 1967 E Wallings Rd Brad Hts OH 44147 | 4405263931 |
| 27 Skip-Jane Patterson | 6785 Paula Dr. Middleburg Hts OH 44130 | 216-362-7258 |
| 28 DEB ROBE | 4 Carl Lane Elmstedt wpt OH 44138 | (440)667-0917 |
| 29 Mary Sidell | 1624 Dartmouth Brunswick OH 44212 | 330-273-6062 |
| 30 Kathy King | 11134 Edgemoor Rd Royalton Oh | 216 996-9880 |
| 31 | | |
| 32 | | |
| 33 | | |
| 34 | | |
| 35 | | |
| 36 | | |
| 37 | | |
| 38 | | |
| 39 | | |
| 40 | | |
| 41 | | |
| 42 | | |
| 43 | | |
| 44 | | |
| 45 | | |
| 46 | | |
| 47 | | |
| 48 | | |
| 49 | | |



park is referred to as “The Emerald Necklace” that drapes around Cleveland. It is a wonderful asset for the horse community both near and far.

Currently the APT already is situated on the north side. Please preserve the natural setting of the designated bridle trails for riders and for the many that like to experience the more tranquil setting while walking peacefully on these trails and place the APT on the north side of the Parkway. Most important, keep all park visitors safe while enjoying the park, even if there is a bit more cost involved.

| | NAME | ADDRESS | PHONE |
|----|-----------------------------|--|------------------------------|
| 1 | CAROL P TAYLOR | 1481 MONARK | 216-409-6392 |
| 2 | Russ Sanderson III | 38 EAST MAN | (216) 214 8920 |
| 3 | Susan Ostrorsky | 38 EAST MAN | (216) 527-9211 |
| 4 | Deborah L. Mitterholzer | 31481 St. Andrews | (440) 835-7211 |
| 5 | Katie Mitterholzer | 31481 St. Andrews | (440) 835-7211 |
| 6 | Jimmy Gilchrist | 1967 E. WALLING RD | 440 526 3931 |
| 7 | Dottie Gilchrist | 1967 E. WALLING RD | 440 526 3931 |
| 8 | IDI MILLIKEN | 5887 PEARL RD | 440-227-3277 |
| 9 | Shawn Warner | 26550 Primrose Lane Wickliffe | 440-716-8530 |
| 10 | Amy Powers | 3781 Dover Ctr. Rd Westlake | (216) 990-9969 |
| 11 | Holly Dudzinsk | OH 441145 | |
| 12 | Elaina Teolakis | 12123 National Dr. Grafton OH 44044 | 440-668-1514 |
| 13 | Skip Wancum on Patterson | 12700 Lake Ave #1502 Lakewood, OH 44107 | 440 554-3838 |
| 14 | DEBORBE | 4785 Paula Dr, Middleburg Hts OH 44130 | 216-362-2588 |
| 15 | Mary Sidell | 1624 Dartmouth Barnsville OH 44212 | 440-667-0917 330-273-6062 |



- 16 John Shaughnessy - 219 N. Rocky River Rd
BETEN, OHIO, 44017
- 17 Pete Della 9199 Shenandoah Dr. North Royalton Oh.
- 18 DAVID E. STRINSON 7370 CONTS RD. OLMSBROOK OHIO
- 19 Jacke Shaffer 9100 DUNHAM RD LITCHFIELD OH 44253
- 20 Matt Truhel 10486 Kettering Oud Spangsville OH 44131
- 21 Sharon Melick 14536 South Gateway N. Royalton OH 44133
- 22 Joanna Kennenbury 11591 Sprague Rd. N. Royalton OH 44133
- 23 Margaret Wolfe 1239 Broadway - Bedford 44126
- 24 Frank Long 28025 Cannon Rd. Solon Oh 44139
- 25 Allen King 11134 EDGEMOOR RD NORTH ROYALTON OHIO 44133
- 26 Ira Nisak 29525 S. WOODLAND P. K. OHIO
- 27 Frank Molwald 16892 Woodland Rd STANGSVILLE 44136
- 28 Susan M. Bellis 2783 AKINS Rd Broadview HTS. 44147
- 29 Robert Bellis 2783 AKINS Rd. Broadview HTS 44147
- 30 ~~John Bellis 2783 AKINS rd. N. Royalton 44133~~
- 31 ~~John Bellis 2783 AKINS rd. N. Royalton 44133~~
- 32 Joanne King 3285 Akins Rd. " " " "
- 33
- 34
- 35
- 36
- 37
- 38
- 39
- 40
- 41
- 42



Matt Hils

From: Penny Passalacqua [pennyohc@sbcglobal.net]
Sent: Thursday, July 02, 2009 12:03 PM
To: rjk@clevelandmetroparks.com; Matt Hils; jmv@clevelandmetroparks.com
Cc: pennyohc@sbcglobal.net; 'Kathy King-Home'
Subject: Brecksville Reservation Horse and APT Trails

Gentlemen,

Thank you for an informative meeting last night and for listening to the trail users from the horse community. I think you will find us reasonable in our needs and requests. Below is a recap of the trail needs as we see them up to this point.

1. We are very satisfied with the location of the trail as it is. If an agreement is reached by all interested parties to relocate the horse trail, then the horse trail must be constructed and ready to use before construction begins on an APT.
2. We would expect separate but equal as far as trail design. We do not need or want a 12 foot wide gravel trail in this area, but the trail surface, especially lawn areas should drain and handle horse traffic without creating deep mud and be wide enough (5' in wooded areas) for horses to travel safely.
3. Design safer road crossing for the safety of all users and you will see a significant increase in equestrian use as well. Perhaps a common warning sign indicating walkers, bikers and horses on the north/south intersecting roads and pedestrian/equestrian traffic lights as well. Currently there is a horse sign on Broadview, a horse and bike sign on Edgerton and bike sign on York. These crossings are still hazardous.
4. Equestrian access to any new facilities should be included in the plan-such as restrooms, picnic facilities etc.
5. Appropriate signage in any shared areas such as "yield to horses" per common trail use rules.
6. Improved trail under the Turnpike-lights, footing, etc. (This should be done now as it is currently a hazard.)
7. A safer design for crossing over the freeway needs to be done especially if this is to be shared.
8. Buffer of trees or greenery between the trail and road or APT. We appreciate the placement of trees in the past few years.
9. There may be more needs that we have not listed here but will come up in future meetings/talks.
10. The fewer intersecting drive way crossings, and different user intersecting trails the better. Minimize any "shared" use.

We wish you well in your efforts to create a new trail system and look forward to continued involvement and communication. Please share these comments as needed.

How about a bike, hike and horseback ride event on opening day with a ribbon cutting to celebrate when this dream becomes reality?

Sincerely,

Kathy King President, Cuyahoga Chapter OHC

Penny Passalacqua, OHC Liaison to Cleveland Metroparks



Matt Hils

Subject: FW: Valley Parkway Trail Alignment

From: Walter W. Holliday [mailto:Walt@WeAreUSS.com]

Sent: Wednesday, June 17, 2009 7:03 AM

To: Dan Kasaris

Cc: Vince Gentile; Thomas Jordan; Dana Weiss

Subject: Valley Parkway Trail Alignment

Dan Kasaris,

I have vested interest in the placement of the preposed "Valley Parkway Trail".

I reside at 3572 Valley Parkway.

This is between State road and Broadview Road.

I have been researching the project and its progress thus far in preperation for the July 1st meeting.

Unfortunately, I can find little or no information at the North Royalton web site or the Broadview Heights web site.

There was a meeting held in Broadview Heights ojn the 27th of May.

I can not find any info related to this meeting.

Specifically, I would like the trail placed on the south side of the road.

For me the following benefits would follow with this placement:

- *This would maintain the privacy of my home as the woods are quite thin in front of my home.*
- *My address sign would not be disturbed*

(This seems like a minor issue until you try to find my house without it. - Just try it once, you will see exactly what I mean.)

For the community, the following benefits would follow with this placement:

- *Fewer homes would be impacted*
- *Less Metro Park environmental damage would result*
- *Cost would be considerably less as there are many areas which would require little excavation.*



- *Would lead to a more attractive end result as the homes along the parkway would not become exposed.*
- *The viaduct at Rt. 80, east of me has the under-bridge walkway on the south side.*

Do you have any say in this issue?

Can you help me obtain additional information?

Could you contact me prior to the July 1st meeting?

This far, Thomas Jordan, Director of Community Development, has not returned my calls.

The North Royalton web site has no follow-up on this issue at all.

Thanks,

Walter W. Holliday



<http://www.WeAreUSS.com>

Unified System Solutions, Ltd.

440-237-4186 – Cleveland Office

614-537-4013 – Cell

Walt@WeAreUSS.com

This communication is intended only for the individual or entity designated above. This message and the attached document(s) are personal and confidential. This communication may be privileged, confidential and exempt from disclosure under applicable law. If you are not the intended recipient or someone responsible for delivering this communication to the intended recipient, you have received this document in error. Any review, dissemination, distribution or copying of this communication by someone who has obtained this communication in error is strictly prohibited. If you have received this communication in error, please contact the sender immediately and return the original message by mail.

This document and any attachment is not intended or written to be used, and it cannot be used, for the purpose of avoiding U.S. federal, state or local tax penalties which may be imposed by law.





MEMO

TO: City of Broadview Heights **DATE:** August 11, 2009
ATTN: Gene Esser **PROJECT:** Valley Parkway Study
RE: 7-23-09 Stakeholder Meeting #3 Minutes **PROJECT NO:** 0907
EMAIL: epesser@broadview-heights.org **NO. of PAGES:** 2
FROM: Matt Hills (including cover)
 Hard copy to follow

COMMENTS:

Attendees:

- Gene Esser, epesser@broadview-heights.org
- Dave Schroedel, dschroedel@broadviewheights.org
- Victoria McCauley, vmccauley@brecksville.oh.us
- Tom Jordan, tjordan@northroyalton.org
- Michelle Johnson, mjohnson@mpo.noaca.org
- Tom Zarfoss, tzarfoss@behnkeassoc.com
- Matt Hills, mhils@behnkeassoc.com
- Chris Preto, chris.preto@hatchmott.com

1. Matt Hills previewed the agenda and presentation for the community meeting scheduled for July 29. Stakeholders can access the presentation at www.behnkeassoc.com/download/0907/VPPresentation3.zip. Matt Hills also presented the preliminary alignment options, in plan form, as a preview of what would be shown at the public meeting.
2. Michelle Johnson recommended taking a closer look at whether traffic signalization will really be warranted at the State, Broadview, and Brecksville Road intersections. She cautioned against overly-conservative cost estimates that could inflate the project cost, and reduce the likelihood of obtaining funding. The planning team will review the estimates during the final report generation.
3. The present stakeholders agreed an all purpose trail alignment away from the Valley Parkway is more desirable than one immediately adjacent to the Parkway.
4. Cleveland Metroparks is very concerned about clearing no more vegetation than is necessary. The present stakeholders decided a walkthrough of the corridor with Metroparks representatives would be necessary. However, after the meeting, Behnke and Metroparks had a phone conversation about the alignment options, and how they impact existing vegetation along the corridor. It was decided the final alignment will be determined during the design project for the construction of the trail, when a detailed survey of the corridor has been completed. At that time, user experience will be balanced with vegetation preservation, to determine the alignment to be built. With this conclusion in mind, it was decided an on-site walk through was unnecessary.
5. Gene Esser suggested graphically representing each I-80 and I-77 option on the alignment plans, along with an associated cost label, to help viewers understand the cost of each option.
6. Gene Esser suggested the final report recommend the sponsor groups for the construction of the trail(s) work with ODOT on the best way to accomplish the I-77 crossing.
7. Behnke stated they would email all public meeting #1 and #2 attendees a description, date, time and location of public meeting #3.

Behnke Associates
 700 West St. Clair Avenue
 Cleveland, OH 44113-1230

216.589.9100 Tele
 216.589.8560 Fax
Info@behnkeassoc.com Email
www.behnkeassoc.com

Principals
 Lee Behnke
 Thomas F. Zarfoss
 P. Jeffrey Knapp

Landscape Architecture
 Planning





MEMO

TO: City of Broadview Heights **DATE:** July 31, 2009
ATTN: Gene Esser **PROJECT:** Valley Parkway Study
RE: 7-29-09 Community Meeting #3 Minutes **PROJECT NO:** 0907
EMAIL: epepper@broadview-heights.org **NO. of PAGES:** 5
(including cover)
FROM: Matt Hills Hard copy to follow

COMMENTS:

Citizen Attendees:

- See Attachment 'A'.

Stakeholder Attendees:

- Gene Esser (City of Broadview Heights,) Tom Jordan (City of North Royalton,) Vicky McCauley (City of Brecksville,) Jim Kastelic (Cleveland Metroparks,) Chris Preto (Hatch Mott MacDonald,) Tom Zarfoss (Behnke Associates,) Matt Hills (Behnke Associates)

1. Tom Zarfoss opened the meeting at 7:10 pm. Matt Hills followed with a PowerPoint presentation (download at www.behnkeassoc.com/download/0907/VPPresentation3.zip.) that focused on the following:

- o What is the Study? What is the Process?
- o Why here? Why a trail?
- o Study Area
- o Definitions
 - All Purpose Trail
 - Trail Head
 - Connections
- o Existing Conditions
 - Connections
- o Design Standards
 - AASHTO & ODOT
 - Metroparks
 - Ohio Horseman's Council
- o Alignment Options
 - Trail Options 1 through 3 cross sections
 - Interstate 80 underpass options
 - Interstate 77 overpass options
- o Alignment Options Assessment
 - Typical construction details
 - Cost estimate
 - Qualitative Assessment
 - Next steps in the process

2. A group discussion followed that included the following comments and questions:

a. **Question:** Can we expect the trail to be built? **Answer:** Funding is the key to getting the trail built. This

Behnke Associates
700 West St. Clair Avenue
Cleveland, OH 44113-1230

216.589.9100 Tele
216.589.8560 Fax
Info@behnkeassoc.com Email
www.behnkeassoc.com

Principals:
Lee Behnke
Thomas F. Zarfoss
P. Jeffrey Knopp

Landscape Architecture
Planning



study is the first step toward securing funding, because the study shows justification for the trail. A cooperative effort between the cities and Cleveland Metroparks will be the best equation for successful funding.

- b. **Question:** Why does the design team show moving the bridle trail to the north side of the Valley Parkway, if it is more expensive than keeping it where it is? **Answer:** As part of the study, the consultant team was charged with taking as broad a view as possible, to find as many feasible options as possible, in order to determine the best solution. The option that includes moving the bridle trail is only one of three, and may or may not be more expensive or more desirable than keeping the bridle trail in its current location. As mentioned in the presentation, the “best” option should be determined not only by cost, but by qualitative measures also.
 - c. Cleveland Metroparks representatives stated that when the project gets to the design phase, they will make a careful evaluation of the quality of vegetation along the corridor, in order to determine where they are willing to allow clearing to occur.
3. Matt Hills adjourned the meeting at 8:00 PM.

COPY TO: All Stakeholders

Behnke Associates
700 West St. Clair Avenue
Cleveland, OH 44113-1230

216.589.9100 Tele
216.589.8560 Fax
Info@behnkeassoc.com Email
www.behnkeassoc.com

OFFICE USE: Fax sent Hard copy sent

Principals
Lee Behnke
Thomas F. Zarfoss
P. Jeffrey Knopp

Landscape Architecture
Planning



Valley Parkway
Community Meeting #3—July 29, 2009
PLEASE SIGN IN!

| Name | Postal Address | Email Address |
|----------------------|---|------------------------------|
| 1 Vicki McCauley | 9069 BRECKSVILLE RD | vmeccauler@brecksville.oh.us |
| 2 Tom Zurefosz | | TRZFOSZ@BELTUEASSOC.COM |
| 3 Sandy McVaney | 16941 Bennett Rd N. Royalton | SANDYK9362@MSN.COM |
| 4 Al Hall | | ABHALL@VERIZON.NET |
| 5 LARRY ANTOSKISWICZ | 13271 KINGS RD N.ROY. 13274 KINGS RD N.ROY. | WARDSON@NORTHROYALTON.ORG |
| 6 Jay Deo | 18965 Chillicothe Rd. C.F. OH 44023 | bayrazzle@windstream.net |
| 7 Margaret Wolfe | 1239 Broadway Bedford 44146 | Mrgotrow@aol |
| 8 Kather King | 11134 Edgerton Rd N Royalton 44133 | eking33@yahoo.com |
| 9 Shannon Sites | 3566 Akins N. Royalton 44133 | |
| 10 Richard Lundstedt | 9513 Highland Drive Breckard | lundstedtr@net.scape.net |
| 11 Bill BINGELLI | CLEV. METRO PARKS | WEB@CLEVELANDMETROPARKS.COM |
| 12 Jim Kustelic | " " | link |
| 13 Allan King | 11134 EDGERTON RD N ROYALTON OH 44134 | |
| 14 Ron WELDIG | 9069 BRECKSVILLE RD | rweldig@brecksville.oh.us |



| Name | Postal Address | Email Address |
|------|---|------------------------------|
| 15 | Penny Passalacqua 34750 Forest Dr Solon OH 44139 | peninyone@sbeglobal.NET |
| 16 | Patti Camban 13790 Rustic Dr. N. Royalton, OH 44133 | |
| 17 | Gene Esser 9543 BRONVIEW RD BRONOVILLE, OH | gesserc@roadview-heights.org |
| 18 | Jeremy Wintg | jwintg@BentonsAssoc.com |
| 19 | Jan Jordan 18834 Ridge N. Royalton | |
| 20 | Chris Pisto 1803 Cleveland Pkwy Clark, OH 44135 | christopher@clarkheights.com |
| 21 | Pete Della 9199 Shenandoah N. Royalton | |
| 22 | Marilyn Meehan 16892 Woodlark Rd Sturgisville, OH 44156 | |
| 23 | MATT HILLS 375 HARBOR CT. AVON LAKE OH 44124 | MHILLS@BENTONASSOC.COM |
| 24 | | |
| 25 | | |
| 26 | | |
| 27 | | |
| 28 | | |
| 29 | | |
| 30 | | |
| 31 | | |

Appendix A: Stakeholder & Community Engagement



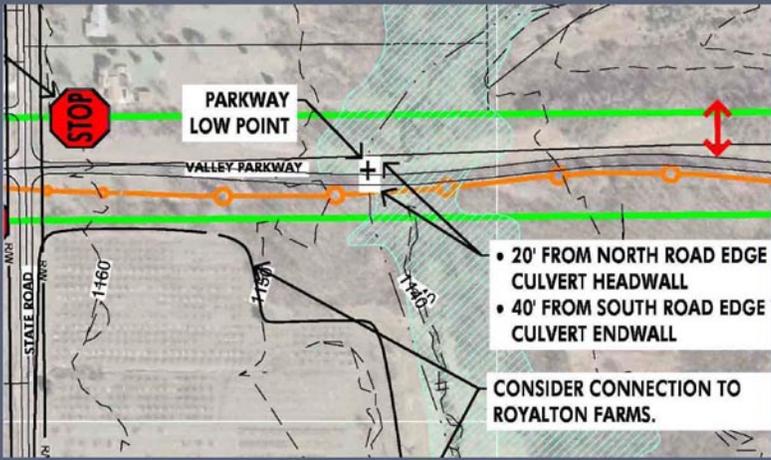
| Name | Postal Address | Email Address |
|-------------------------|---|------------------------------------|
| 33 <i>Patty Stevens</i> | <i>Pjs@clevelandmetroparks.com</i> | |
| 34 <i>Patrick Jones</i> | <i>3252 Helen Dr NORTH Royalton OH 44133</i> | <i>PJONES@NorthRoyaltonOH.com</i> |
| 35 <i>Linda Golding</i> | <i>16650 Auburn Rd Chagrin Falls, OH 44023</i> | <i>MrCooksMom@aol.com</i> |
| 36 <i>Judith Loyd</i> | <i>13300 Longspur Ct. Valley View, OH 44125</i> | <i>JLoyd33@Junior.com</i> |
| 37 <i>John Mack</i> | <i>4500 Wally King Farmview 44126</i> | <i>jjm@clevelandmetroparks.com</i> |
| 38 | | |
| 39 | | |
| 40 | | |
| 41 | | |
| 42 | | |
| 43 | | |
| 44 | | |
| 45 | | |
| 46 | | |
| 47 | | |
| 48 | | |



Existing Conditions

Floodplain & Wetlands

- One wetland on north side of trail, west of Barr
- 100-year floodplain east of State Road



Existing Conditions

Soils

| Legend | | | |
|--|-------------------------------------|---|-------------------------|
| Ellsworth | SLOWLY PERMEABLE | Orville | SOMEWHAT POORLY DRAINED |
| Haskins | SOMEWHAT POORLY DRAINED | Rittman | DENSE FRAGIPAN |
| Loudenville | WELL DRAINED & MODERATELY PERMEABLE | Udorthents | SLOW PERMEABILITY |
| Mahoning | POORLY DRAINED & SLOWLY PERMEABLE | Wadsworth | SOMEWHAT POORLY DRAINED |

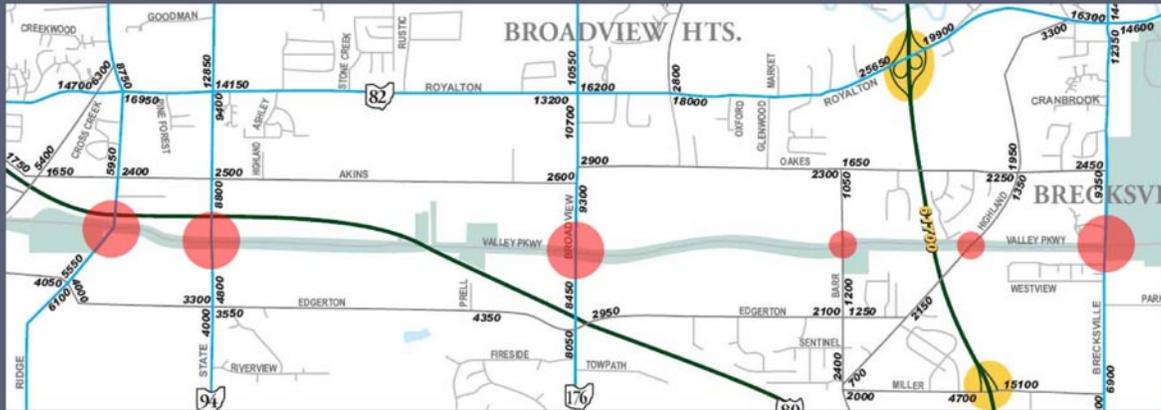


Existing Conditions

Traffic Counts

KEY

- MINOR INTERSECTION
- MAJOR INTERSECTION



AVERAGE NUMBER OF VEHICLES ON THE VALLEY PARKWAY ANNUALLY: 3,000,000



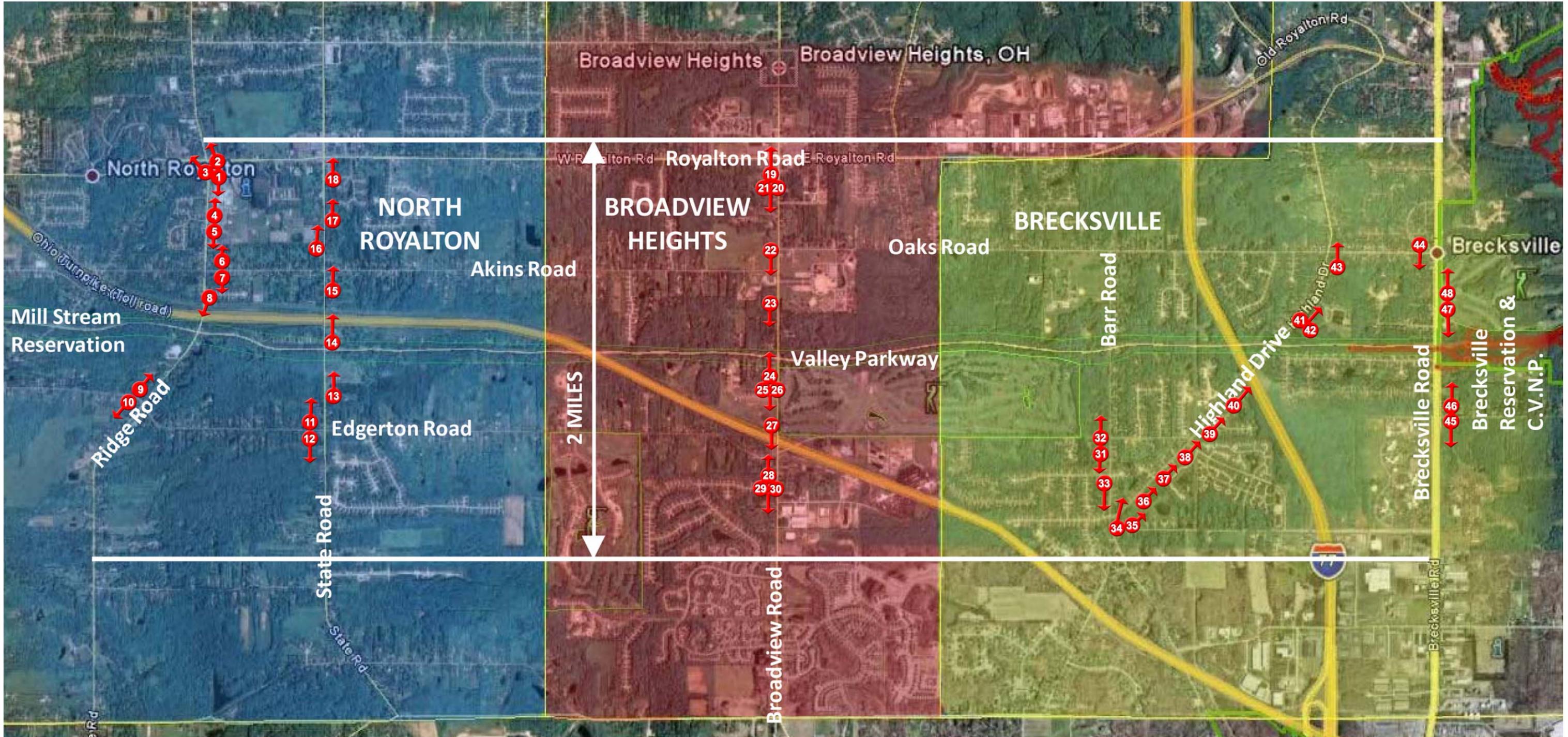


Appendix C

North-South Connectors

The following key map and photographs document the existing conditions for alternative transportation along the north-south roadways within the study area.







1



4



7



10



2



5



8



11



3



6



9



12



13



16



19



22



14



17



20



23



15



18



21



24



25



28



31



34



26



29



32



35



27



30



33



36



37



40



43



46



38



41



44



47



39



42



45



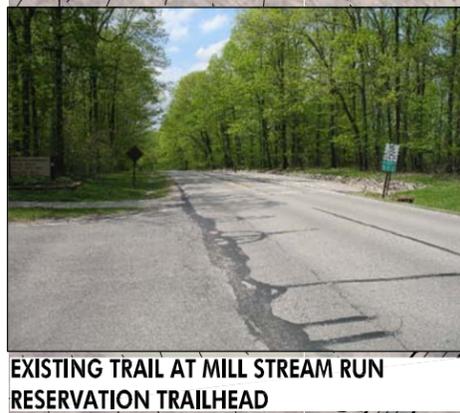
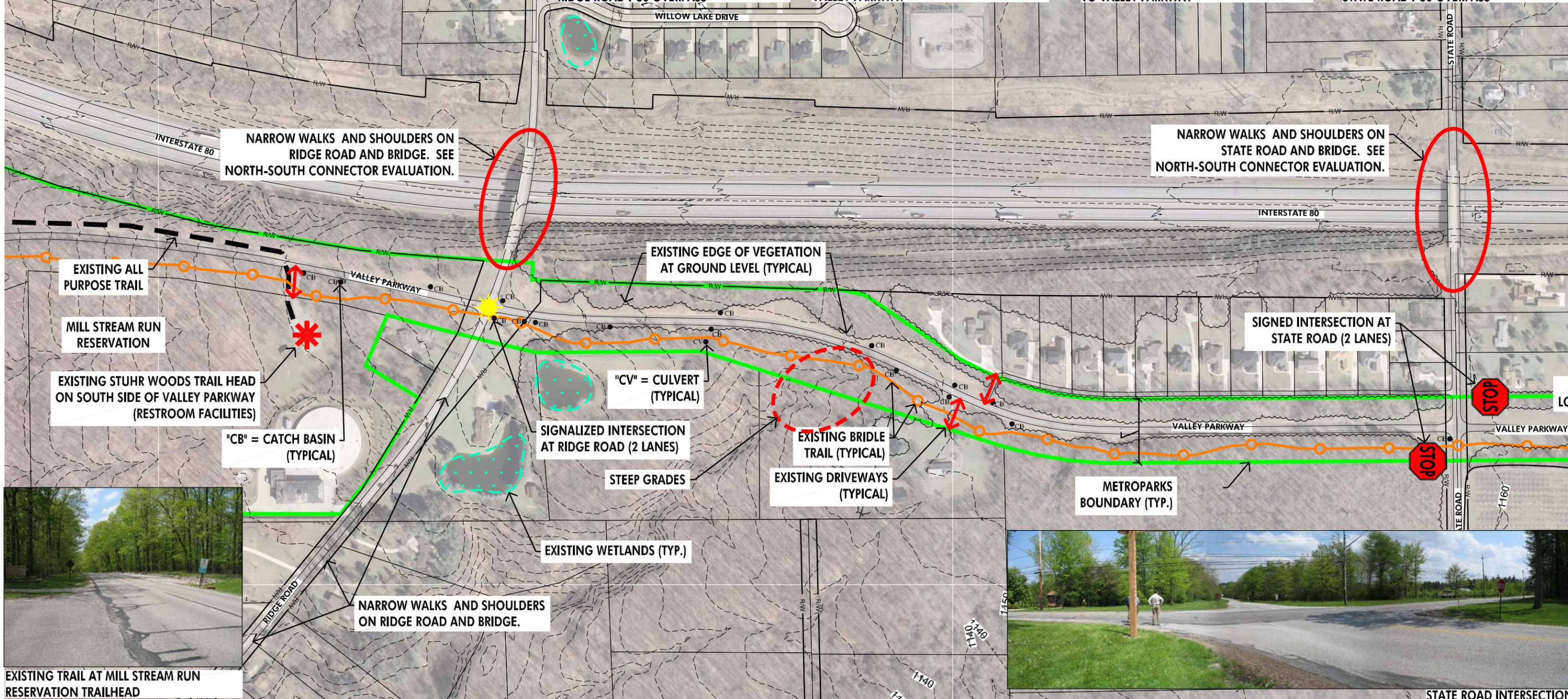
48



Appendix D Opportunities & Constraints

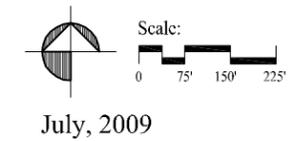
The following maps identify existing conditions and opportunities & constraints along the Valley Parkway corridor.





- GENERAL OBSERVATIONS FOR ALL SECTIONS:**
1. SWALES EXIST ON BOTH SIDES OF VALLEY PARKWAY (TYP.)
 2. SUN ANGLES MAKE NORTH SIDE OF VALLEY PARKWAY MORE SUNNY AND SOUTH SIDE MORE SHADY.
 3. MINIMUM 200' R.O.W. ALLOWS FOR COMFORTABLE SEPARATION OF TRAIL FROM ROAD IN MOST PLACES.

- GENERAL OBSERVATIONS FOR THIS SECTION:**
1. TURNPIKE NOISE IS PREVALENT.



July, 2009

Section #1
Valley Parkway Trail Alignment
 Concept Plan Development / Opportunities & Constraints



EXISTING STREAM AND CULVERT HEADWALL



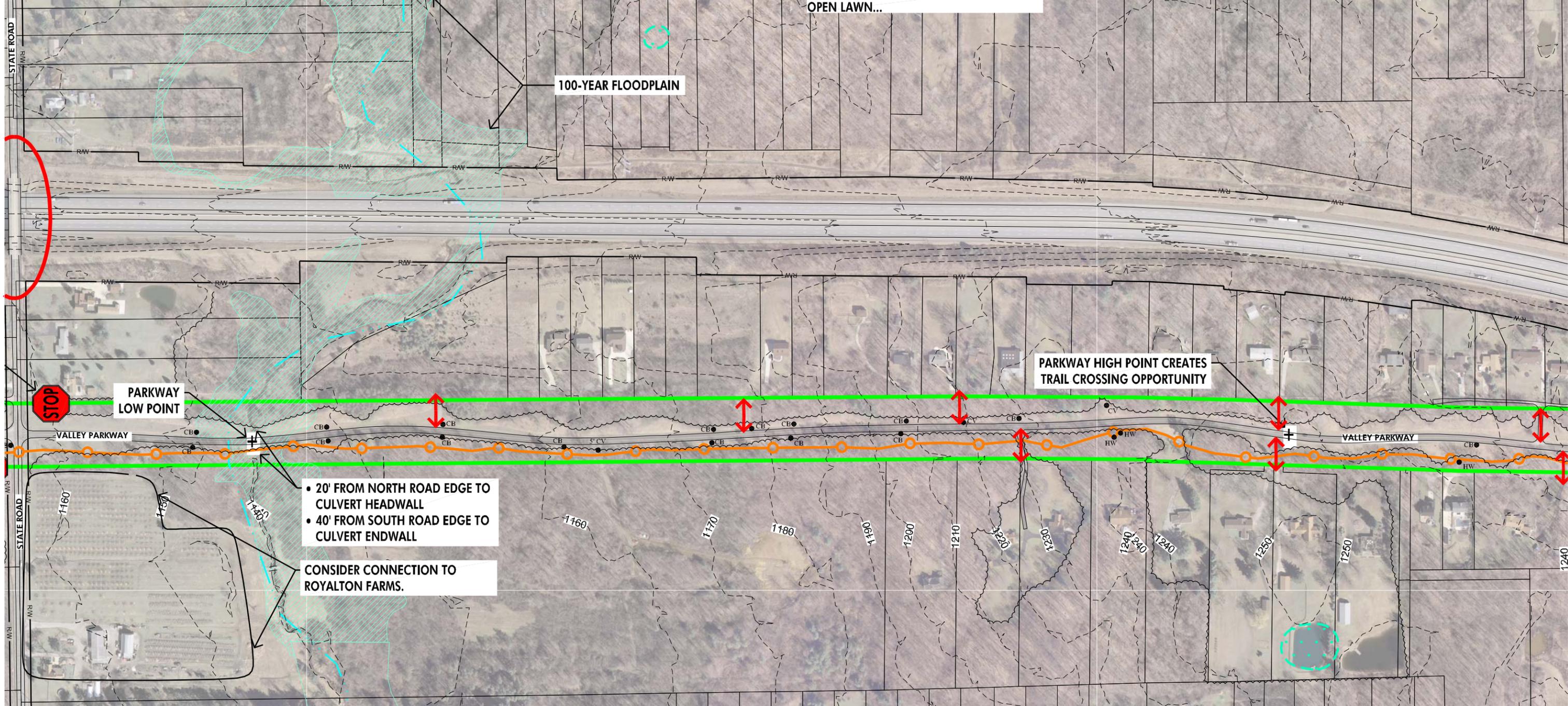
BRIDLE TRAIL CONDITIONS VARY FROM OPEN LAWN...



...TO WOODED PATH



CONSIDER OPTIONS FOR TRAIL SIGNAGE



100-YEAR FLOODPLAIN

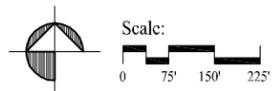
PARKWAY HIGH POINT CREATES TRAIL CROSSING OPPORTUNITY

PARKWAY LOW POINT

- 20' FROM NORTH ROAD EDGE TO CULVERT HEADWALL
- 40' FROM SOUTH ROAD EDGE TO CULVERT ENDWALL

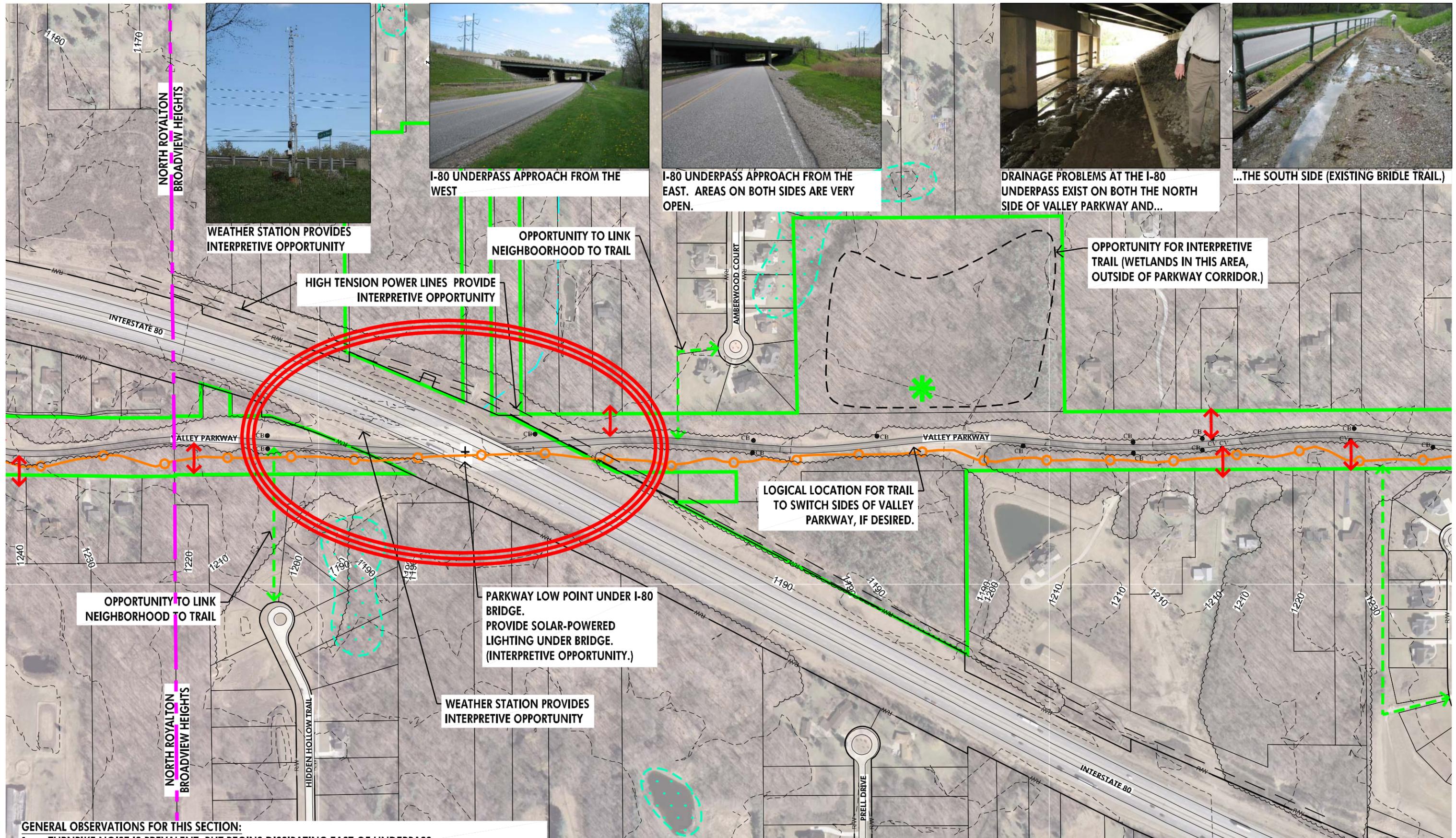
CONSIDER CONNECTION TO ROYALTON FARMS.

GENERAL OBSERVATIONS FOR THIS SECTION:
1. TURNPIKE NOISE IS PREVALENT.



July, 2009

Section #2
Valley Parkway Trail Alignment
Concept Plan Development / Opportunities & Constraints



NORTH ROYALTON
BROADVIEW HEIGHTS

WEATHER STATION PROVIDES
INTERPRETIVE OPPORTUNITY

I-80 UNDERPASS APPROACH FROM THE
WEST

I-80 UNDERPASS APPROACH FROM THE
EAST. AREAS ON BOTH SIDES ARE VERY
OPEN.

DRAINAGE PROBLEMS AT THE I-80
UNDERPASS EXIST ON BOTH THE NORTH
SIDE OF VALLEY PARKWAY AND...

...THE SOUTH SIDE (EXISTING BRIDLE TRAIL.)

HIGH TENSION POWER LINES PROVIDE
INTERPRETIVE OPPORTUNITY

OPPORTUNITY TO LINK
NEIGHBORHOOD TO TRAIL

OPPORTUNITY FOR INTERPRETIVE
TRAIL (WETLANDS IN THIS AREA,
OUTSIDE OF PARKWAY CORRIDOR.)

LOGICAL LOCATION FOR TRAIL
TO SWITCH SIDES OF VALLEY
PARKWAY, IF DESIRED.

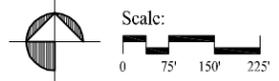
OPPORTUNITY TO LINK
NEIGHBORHOOD TO TRAIL

PARKWAY LOW POINT UNDER I-80
BRIDGE.
PROVIDE SOLAR-POWERED
LIGHTING UNDER BRIDGE.
(INTERPRETIVE OPPORTUNITY.)

WEATHER STATION PROVIDES
INTERPRETIVE OPPORTUNITY

GENERAL OBSERVATIONS FOR THIS SECTION:

1. TURNPIKE NOISE IS PREVALENT, BUT BEGINS DISSIPATING EAST OF UNDERPASS.
2. IMPROVEMENTS NEEDED AT I-80 UNDERPASS: IMPROVED DRAINAGE ON BOTH SIDES OF VALLEY PARKWAY, ADDED LIGHTING (CONSIDER SOLAR POWER,) UPGRADE BRIDAL TRAIL SURFACE.
3. KEEPING BRIDLE AND ALL PURPOSE TRAIL SEPARATE WOULD NECESSITATE TRAILS BEING ON OPPOSITE SIDES OF PARKWAY AT I-80 UNDERPASS.



July, 2009



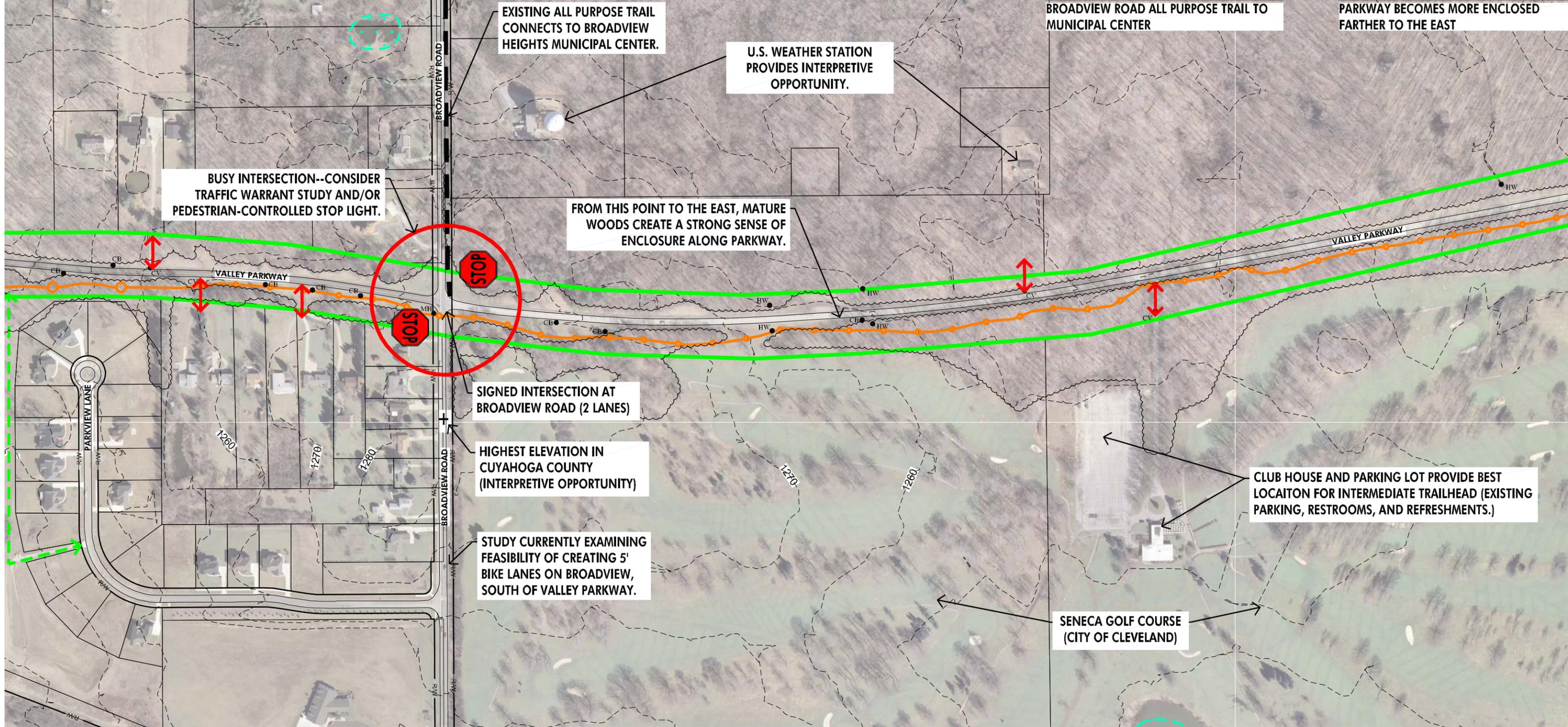
BROADVIEW ROAD INTERSECTION



BROADVIEW ROAD ALL PURPOSE TRAIL TO MUNICIPAL CENTER



PARKWAY BECOMES MORE ENCLOSED FARTHER TO THE EAST



BROADVIEW HEIGHTS CITY CAMPUS

EXISTING ALL PURPOSE TRAIL CONNECTS TO BROADVIEW HEIGHTS MUNICIPAL CENTER.

U.S. WEATHER STATION PROVIDES INTERPRETIVE OPPORTUNITY.

BUSY INTERSECTION--CONSIDER TRAFFIC WARRANT STUDY AND/OR PEDESTRIAN-CONTROLLED STOP LIGHT.

FROM THIS POINT TO THE EAST, MATURE WOODS CREATE A STRONG SENSE OF ENCLOSURE ALONG PARKWAY.

SIGNED INTERSECTION AT BROADVIEW ROAD (2 LANES)

HIGHEST ELEVATION IN CUYAHOGA COUNTY (INTERPRETIVE OPPORTUNITY)

STUDY CURRENTLY EXAMINING FEASIBILITY OF CREATING 5' BIKE LANES ON BROADVIEW, SOUTH OF VALLEY PARKWAY.

CLUB HOUSE AND PARKING LOT PROVIDE BEST LOCATION FOR INTERMEDIATE TRAILHEAD (EXISTING PARKING, RESTROOMS, AND REFRESHMENTS.)

SENECA GOLF COURSE (CITY OF CLEVELAND)

GENERAL OBSERVATIONS FOR THIS SECTION:
1. TURNPIKE NOISE RECEDES IN EAST DIRECTION.



July, 2009

Section #4
Valley Parkway Trail Alignment
Concept Plan Development / Opportunities & Constraints



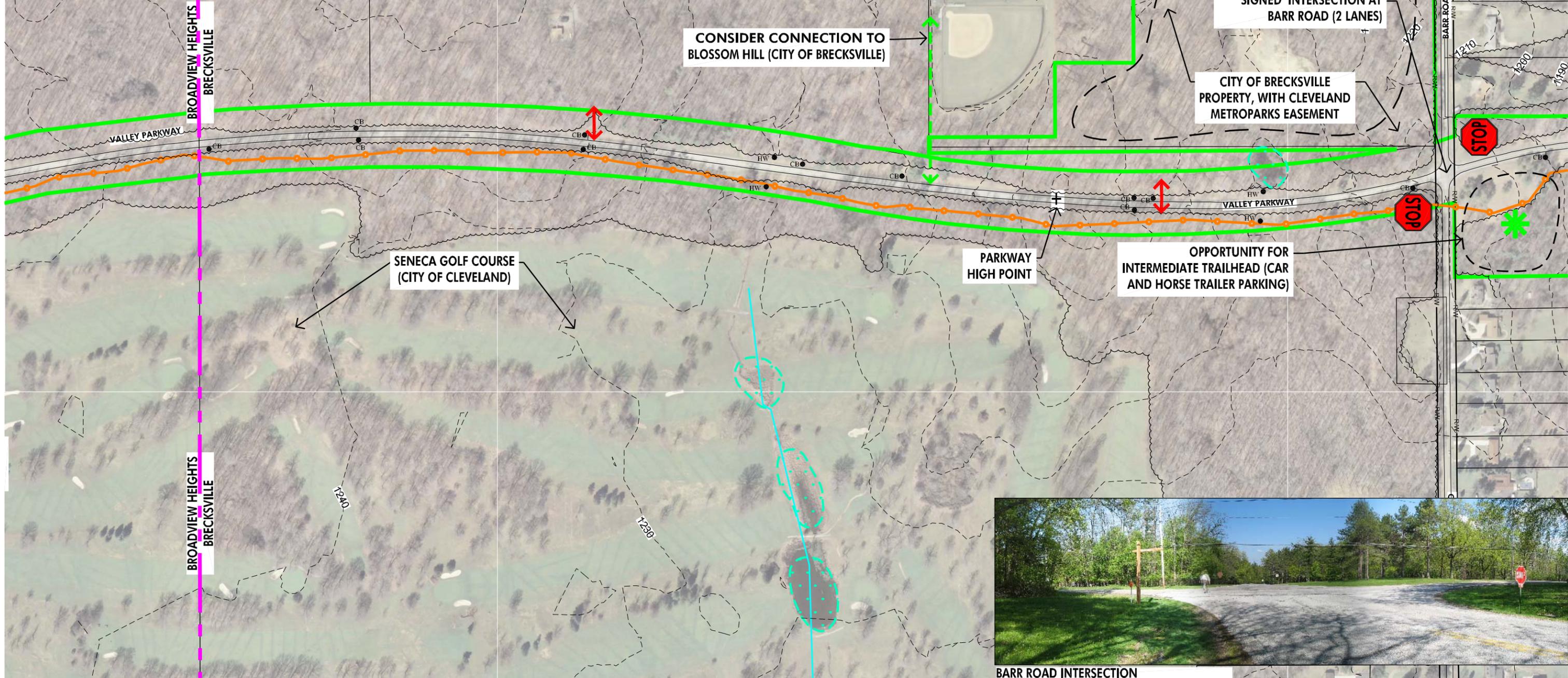
WALKERS, JOGGERS, AND MANY CYCLISTS WERE ENJOYING THE PARKWAY, DURING THE PROJECT TEAM'S SITE VISIT.



"ENCLOSED" FEELING TYPICAL OF THIS SECTION

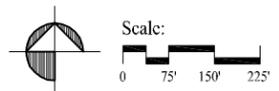


WOODED BRIDLE TRAIL TYPICAL OF THIS SECTION



BARR ROAD INTERSECTION

GENERAL OBSERVATIONS FOR THIS SECTION:
 1. MATURE WOODS MAKE THIS SECTION PARTICULARLY PLEASANT.



July, 2009

Section #5
 Valley Parkway Trail Alignment
 Concept Plan Development / Opportunities & Constraints



I-77 BRIDGE: NARROW WALK ON NORTH SIDE, 10" WALK ON SOUTH SIDE



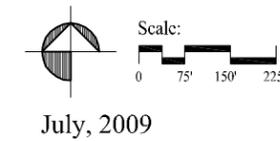
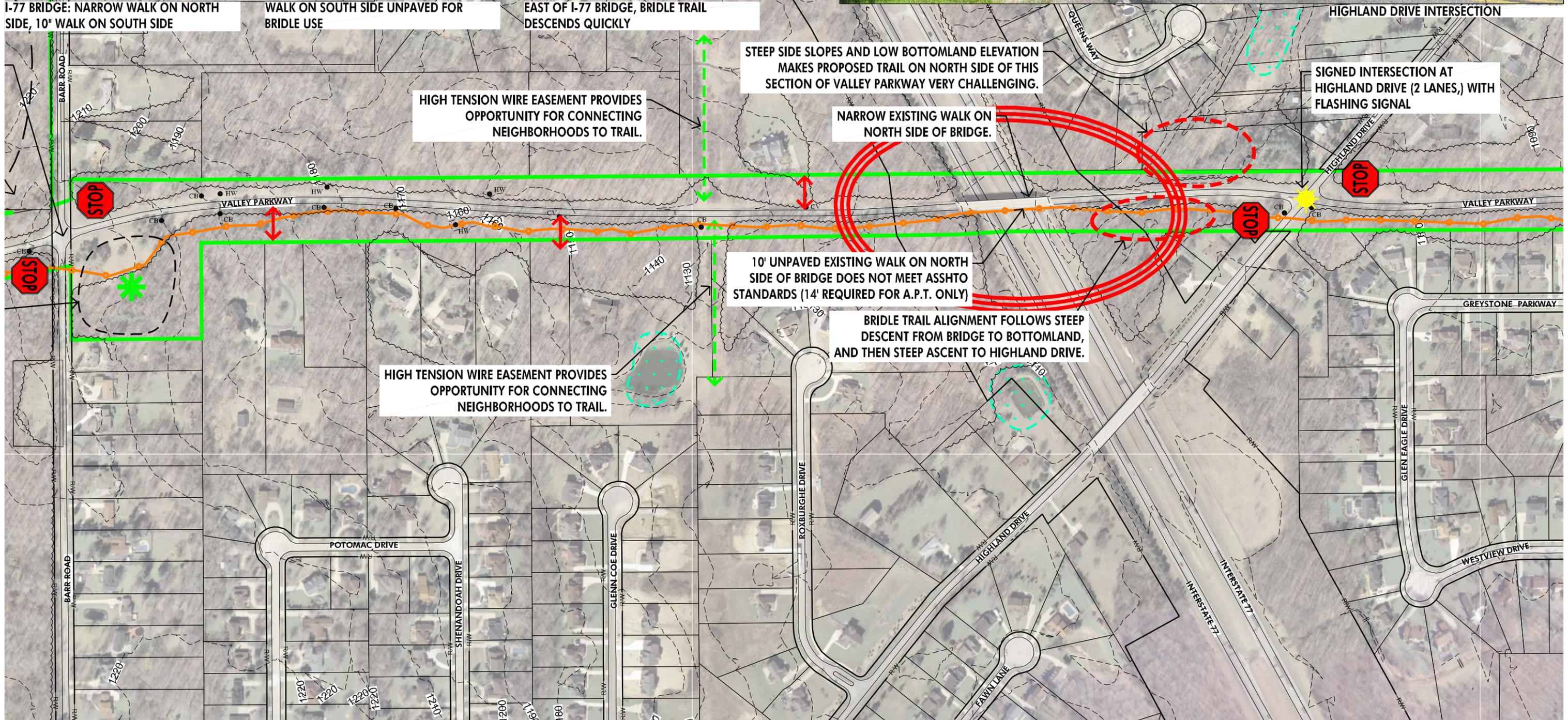
WALK ON SOUTH SIDE UNPAVED FOR BRIDLE USE



EAST OF I-77 BRIDGE, BRIDLE TRAIL DESCENDS QUICKLY



HIGHLAND DRIVE INTERSECTION





GAS LINE EASEMENT, LOOKING NORTH



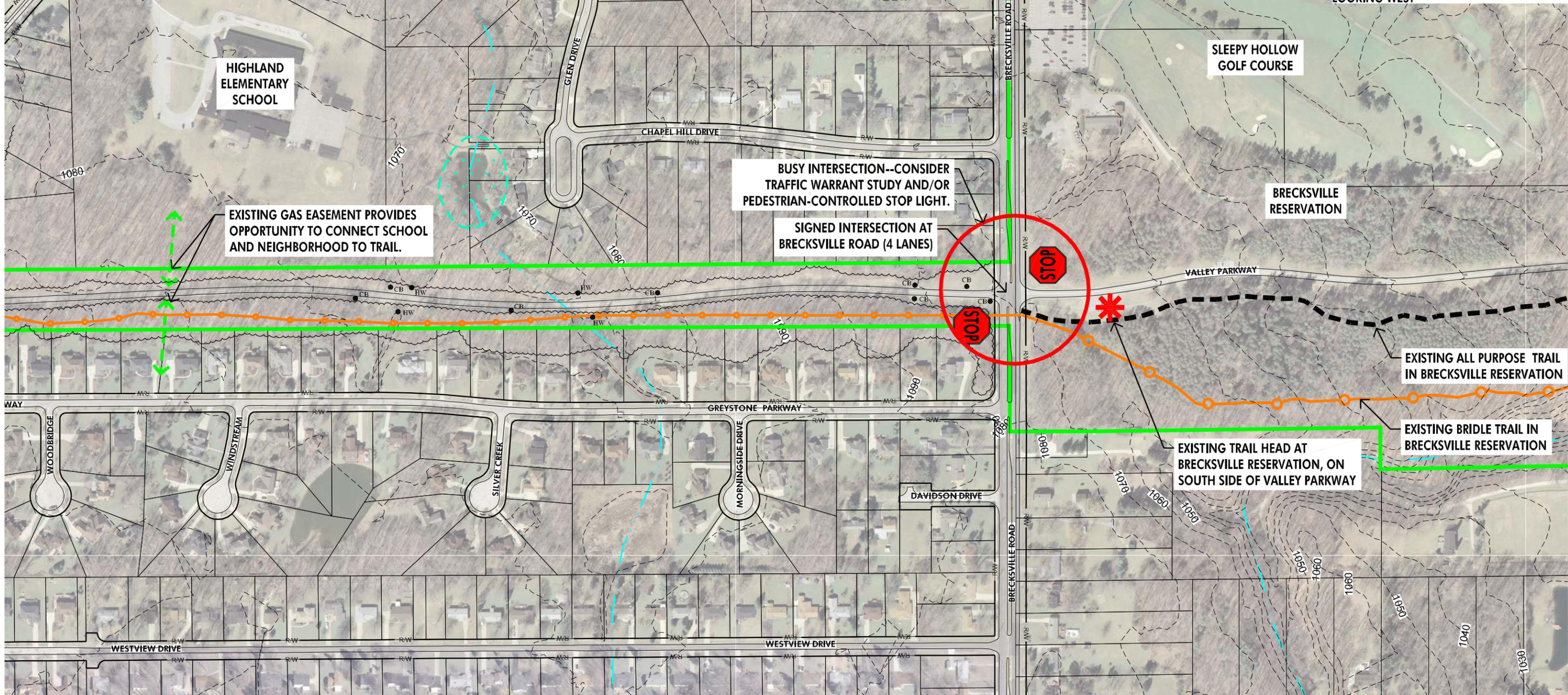
GAS LINE EASEMENT, LOOKING SOUTH



BRECKSVILLE ROAD INTERSECTION



BRECKSVILLE RESERVATION TRAIL HEAD, LOOKING WEST



HIGHLAND ELEMENTARY SCHOOL

BUSY INTERSECTION--CONSIDER TRAFFIC WARRANT STUDY AND/OR PEDESTRIAN-CONTROLLED STOP LIGHT.

SIGNED INTERSECTION AT BRECKSVILLE ROAD (4 LANES)

SLEEPY HOLLOW GOLF COURSE

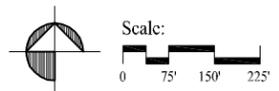
BRECKSVILLE RESERVATION

EXISTING GAS EASEMENT PROVIDES OPPORTUNITY TO CONNECT SCHOOL AND NEIGHBORHOOD TO TRAIL.

EXISTING ALL PURPOSE TRAIL IN BRECKSVILLE RESERVATION

EXISTING BRIDLE TRAIL IN BRECKSVILLE RESERVATION

EXISTING TRAIL HEAD AT BRECKSVILLE RESERVATION, ON SOUTH SIDE OF VALLEY PARKWAY



July, 2009

Section #7
 Valley Parkway Trail Alignment
 Concept Plan Development / Opportunities & Constraints

This study has utilized the following standards for some of its information and recommendations:

- AASHTO Guide for the Development of Bicycle Facilities, 1999.
- ODOT Design Guidelines for Bicycle Facilities.
- ODOT Location & Design Manual Volumes I & 2, July 17, 2009.
- Ohio Manual of Uniform Traffic Control Devices, 2005.
- FHWA Equestrian Design Guidebook for Trails, Trailheads, and Campgrounds.

The figures below and on the following page show the typical construction detail recommended for the APT, and two options for construction of the bridle trail, if necessary.

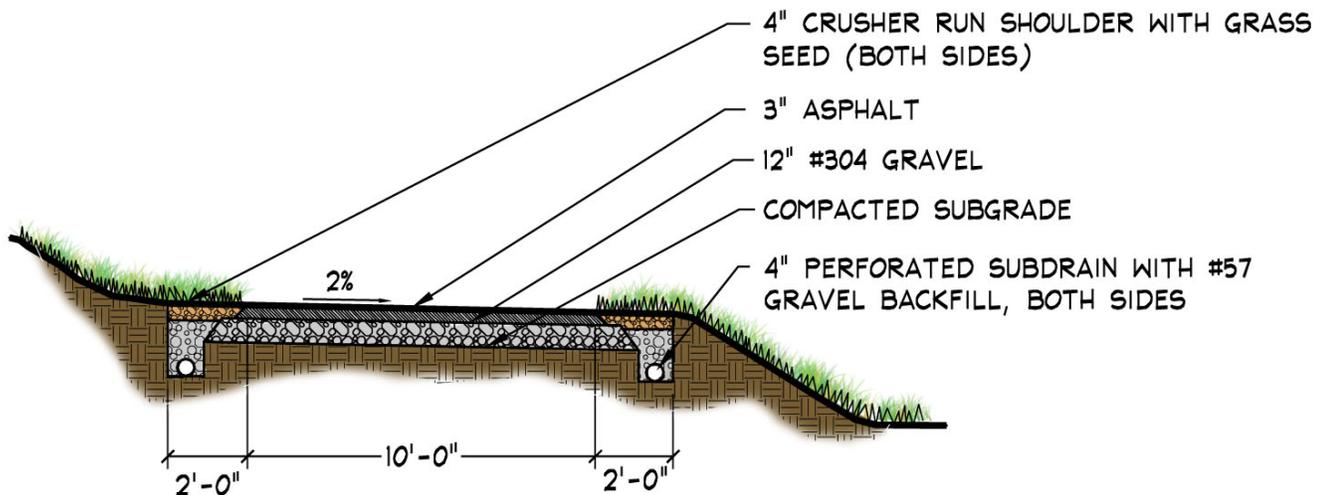


Figure 9: All Purpose Trail Detail. Estimated cost: \$100.00 per lineal foot

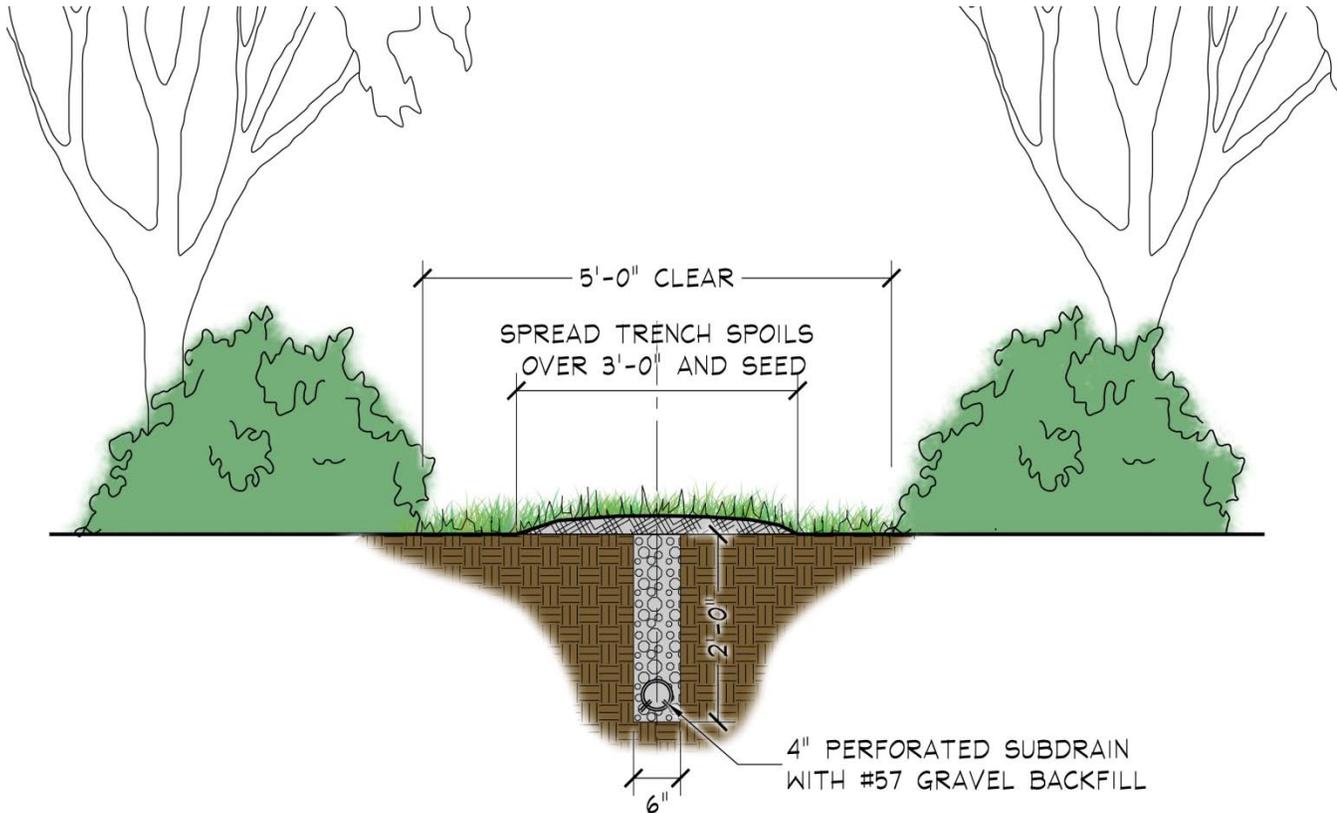


Figure 10: Bridle Trail Option #1 Detail. Estimated cost: \$8.00 per lineal foot

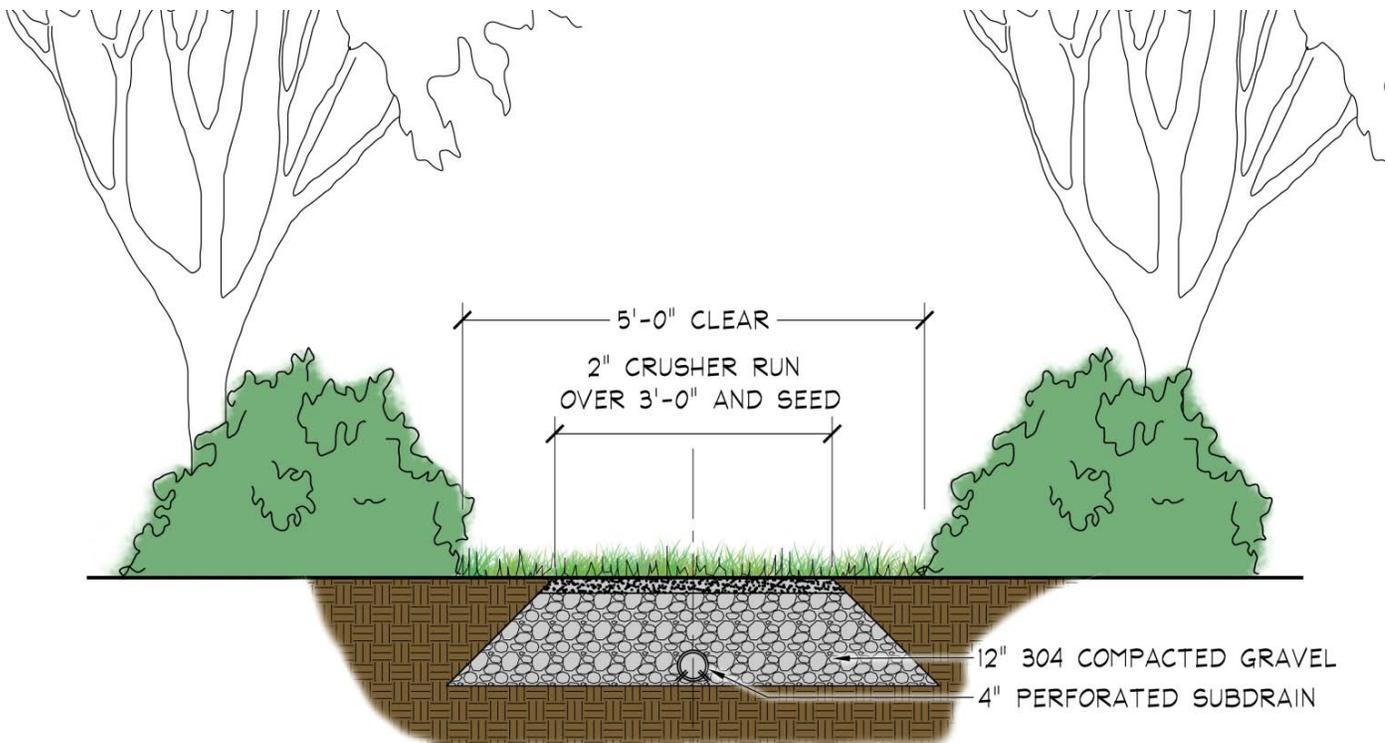


Figure 11: Bridle Trail Option #2 Detail. Estimated cost: \$12.00 per lineal foot

The following pages provide details about the standards discussed in the design standards section.



MEMO

To Matt Hils
From Chris Preto, P.E., LEED® AP
Date August 17, 2009
Project # 258501
Page 1 of 4
Subject Valley Parkway Design Standards

Valley Parkway Trail Alignment Concept Plan

Pavement Thickness

ODOT - Shared used paths shall be able to support maintenance and emergency vehicles. An asphalt pavement design similar to that for commercial drives in Section 805.3 of the ODOT Location and Design Manual is recommended.

Roadway

ADA – curb ramps with truncated domes are required regardless of pavement material at roadway intersections

Drainage

ODOT - Drainage (Supplements page 56 of the *AASHTO Guide*)

It is recommended that ditches for a shared use path, which are not governed by roadway drainage criteria, be designed in conformance to section 1102.4 of ODOT's *L&D Manual*, Volume 2 with the exception that the preferable limit to the design flow depth is 9" below the edge of the path, but shall not exceed the edge of the path as a maximum.

Drainage at IR-80 underpass – Hatch Mott MacDonald (HMM) recommends drainage, catch basin cleaning, and cross slope improvements to encourage positive drainage at the IR-80 underpass.

Traffic Control Improvements

HMM recommends adding appropriate traffic control improvements per the Ohio Manual of Uniform Traffic Control Devices (OMUTCD) to increase the safety of the facilities such as signing, crosswalks, and other striping.





Traffic Signal Warrants

AASHTO - Traffic signals for path-roadway intersections are appropriate under certain circumstances. The MUTCD lists warrants for traffic signals, and although path crossings are not addressed, bicycle traffic on the path may be functionally classified as vehicular traffic and the warrants applied accordingly.

HMM recommends performing traffic counts and traffic signal warrants at the intersections of Valley Parkway with State Road, Broadview Road, and Brecksville Road. HMM also recommends performing safety studies at the intersections to determine if safety conditions warrant a traffic signal.

Intersection Characteristics

- Ridge Road (SR-3) – signalized, 2 lane
- State Road (SR-94) – 2 way stop sign, 2 lane
- Broadview Road (SR-176) – 2 way stop sign with flashing blinking light, 2 lane
- Barr Road (CR-212) – 2 way stop sign, 2 lane
- Highland Road (CR-74) – 2 way stop sign with flashing blinking light, 2 lane
- Brecksville Road (SR-21) – stop sign, 4 lane with left turn lane

Roadway Characteristics

- Valley Parkway – 30 MPH, 2 lane, bridle trail on south side – Urban Local?
- Ridge Road (SR-3) – 35 MPH - Urban Minor Arterial
- State Road (SR-94) – 35 MPH - Urban Minor Arterial
- Broadview Road (SR-176) – 45 MPH - Urban Minor Arterial
- Barr Road (CR-212) – 25 MPH - Urban Minor Arterial – no trucks
- IR-80 – Urban Interstate
- IR-77 – Urban Interstate
- Highland Road (CR-74) – 25 MPH - Urban Local – no trucks
- Brecksville Road (SR-21) – 35 MPH - Urban Minor Arterial

Lighting

ODOT - If the tunnel is long (over 5 times the height) or one can not see the exit from the entrance, then lighting both day and night is recommended. In addition, the day time lighting level will need to be 10-20 times the nighttime level to keep the tunnel commensurate with the surroundings, which will greatly exceed the levels in the AASHTO *Guide* (page 57). Similar to night lighting levels, the lower portion (10-15 times night) is appropriate to tunnels with dark surroundings (i.e., a wooded park) and the upper portion (15-20 times night) is appropriate to tunnels with bright surroundings (i.e., an urban CBD). In addition, the average to minimum uniformity ratio should not exceed 4:1 and the maximum to minimum uniformity ratio should not exceed 10:1.





To Matt Hils
Date August 17, 2009
Page 3 of 4

Equestrian

AASHTO recommendation - It is usually not desirable to mix horse riding and bicycle traffic on the same shared use path. Bicyclists are often not aware of the need for slower speeds and additional operating space near horses. Horses can be startled easily and may be unpredictable if they perceive approaching bicyclists as a danger. In addition, pavement requirements for bicycle travel are not suitable for horses. For these reasons, a bridle trail separate from the shared use path is recommended to accommodate horses.

FHWA – The manual “Equestrian Design Guidebook for Trails, Trailheads and Campgrounds” should be followed for the bridle path design guidelines.

Shared Use Path Criteria

AASHTO and ODOT - 10 foot standard width – 8 foot in RARE instances would require design exception

- 2 foot graded shoulder at 1:6 max slope
- 3 foot minimum clearance from edge of pavement
- Need 42” high barrier for distances less than 5 feet from edge of shoulder and shared use path
- 2% standard cross slope with no crown, maximum = 5%
- 8 foot minimum vertical clearance, 10 foot for equestrians or emergency vehicles
- Maximum horizontal deflection angle at 30mph = 1° 54’
- Maximum change in profile grade without a vertical curve is 1.30% for 30 mph
- Recommended length of sag vertical curves is 2 times the design speed with 3 times the preferred

ODOT Location & Design Manual Volume I Figure 302-1E – Urban Local – Design Year ADT > 4000 – 3 FT minimum, can use 3 FT wide since bridge length exceeds 100 FT - 10 FT preferred lateral clearance





Design Exceptions

ODOT - A formal written Design Exception Request is required for the following conditions:

- lane width
- bridge width
- horizontal alignment (curve radius)
- grades
- inadequate horizontal clearance (including lack of barrier or distance between a shared use path and a roadway)
- inadequate vertical clearance

Common Questions and Answers

ODOT - Q: Can a horse trail be built along with a shared use path?

A: Where current use of horses within a corridor exists prior to a proposed for a shared use path, and it is desired that horses continue to be accommodated, ODOT's standard practice is to grade the entire area at the same time. All costs beyond grading the area, e.g., providing a riding surface and bridges, are the responsibility of others. Horse access to bridges is one element we consider prior to grading:

- Where bridges are not in place, and where horses will not cross existing bridges, they are often led down slope, across the stream, and up the opposite slope, a practice which weakens the stability of the soil and encourages erosion.
- Existing bridges wide enough for the shared use path and horses as well is favorable.
- Where a bridge must be constructed, the extra cost of the horse portion of the bridge will be necessary, from those requesting the additions.

ODOT - Q: Is it acceptable to build a five-foot-wide path, separate from the road, on each side of the street?

A: It is unacceptable to build two 5-foot-wide paths (sidewalks, actually) on each side of the street, as each path will be used for two-way travel regardless of the intent. All paths are to be 10-foot-wide and designed for two-way travel.





Appendix F **Alignment Alternatives**

The following pages show the three all purpose trail alignment options, in conjunction with all Interstate 80 underpass and Interstate 77 overpass options. A detailed discussion of the interstate options follows the plans and sections.

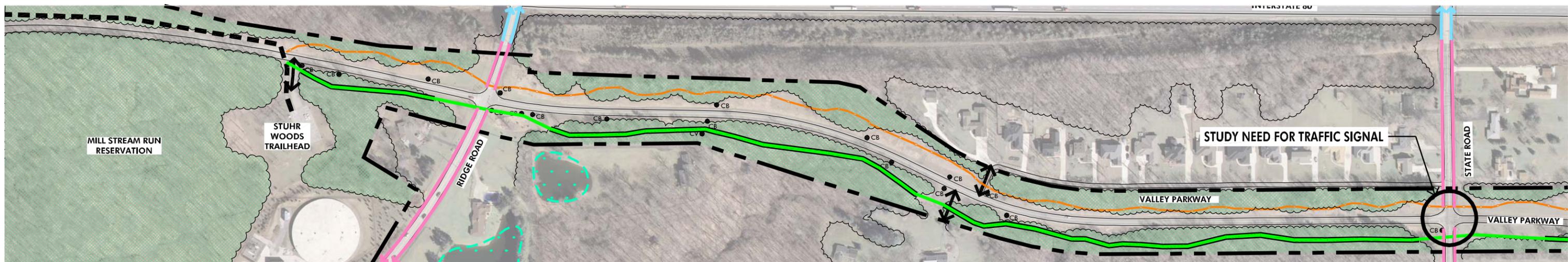




Trail Alignment Option #1



Trail Alignment Option #2



Trail Alignment Option #3

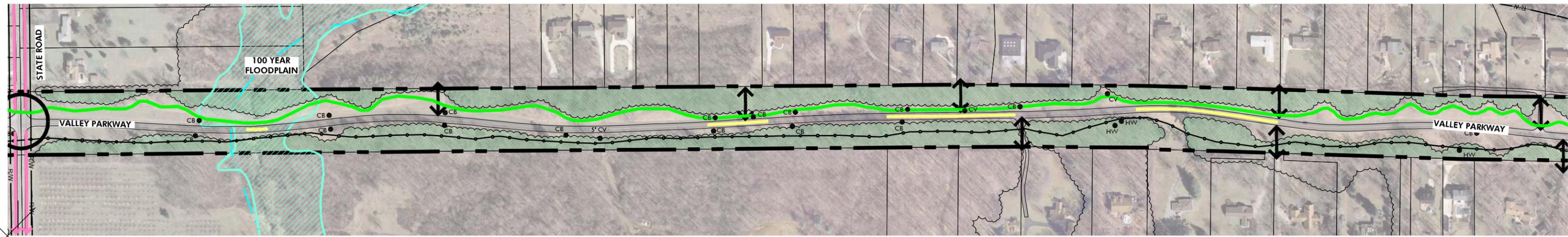
Legend

- | | | | | | |
|--|---|--|---|--|-------------|
| | Proposed All Purpose Trail (A.P.T.) | | Potential Neighborhood A.P.T. Connections | | Catch Basin |
| | Proposed A.P.T. through Existing Vegetation | | Metroparks Boundary | | Culvert |
| | Sections where A.P.T. Abuts Roadway | | Existing A.P.T. | | Headwall |
| | Proposed Bike Lane on N/S Connector | | Existing Stream | | |
| | Proposed Signed Shared Roadway on N/S Connector | | Existing Pond or Wedands | | |
| | | | Existing Access Drives | | |

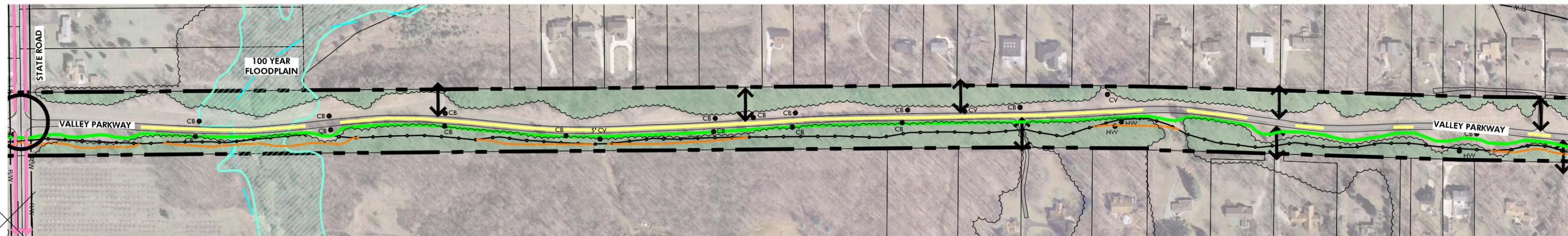


Behnke Associates, Inc.
Landscape Architects / Planners
1215-B West 10th Street
Cleveland, Ohio 44113-1291
www.behnkeassoc.com P: 216.589.9100

Hatch Mott MacDonald



Trail Alignment Option #1



Trail Alignment Option #2



Trail Alignment Option #3

Legend

- Proposed All Purpose Trail (A.P.T.)
- Proposed A.P.T. through Existing Vegetation
- Sections where A.P.T. Abuts Roadway
- Proposed Bike Lane on N/S Connector
- Proposed Signed Shared Roadway on N/S Connector

- Proposed Bridle Trail
- Existing Bridle Trail
- Existing A.P.T.
- Existing Vegetation Edge
- Existing Access Drives

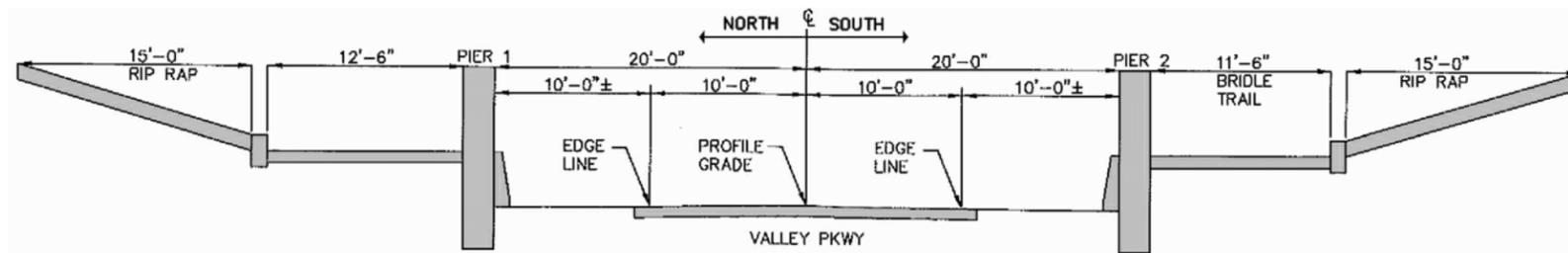
- Potential Neighborhood A.P.T. Connections
- Metroparks Boundary
- Existing Stream
- Existing Pond or Wedands

- CB Catch Basin
- CV Culvert
- HW Headwall

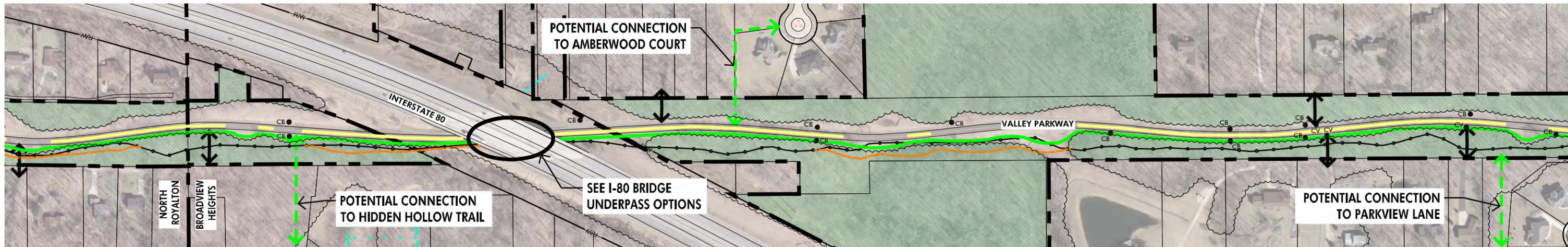


B Behnke Associates, Inc.
Landscape Architects / Planners
1215-B West 10th Street
Cleveland, Ohio 44113-1291
www.behnkeassoc.com P: 216.589.9100

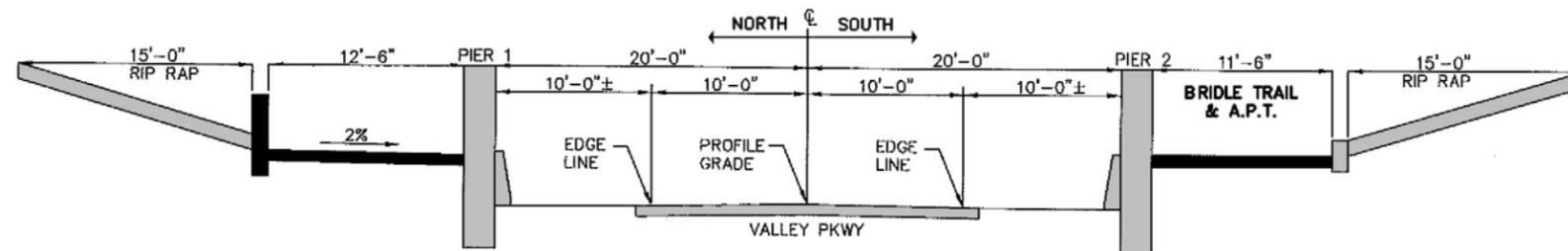
Hatch Mott MacDonald



I-80 Bridge Underpass Existing Conditions - \$0

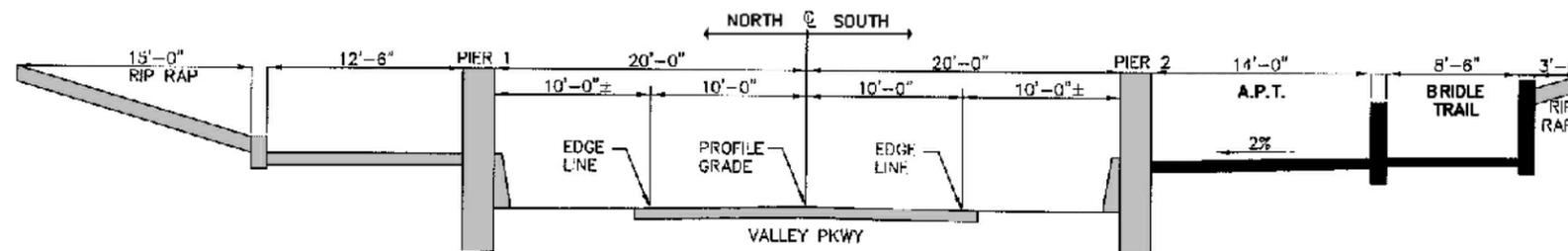


Trail Alignment Option #2



I-80 Bridge Underpass Option #1a - \$200,000

Note: A.P.T. users walk when horse is present.



I-80 Bridge Underpass Option #2 - \$840,000

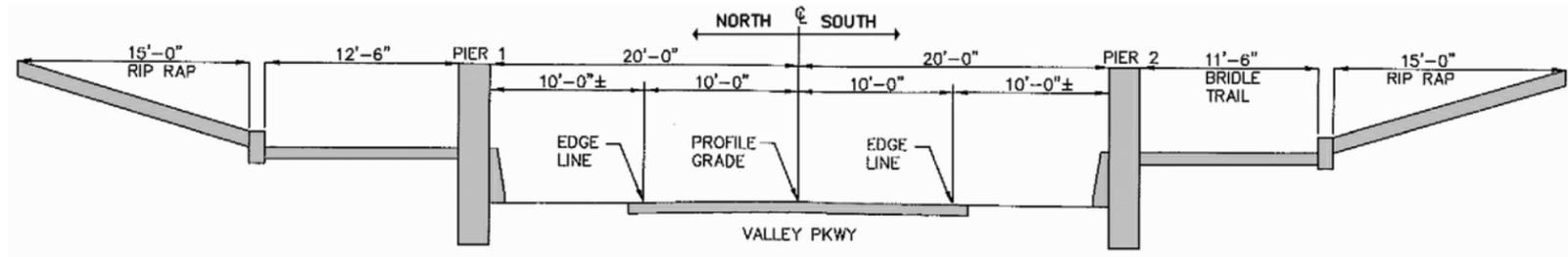
Legend

- Proposed All Purpose Trail (A.P.T.)
- Proposed A.P.T. through Existing Vegetation
- Sections where A.P.T. Abuts Roadway
- Proposed Bike Lane on N/S Connector
- Proposed Signed Shared Roadway on N/S Connector
- Proposed Bridle Trail
- Existing Bridle Trail
- Existing A.P.T.
- Existing Vegetation Edge
- Existing Access Drives
- Potential Neighborhood A.P.T. Connections
- Metroparks Boundary
- Existing Stream
- Existing Pond or Wetlands
- CB Catch Basin
- CV Culvert
- HW Headwall

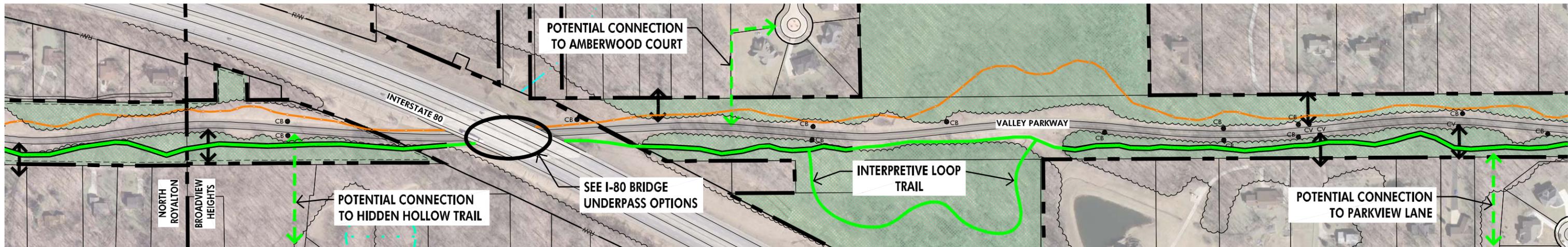


B Behnke Associates, Inc.
Landscape Architects / Planners
1215-B West 10th Street
Cleveland, Ohio 44113-1291
www.behnkeassoc.com P: 216.589.9100

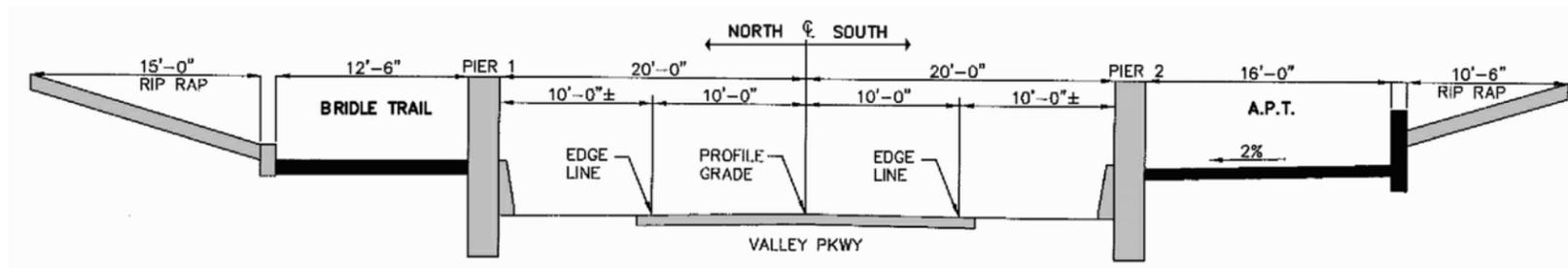
Hatch Mott MacDonald



I-80 Bridge Underpass Existing Conditions -\$0



Trail Alignment Option #3



I-80 Bridge Underpass Option #3 -\$340,000

Legend

- Proposed All Purpose Trail (A.P.T.)
- Proposed A.P.T. through Existing Vegetation
- Sections where A.P.T. Abuts Roadway
- Proposed Bike Lane on N/S Connector
- Proposed Signed Shared Roadway on N/S Connector
- Proposed Bridle Trail
- Existing Bridle Trail
- Existing A.P.T.
- Existing Vegetation Edge
- Existing Access Drives
- Potential Neighborhood A.P.T. Connections
- Metroparks Boundary
- Existing Stream
- Existing Pond or Wedands
- CB Catch Basin
- CV Culvert
- HW Headwall



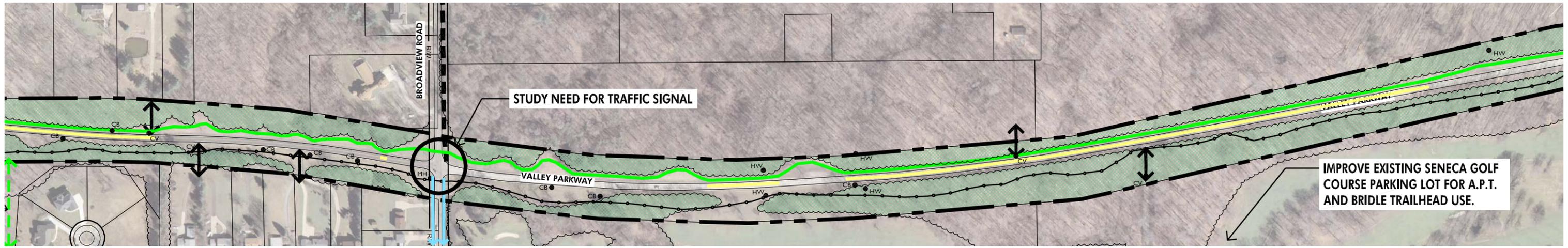
Behnke Associates, Inc.
Landscape Architects / Planners
1215-B West 10th Street
Cleveland, Ohio 44113-1291
www.behnkeassoc.com P: 216.589.9100

Hatch Mott MacDonald

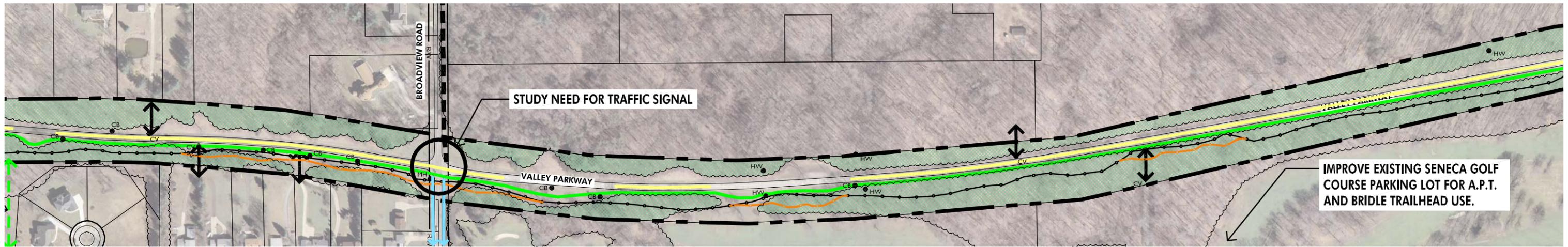
Sheet #3c: APT Alignment Option #3
Valley Parkway Trail Alignment

Alternative Alignments

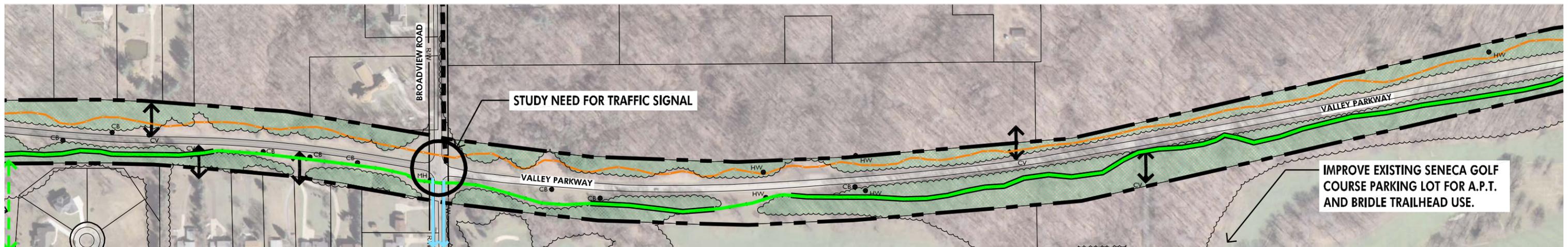
September, 2009



Trail Alignment Option #1



Trail Alignment Option #2



Trail Alignment Option #3

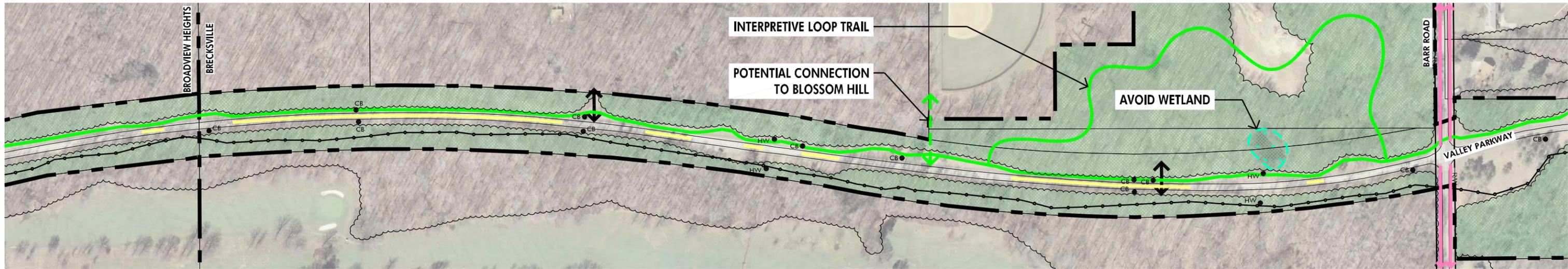
Legend

- | | | | | | | | |
|--|---|--|--------------------------|--|---|--|-------------|
| | Proposed All Purpose Trail (A.P.T.) | | Proposed Bridge Trail | | Potential Neighborhood A.P.T. Connections | | Catch Basin |
| | Proposed A.P.T. through Existing Vegetation | | Existing Bridge Trail | | Metroparks Boundary | | Culvert |
| | Sections where A.P.T. Abuts Roadway | | Existing A.P.T. | | Existing Stream | | Headwall |
| | Proposed Bike Lane on N/S Connector | | Existing Vegetation Edge | | Existing Pond or Wetlands | | |
| | Proposed Signed Shared Roadway on N/S Connector | | Existing Access Drives | | | | |

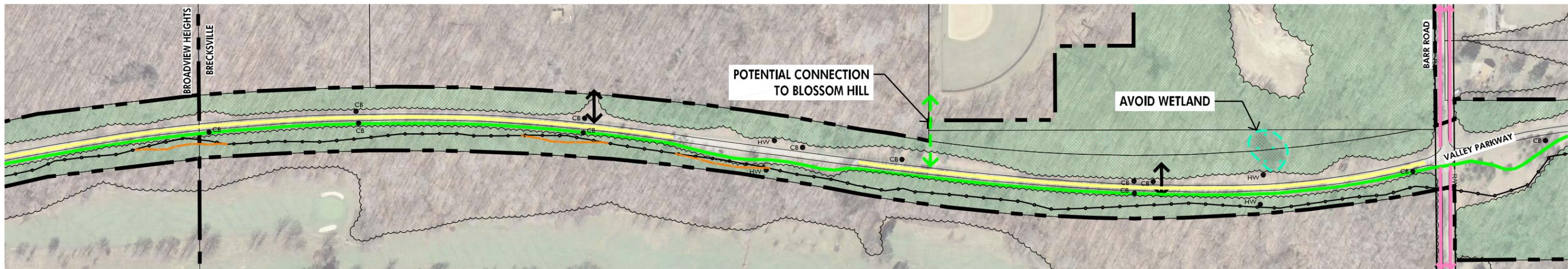


Behnke Associates, Inc.
Landscape Architects / Planners
1215-B West 10th Street
Cleveland, Ohio 44113-1291
www.behnkeassoc.com P: 216.589.9100

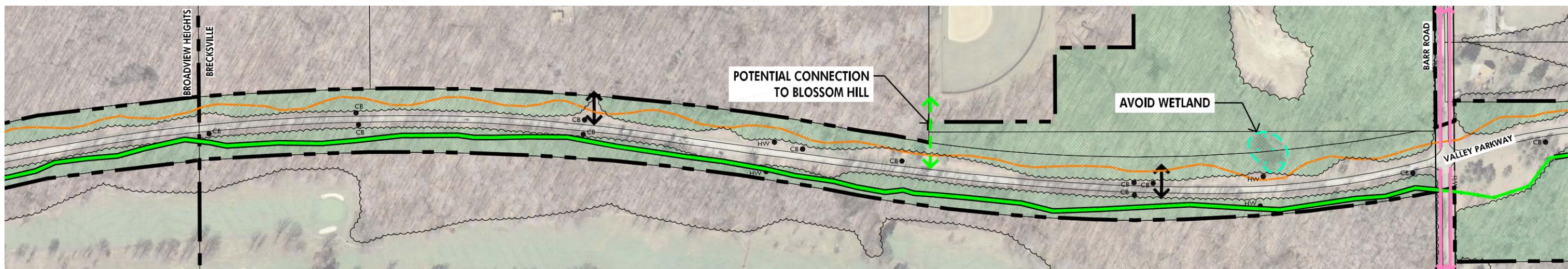
Hatch Mott MacDonald



Trail Alignment Option #1



Trail Alignment Option #2



Trail Alignment Option #3

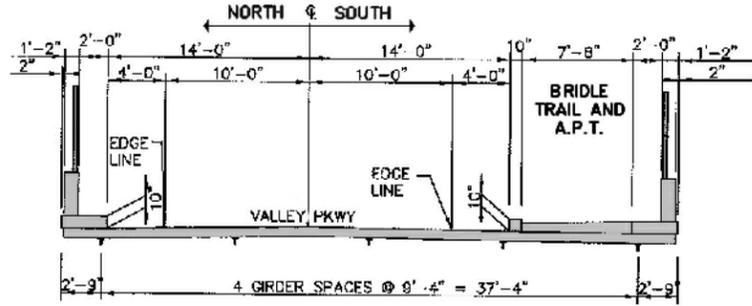
Legend

- | | | | | | | | |
|--|---|--|--------------------------|--|---|----|-------------|
| | Proposed All Purpose Trail (A.P.T.) | | Proposed Bridle Trail | | Potential Neighborhood A.P.T. Connections | CB | Catch Basin |
| | Proposed A.P.T. through Existing Vegetation | | Existing Bridle Trail | | Metroparks Boundary | CV | Culvert |
| | Sections where A.P.T. Abuts Roadway | | Existing A.P.T. | | Existing Stream | HW | Headwall |
| | Proposed Bike Lane on N/S Connector | | Existing Vegetation Edge | | Existing Pond or Wetlands | | |
| | Proposed Signed Shared Roadway on N/S Connector | | Existing Access Drives | | | | |

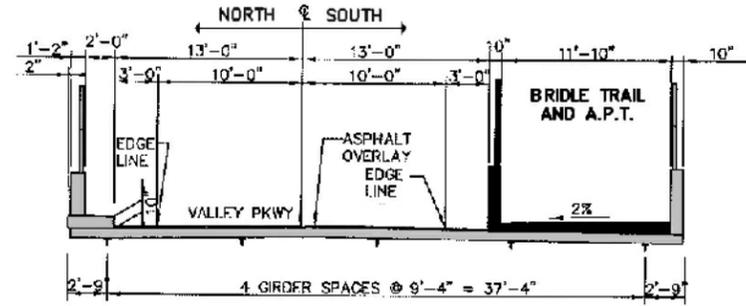


Behnke Associates, Inc.
 Landscape Architects / Planners
 1215-B West 10th Street
 Cleveland, Ohio 44113-1291
 www.behnkeassoc.com P: 216.589.9100

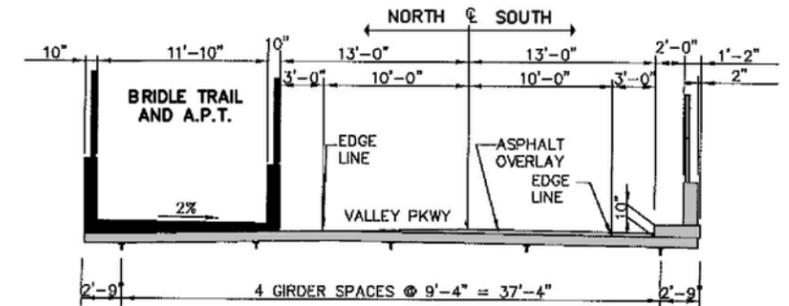
Hatch Mott MacDonald



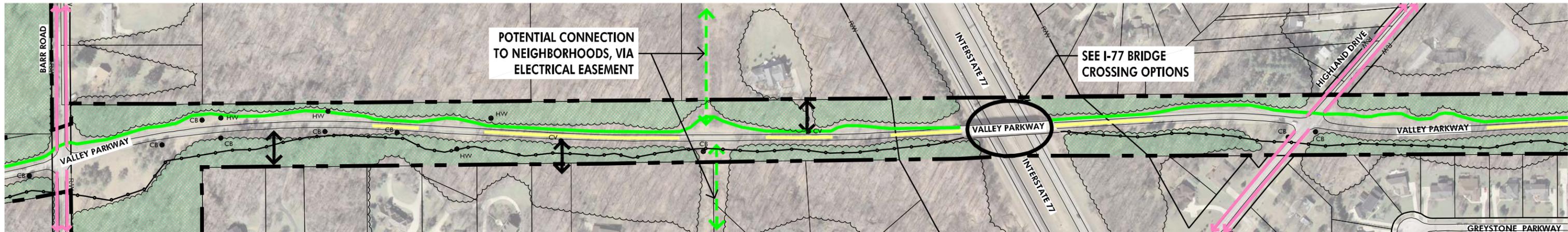
I-77 Existing Bridge Conditions - \$0
 Note: A.P.T. users must cross Valley Parkway.



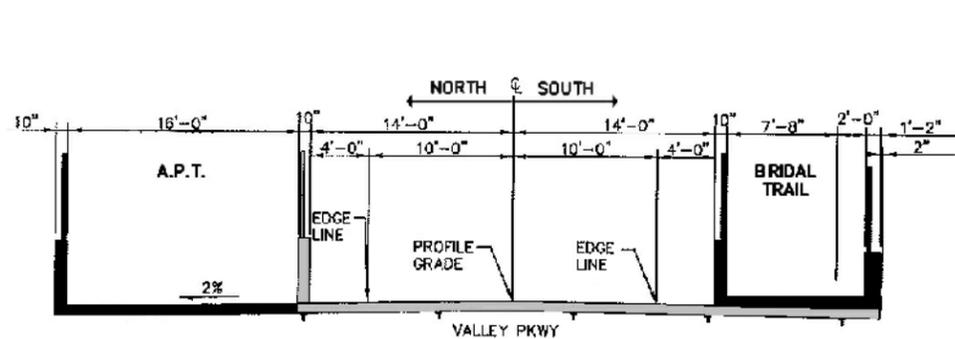
I-77 Crossing Option #1 - \$900,000
 Note: A.P.T. users must cross Valley Parkway.



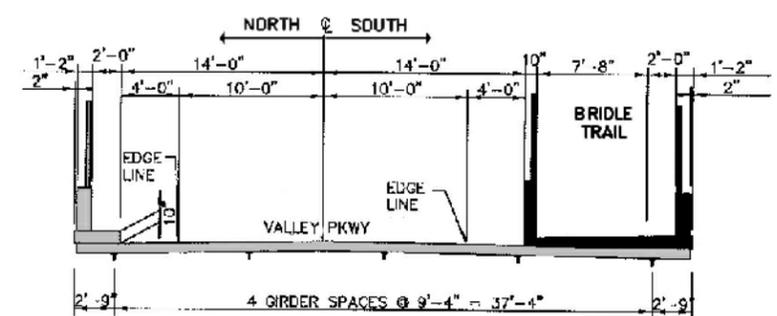
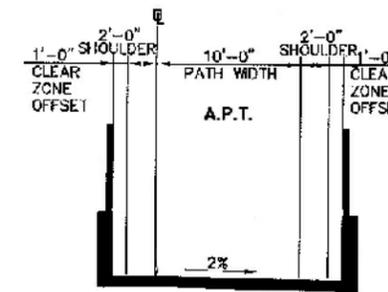
I-77 Crossing Option #2 - \$1.6 Million
 Note: Bridle trail users must cross Valley Parkway.



Trail Alignment Option #1



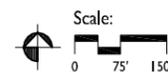
I-77 Crossing Option #4 - \$3.1 Million



I-77 Crossing Option #5 - \$2.0 Million

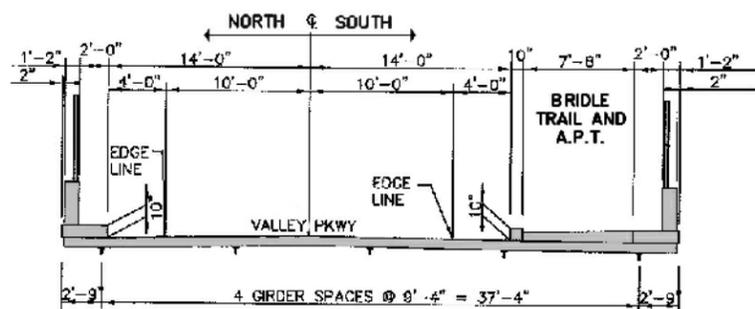
Legend

- Proposed All Purpose Trail (A.P.T.)
- Proposed A.P.T. through Existing Vegetation
- Sections where A.P.T. Abuts Roadway
- Proposed Bike Lane on N/S Connector
- Proposed Signed Shared Roadway on N/S Connector
- Proposed Bridle Trail
- Existing Bridle Trail
- Existing A.P.T.
- Existing Vegetation Edge
- Existing Access Drives
- Potential Neighborhood A.P.T. Connections
- Metroparks Boundary
- Existing Stream
- Existing Pond or Wetlands
- CB Catch Basin
- CV Culvert
- HW Headwall



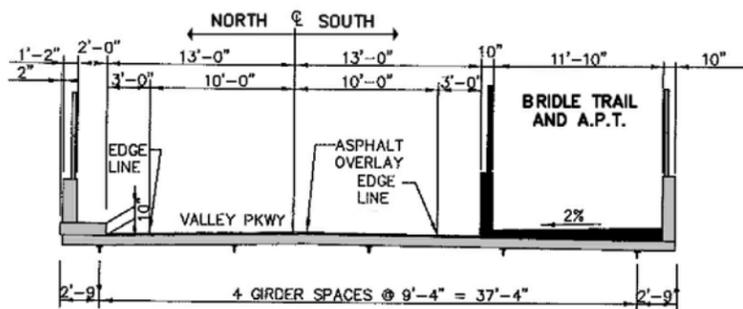
Behnke Associates, Inc.
 Landscape Architects / Planners
 1215-B West 10th Street
 Cleveland, Ohio 44113-1291
 www.behnkeassoc.com P: 216.589.9100

Hatch Mott MacDonald



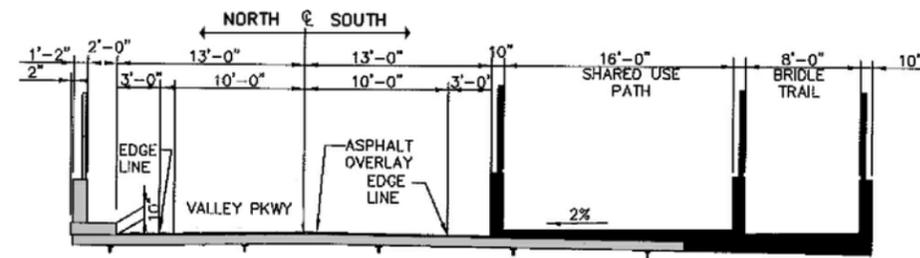
I-77 Existing Bridge Conditions - \$0

Note: A.P.T. users must walk when horse is present.

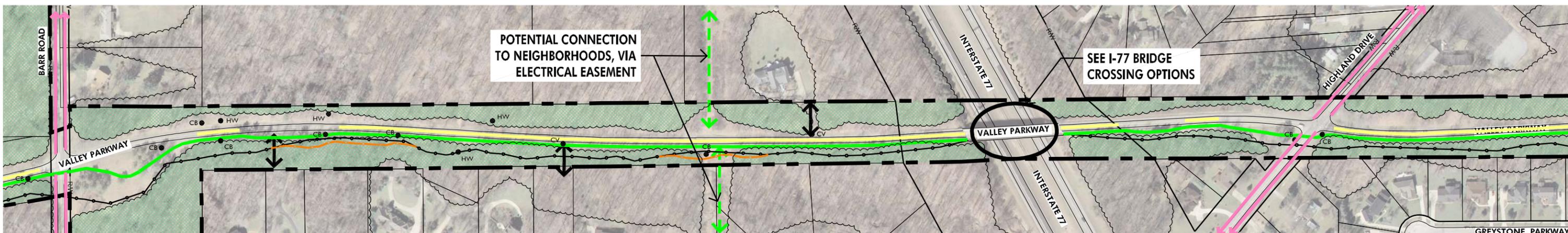


I-77 Crossing Option #1 - \$900,000

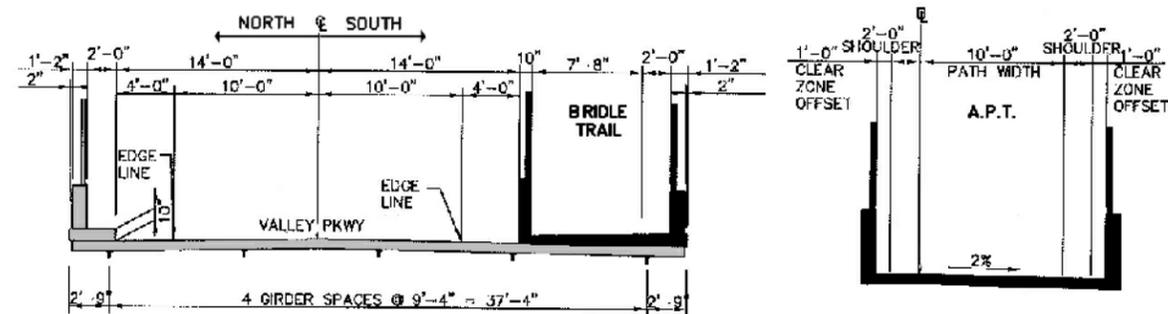
Note: A.P.T. users must walk when horse present.



I-77 Crossing Option #3 - \$2.5 Million



Trail Alignment Option #2



I-77 Crossing Option #5 - \$2.0 Million

Note: A.P.T. and bridle trails must cross each other.

Legend

- Proposed All Purpose Trail (A.P.T.)
- Proposed A.P.T. through Existing Vegetation
- Sections where A.P.T. Abuts Roadway
- Proposed Bike Lane on N/S Connector
- Proposed Signed Shared Roadway on N/S Connector
- Proposed Bridle Trail
- Existing Bridle Trail
- Existing A.P.T.
- Existing Vegetation Edge
- Existing Access Drives
- Potential Neighborhood A.P.T. Connections
- Metroparks Boundary
- Existing Stream
- Existing Pond or Wetlands
- CB Catch Basin
- CV Culvert
- HW Headwall



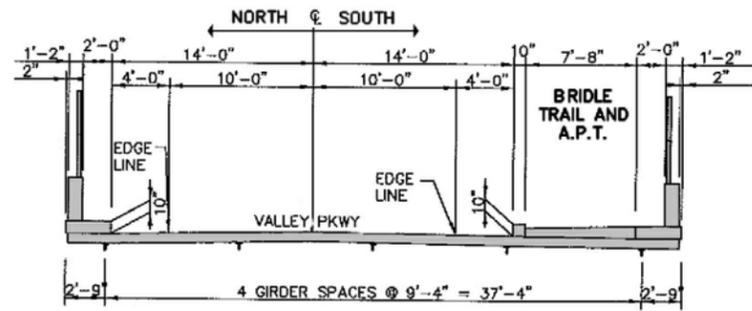
B Behnke Associates, Inc.
Landscape Architects / Planners
1215-B West 10th Street
Cleveland, Ohio 44113-1291
www.behnkeassoc.com P: 216.589.9100

Hatch Mott MacDonald

Sheet #6b: APT Alignment Option #2
Valley Parkway Trail Alignment

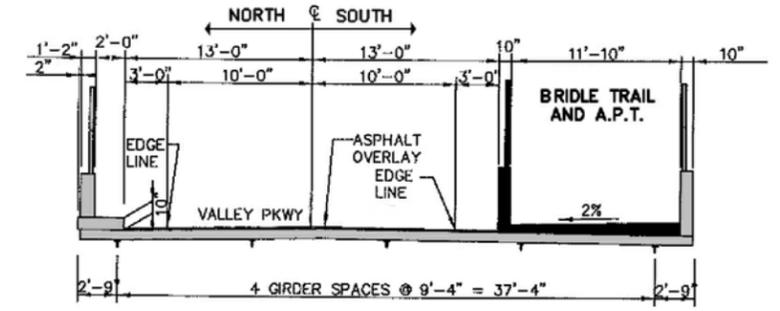
Alternative Alignments

September, 2009



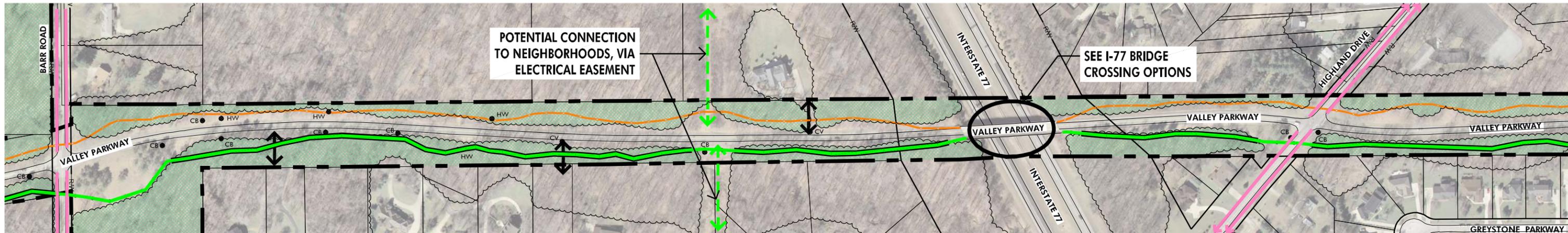
I-77 Existing Bridge Conditions - \$0

Note: Bridle trail users must cross Valley Parkway.

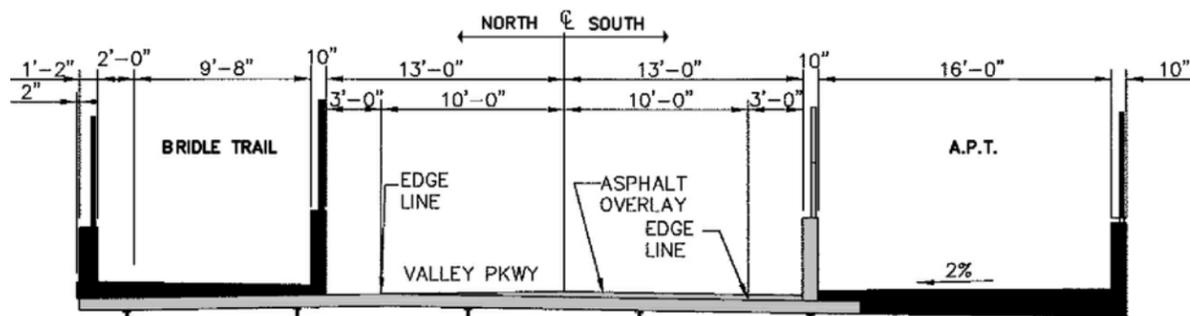


I-77 Crossing Option #1 - \$900,000

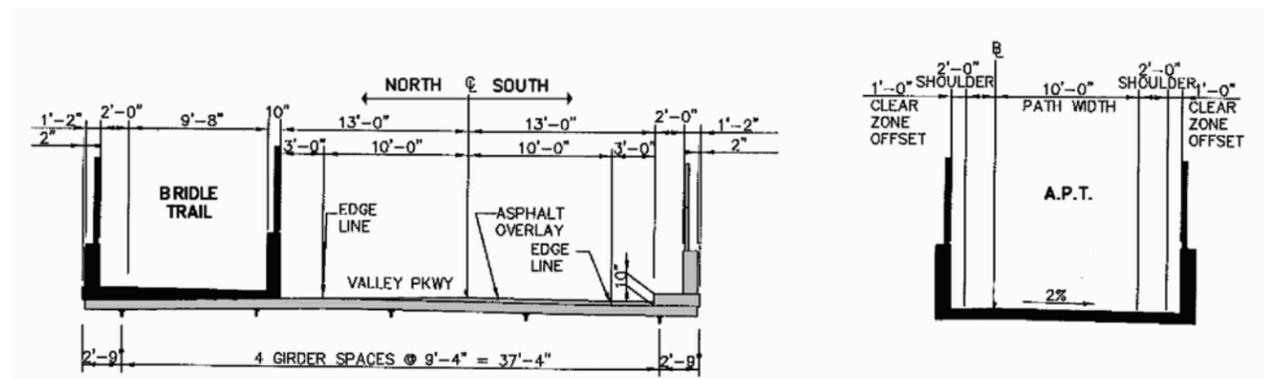
Note: Bridle trail users must cross Valley Parkway.



Trail Alignment Option #3



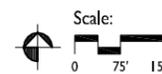
I-77 Crossing Option #7 - \$4.0 Million



I-77 Crossing Option #6 - \$3.0 Million

Legend

- Proposed All Purpose Trail (A.P.T.)
- Proposed A.P.T. through Existing Vegetation
- Sections where A.P.T. Abuts Roadway
- Proposed Bike Lane on N/S Connector
- Proposed Signed Shared Roadway on N/S Connector
- Proposed Bridle Trail
- Existing Bridle Trail
- Existing A.P.T.
- Existing Vegetation Edge
- Existing Access Drives
- Potential Neighborhood A.P.T. Connections
- Metroparks Boundary
- Existing Stream
- Existing Pond or Wedands
- CB Catch Basin
- CV Culvert
- HW Headwall



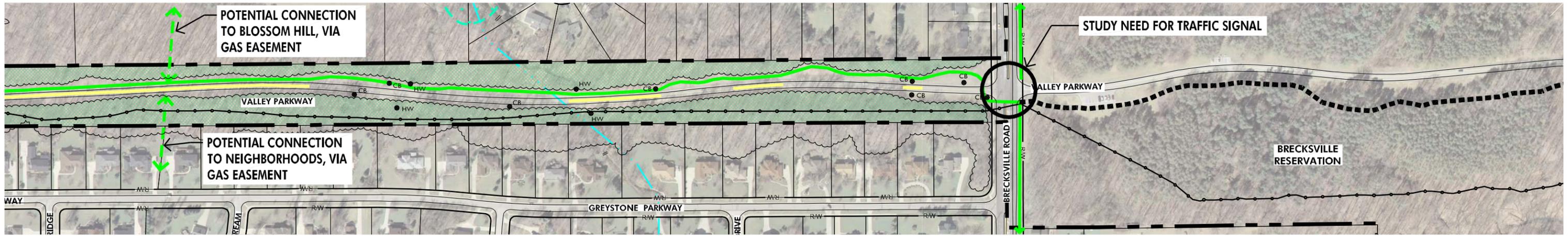
B Behnke Associates, Inc.
Landscape Architects / Planners
1215-B West 10th Street
Cleveland, Ohio 44113-1291
www.behnkeassoc.com P: 216.589.9100

Hatch Mott MacDonald

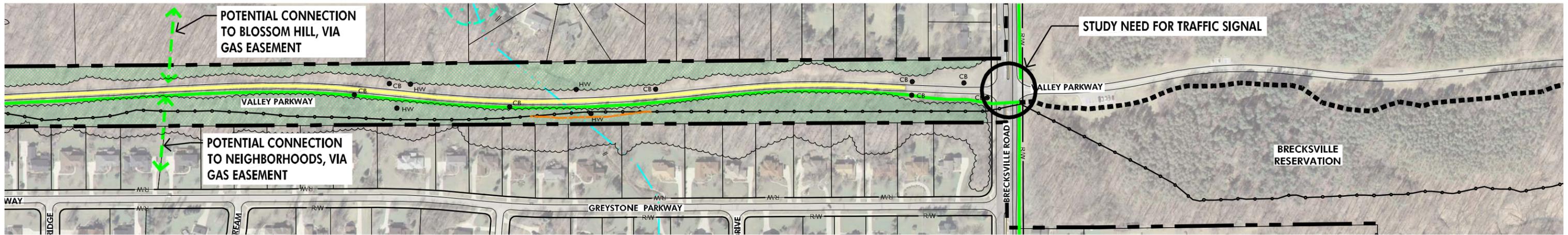
Sheet #6c: APT Alignment Option #3
Valley Parkway Trail Alignment

Alternative Alignments

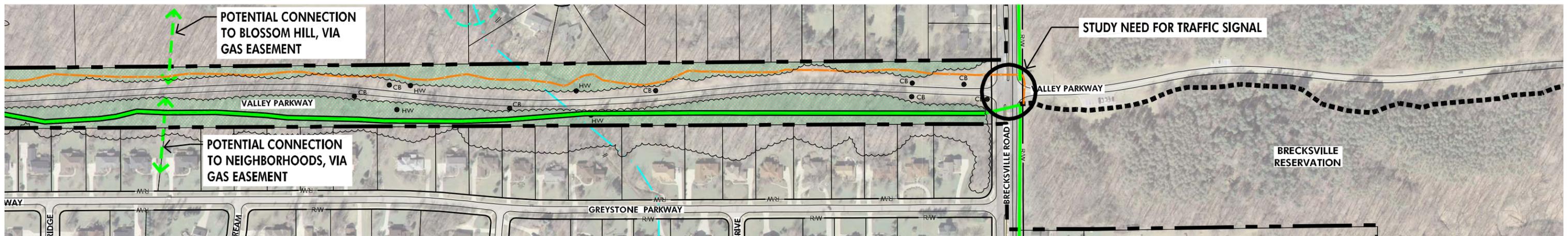
September, 2009



Trail Alignment Option #1



Trail Alignment Option #2



Trail Alignment Option #3

Legend

- | | | | | | | | |
|--|---|--|--------------------------|--|---|--|-------------|
| | Proposed All Purpose Trail (A.P.T.) | | Proposed Bridle Trail | | Potential Neighborhood A.P.T. Connections | | Catch Basin |
| | Proposed A.P.T. through Existing Vegetation | | Existing Bridle Trail | | Metroparks Boundary | | Culvert |
| | Sections where A.P.T. Abuts Roadway | | Existing A.P.T. | | Existing Stream | | Headwall |
| | Proposed Bike Lane on N/S Connector | | Existing Vegetation Edge | | Existing Pond or Wedands | | |
| | Proposed Signed Shared Roadway on N/S Connector | | Existing Access Drives | | | | |



Behnke Associates, Inc.
Landscape Architects / Planners
1215-B West 10th Street
Cleveland, Ohio 44113-1291
www.behnkeassoc.com P: 216.589.9100

Hatch Mott MacDonald

To Matt Hils
From Chris Preto, P.E., LEED® AP
Date August 17, 2009
Project # 258501
Page 1 of 5
Subject Valley Parkway Concept Plan

Valley Parkway Trail Alignment Concept Plan

IR-77 Bridge Options

IR-77 Bridge – CUY-77-0175 – SFN 1805738 – IR-77 under Valley Parkway – 302.82 FT long – continuous welded steel girder with reinforced concrete deck and substructure

Existing Bridge Typical Section – Sheet 219 of ODOT Record Plans

2 FT safety curb
28 FT of pavement
10” curb
7’—8” bridle path
2 FT safety curb

Option 1 – Retrofit existing

This option requires removing and rebuilding the south curb 2 FT to the north to achieve a minimum 3 FT clearance per ODOT L&D Manual Volume I Figure 302-1E. An asphalt overlay would need to be placed to enable the crown to be shifted 1 FT to the north. Design exceptions would be needed because the result is a 9’-8” bridle trail and shared use path.

Safety – shared use path conflict with equestrians, design exceptions required
Functionality – functionality limited due to reduced width and equestrians
Feasibility – maintenance of traffic concerns
Cost – \$902,000
Public and stakeholder input – idea proposed by City of Broadview Heights



Option 2 – Widen on South Side

This option widens the bridge by 6’-0” on the South side to accommodate the 16’ shared use path and bridle trail for a bridge typical section of 48’-10”.

- Safety – shared use path conflict with equestrians
- Functionality – functionality limited due to equestrians
- Feasibility – maintenance of traffic concerns
- Cost – \$1,600,000
- Public and stakeholder input – public believes horses, bikers, and hikers could coexist

AASHTO - Where it is necessary to retrofit a shared use path onto an existing highway bridge, several alternatives should be considered in light of what the geometrics of the bridge will allow.

One option is to carry the shared use path across the bridge on one side. This should be done where 1) the bridge facility will connect to a path at both ends, 2) sufficient width exists on that side of the bridge or can be obtained by widening or restriping lanes, and 3) provisions are made to physically separate bicycle traffic from motor vehicle traffic as discussed previously.

A second option is to provide either wide curb lanes or bicycle lanes over the bridge. This may be advisable where 1) the shared use path transitions into bicycle lanes at one end of the bridge and 2) sufficient width exists or can be obtained by widening or restriping. This option should only be exercised if the bike lane or wide outside lane can be accessed without increasing the potential for wrong-way riding or inappropriate crossing movements.

Option 3 – Widen on North Side

This option widens the bridge on the North side to accommodate the 10’ shared use path and 3’ vertical clearances to the railings for a bridge typical section of 57’-4”.

- Safety – no shared use path conflict with equestrians
- Functionality – should function as a independent facility
- Feasibility – maintenance of traffic concerns
- Cost – \$2,550,000
- Public and stakeholder input – preferred by Cleveland Metroparks





Option 4 – Widen on North Side and Retrofit existing bridge

This option widens the bridge on the South side to accommodate the 10' shared use path and 3' vertical clearances to the railings for a bridge typical section of 57'-4". The existing bridge is retrofitted to move Valley Parkway 9'-5" to the south to accommodate bridle trail switching from south side to north side.

Safety – no shared use path conflict with equestrians.

Functionality – should function as a independent facility

Feasibility – maintenance of traffic concerns

Cost – \$3,060,000

Public and stakeholder input –

Option 5 – New Shared Use Path Bridge

Construct new 16 FT bridge on new alignment.

Safety – no conflict with equestrians or vehicles, meets all design standards

Functionality – should function as a independent facility

Feasibility – right of way and/or environmental concerns?

Cost – \$1,980,000

Public and stakeholder input – Public believes this is not viable due to cost

ODOT Bridge Design Manual Section 209.9

- minimum transverse slope of ¼ inch per foot
- bicycle railings should be a minimum of 4'-6" high
- 10 foot desired vertical clear distance

Option 6 – New Shared Use Path Bridge and Retrofit existing bridge

Construct new 16 FT bridge on new alignment and retrofit existing bridge to move Valley Parkway 9'-5" to the south to accommodate bridle trail switching from south side to north side.

Safety – maintenance of traffic concerns during road reconstruction

Functionality – should function as a independent facility

Feasibility – right of way and/or environmental concerns?

Cost – \$2,970,000

Public and stakeholder input – Not desirable to equestrians as bridle trail would be out of service during construction

ODOT Bridge Design Manual Section 209.9

- minimum transverse slope of ¼ inch per foot





To Matt Hils
Date August 17, 2009
Page 4 of 5

- bicycle railings should be a minimum of 4'-6" high
- 10 foot desired vertical clear distance

IR-80 Underpass Options

IR-80 Underpass – Ohio Turnpike Over Valley Parkway – 291.21 FT eastbound bridge & 284.41 FT westbound bridge – continuous rolled steel beam spans with reinforced concrete deck and substructure.

Existing Bridge Typical Section – Sheet 306 of Ohio Turnpike Record Plans
 concrete wall
 12'—0" bridle path
 Pier 1
 20 FT of pavement
 Pier 2
 11'—6" bridle path
 concrete wall

Option 1 – Rebuild Bridle Path as Shared Use Path on North Side

This option removes the existing bridle trail and constructs a shared use path on the North side. The shared use path would have a width including shoulders of 12'-0" and which would require design exceptions for width and substandard clearances.

Underpass lighting would be recommended.

Safety – design exceptions required
 Functionality – should function as a independent facility
 Feasibility –
 Cost – \$290,000
 Public and stakeholder input – public believes there is sufficient room for the shared use path





Option 2 – Move Existing Bridle Path to make room for Shared Use Path on South Side

This option moves the existing bridle trail south and constructs a shared use path on the South side. The shared use path would have a width including shoulders of 14’-0” and would require removing 12’-0” of riprap. The bridle trail would have a width of 8’-6” and there would be vertical separation between the shared use path and the bridle trail.

Underpass lighting would be recommended.

- Safety – possible design exception for vertical clearance for equestrians
- Functionality – should function as a independent facility
- Feasibility – may not be feasible to construct due to vertical clearance
- Cost – \$840,000
- Public and stakeholder input –

Option 3 – Widen Existing Bridle Path for use as Shared Use Path on South Side

This option removes the existing bridle trail and constructs a widened shared use path on the South side. The shared use path would have a width including shoulders of 16’-0” and would require removing 4’-6” of riprap.

Underpass lighting would be recommended.

- Safety – design exceptions required
- Functionality – should function as a independent facility
- Feasibility - new railing required?
- Cost – \$340,000
- Public and stakeholder input – public believes there is sufficient room for the shared use path

Option 4 – Construct New Underpass for Shared Use Path

This option constructs a shared use path underpass to accommodate a 16 FT shared use path.

Underpass lighting would be recommended.

- Safety – meets all design standards
- Functionality – functions properly as an independent facility
- Feasibility – right of way and/or environmental concerns?
- Cost – \$7,340,000
- Public and stakeholder input – public believes this is not feasible





Appendix G Cost Estimates

The following page contains estimates for 31 feasible combinations of All Purpose Trail options with interstate highway crossing options. Subsequent pages include detailed cost information for the interstate highway crossing options .



Valley Parkway All Purpose Trail Alignment
Estimate of Probable Construction Cost--A.P.T. Options

October 14, 2009

| Trail | Overland | I-80 Underpass Options | | | | I-77 Overpass Options | | | | | | | Bridal Option 1 | Bridal Option 2 | Traffic Control | Subtotal | 25% Cont. | Subtotal | 15% Des. & C.A. | Total | |
|----------------------------------|-----------|------------------------|---------|---------|---------|-----------------------|---------|-----------|-----------|-----------|-----------|-----------|-----------------|-----------------|-----------------|----------|-----------|-----------|-----------------|-----------|--------------|
| | | 1 | 1a | 2 | 3 | Existing | 1 | 2 | 3 | 4 | 5 | 6 | | | | | | | | | 7 |
| Trail Alignment Option #1 | | | | | | | | | | | | | | | | | | | | | |
| 1 | 3,200,000 | 200,000 | | | | 0 | | | | | | | | | | 135,000 | 3,535,000 | 883,750 | 4,418,750 | 662,813 | \$ 5,081,563 |
| 2 | 3,200,000 | 200,000 | | | | | 600,000 | | | | | | | | | 135,000 | 4,135,000 | 1,033,750 | 5,168,750 | 775,313 | \$ 5,944,063 |
| 3 | 3,200,000 | 200,000 | | | | | | 1,075,000 | | | | | | | | 135,000 | 4,610,000 | 1,152,500 | 5,762,500 | 864,375 | \$ 6,626,875 |
| 4 | 3,200,000 | 200,000 | | | | | | | 2,050,000 | | | | | | | 135,000 | 5,585,000 | 1,396,250 | 6,981,250 | 1,047,188 | \$ 8,028,438 |
| 5 | 3,200,000 | 200,000 | | | | | | | | 1,700,000 | | | | | | 135,000 | 5,235,000 | 1,308,750 | 6,543,750 | 981,563 | \$ 7,525,313 |
| Trail Alignment Option #2 | | | | | | | | | | | | | | | | | | | | | |
| 6 | 3,075,000 | | 150,000 | | | 0 | | | | | | | | 70,000 | | 135,000 | 3,430,000 | 857,500 | 4,287,500 | 643,125 | \$ 4,930,625 |
| 7 | 3,075,000 | | 150,000 | | | 0 | | | | | | | | | 100,000 | 135,000 | 3,460,000 | 865,000 | 4,325,000 | 648,750 | \$ 4,973,750 |
| 8 | 3,075,000 | | 150,000 | | | | 600,000 | | | | | | | 70,000 | | 135,000 | 4,030,000 | 1,007,500 | 5,037,500 | 755,625 | \$ 5,793,125 |
| 9 | 3,075,000 | | 150,000 | | | | 600,000 | | | | | | | | 100,000 | 135,000 | 4,060,000 | 1,015,000 | 5,075,000 | 761,250 | \$ 5,836,250 |
| 10 | 3,075,000 | | 150,000 | | | | | | 1,700,000 | | | | | 70,000 | | 135,000 | 5,130,000 | 1,282,500 | 6,412,500 | 961,875 | \$ 7,374,375 |
| 11 | 3,075,000 | | 150,000 | | | | | | 1,700,000 | | | | | | 100,000 | 135,000 | 5,160,000 | 1,290,000 | 6,450,000 | 967,500 | \$ 7,417,500 |
| 12 | 3,075,000 | | 150,000 | | | | | | | 1,700,000 | | | | 70,000 | | 135,000 | 5,130,000 | 1,282,500 | 6,412,500 | 961,875 | \$ 7,374,375 |
| 13 | 3,075,000 | | 150,000 | | | | | | | | 1,700,000 | | | | 100,000 | 135,000 | 5,160,000 | 1,290,000 | 6,450,000 | 967,500 | \$ 7,417,500 |
| 14 | 3,075,000 | | | 575,000 | | 0 | | | | | | | | 70,000 | | 135,000 | 3,855,000 | 963,750 | 4,818,750 | 722,813 | \$ 5,541,563 |
| 15 | 3,075,000 | | | 575,000 | | 0 | | | | | | | | | 100,000 | 135,000 | 3,885,000 | 971,250 | 4,856,250 | 728,438 | \$ 5,584,688 |
| 16 | 3,075,000 | | | 575,000 | | | 600,000 | | | | | | | 70,000 | | 135,000 | 4,455,000 | 1,113,750 | 5,568,750 | 835,313 | \$ 6,404,063 |
| 17 | 3,075,000 | | | 575,000 | | | 600,000 | | | | | | | | 100,000 | 135,000 | 4,485,000 | 1,121,250 | 5,606,250 | 840,938 | \$ 6,447,188 |
| 18 | 3,075,000 | | | 575,000 | | | | | 1,700,000 | | | | | 70,000 | | 135,000 | 5,555,000 | 1,388,750 | 6,943,750 | 1,041,563 | \$ 7,985,313 |
| 19 | 3,075,000 | | | 575,000 | | | | | 1,700,000 | | | | | | 100,000 | 135,000 | 5,585,000 | 1,396,250 | 6,981,250 | 1,047,188 | \$ 8,028,438 |
| 20 | 3,075,000 | | | 575,000 | | | | | | 1,700,000 | | | | 70,000 | | 135,000 | 5,555,000 | 1,388,750 | 6,943,750 | 1,041,563 | \$ 7,985,313 |
| 21 | 3,075,000 | | | 575,000 | | | | | | | 1,700,000 | | | | 100,000 | 135,000 | 5,585,000 | 1,396,250 | 6,981,250 | 1,047,188 | \$ 8,028,438 |
| Trail Alignment Option #3 | | | | | | | | | | | | | | | | | | | | | |
| 22 | 3,075,000 | | | | 225,000 | 0 | | | | | | | | 240,000 | | 135,000 | 3,675,000 | 918,750 | 4,593,750 | 689,063 | \$ 5,282,813 |
| 23 | 3,075,000 | | | | 225,000 | 0 | | | | | | | | | 360,000 | 135,000 | 3,795,000 | 948,750 | 4,743,750 | 711,563 | \$ 5,455,313 |
| 24 | 3,075,000 | | | | 225,000 | | 600,000 | | | | | | | | 240,000 | 135,000 | 4,275,000 | 1,068,750 | 5,343,750 | 801,563 | \$ 6,145,313 |
| 25 | 3,075,000 | | | | 225,000 | | 600,000 | | | | | | | | 360,000 | 135,000 | 4,395,000 | 1,098,750 | 5,493,750 | 824,063 | \$ 6,317,813 |
| 26 | 3,075,000 | | | | 225,000 | | | | | 1,700,000 | | | | 240,000 | | 135,000 | 5,375,000 | 1,343,750 | 6,718,750 | 1,007,813 | \$ 7,726,563 |
| 27 | 3,075,000 | | | | 225,000 | | | | | 1,700,000 | | | | | 360,000 | 135,000 | 5,495,000 | 1,373,750 | 6,868,750 | 1,030,313 | \$ 7,899,063 |
| 28 | 3,075,000 | | | | 225,000 | | | | | | 2,550,000 | | | 240,000 | | 135,000 | 6,225,000 | 1,556,250 | 7,781,250 | 1,167,188 | \$ 8,948,438 |
| 29 | 3,075,000 | | | | 225,000 | | | | | | 2,550,000 | | | | 360,000 | 135,000 | 6,345,000 | 1,586,250 | 7,931,250 | 1,189,688 | \$ 9,120,938 |
| 30 | 3,075,000 | | | | 225,000 | | | | | | | 2,700,000 | | 240,000 | | 135,000 | 6,375,000 | 1,593,750 | 7,968,750 | 1,195,313 | \$ 9,164,063 |
| 31 | 3,075,000 | | | | 225,000 | | | | | | | 2,700,000 | | | 360,000 | 135,000 | 6,495,000 | 1,623,750 | 8,118,750 | 1,217,813 | \$ 9,336,563 |



I-80 Option I

Construction Costs

IR-80 Option 1

Roadway Modifications

| | Quantity | Unit Price | Cost | Assumption |
|--|----------|-------------|-------------|------------|
| Guardrail | 50 | \$15.00 | \$750.00 | |
| Guardrail Removed | 50 | \$1.50 | \$75.00 | |
| Earthwork | 500 | \$8.00 | \$4,000.00 | |
| Erosion Control (Seeding, Etc) | 500 | \$1.00 | \$500.00 | |
| Drainage Improvements (Storm Sewer Cleaning) | 1 | \$10,000.00 | \$10,000.00 | |

Bridge Modifications

| | | | | |
|--|------|-------------|-------------|--|
| Wall Removal | 67 | \$200.00 | \$13,400.00 | |
| New Wall | 69 | \$500.00 | \$34,500.00 | |
| Underpass Lighting | 1 | \$10,000.00 | \$10,000.00 | |
| Excavation Rip Rap | 195 | \$35.00 | \$6,825.00 | |
| Replace Rip Rap | 60 | \$15.00 | \$900.00 | |
| Structure fill | 192 | \$25.00 | \$4,800.00 | |
| Rebar in wall | 3060 | \$2.00 | \$6,120.00 | |
| Remove pipe rail | 1 | \$5,000.00 | \$5,000.00 | |
| Add pipe rails between columns | 1 | \$15,000.00 | \$15,000.00 | |
| New Pedestrian Rail on existing outside wall | 100 | \$200.00 | \$20,000.00 | |
| Underdrain | 300 | \$3.00 | \$900.00 | |
| Bridle Trail Removal | 263 | \$15.00 | \$3,945.00 | |
| Bridle Trail Pavement | 128 | \$35.00 | \$4,480.00 | |
| Trail Pavement | 139 | \$135.00 | \$18,765.00 | |

Bridge and Roadway Cost SubTotal

\$159,960.00

Incidentals

| | | | | |
|----------------------------|---|-------------|-------------|-------------------------|
| Construction Layout Stakes | 1 | 0.01 | \$1,599.60 | 1% of construction cost |
| Mobilization | 1 | \$5,000.00 | \$5,000.00 | |
| Field Office | 1 | \$9,000.00 | \$9,000.00 | \$1500 per 6 months |
| Maintenance of Traffic | 1 | \$20,000.00 | \$20,000.00 | |

Construction Cost SubTotal

\$195,559.60

Inflation and Contingency

| | Percentage | Cost | Assumption |
|--------------------------------|------------|---------------------|------------|
| Construction Inflation | 0 | \$0.00 | Assume 0% |
| Design Contingency | 0.25 | \$48,889.90 | Assume 25% |
| Construction Cost Total | | \$244,449.50 | |

Inspection

| | Percentage | Cost | Assumption |
|------------------------------|------------|--------------------|--------------------------------|
| Inspection | 0.05 | \$12,222.48 | Assume 5% of construction cost |
| Inspection Cost Total | | \$12,222.48 | |

Design Costs

| | Percentage | Cost | Assumption |
|--------------------------|------------|--------------------|---------------------------------|
| Option 1 Design | 0.1 | \$24,444.95 | Assume 10% of construction cost |
| Surveying | 0.1 | \$2,444.50 | Assume 10% of design cost |
| Geotechnical | 0.03 | \$733.35 | Assume 3% of design cost |
| Design Cost Total | | \$27,622.79 | |

GRAND TOTAL

\$284,294.77

ROUNDED TOTAL

\$290,000



I-80 Option 2

Construction Costs

IR-80 Option 2

Roadway Modifications

| | Quantity | Unit Price | Cost | Assumption |
|---|----------|-------------|-------------|------------|
| Guardrail | 50 | \$15.00 | \$750.00 | |
| Guardrail Removed | 50 | \$1.50 | \$75.00 | |
| Earthwork | 500 | \$8.00 | \$4,000.00 | |
| Erosion Control (Seeding, Etc) | 500 | \$1.00 | \$500.00 | |
| Drainage Improvements (Storm Sewer Cleaning, Etc) | 1 | \$10,000.00 | \$10,000.00 | |

Bridge Modifications

| | | | | |
|---|------|--------------|--------------|--|
| Wall Removal | 67 | \$200.00 | \$13,400.00 | |
| New Wall | 42 | \$500.00 | \$21,000.00 | |
| Underpass Lighting | 1 | \$10,000.00 | \$10,000.00 | |
| Excavation Rip Rap | 133 | \$35.00 | \$4,655.00 | |
| Replace Rip Rap | 22 | \$15.00 | \$330.00 | |
| Structure fill | 384 | \$25.00 | \$9,600.00 | |
| Embankment Excavation | 900 | \$20.00 | \$18,000.00 | |
| Rebar in wall | 1860 | \$2.00 | \$3,720.00 | |
| Remove pipe rail | 1 | \$5,000.00 | \$5,000.00 | |
| Add pipe rails between columns | 1 | \$15,000.00 | \$15,000.00 | |
| New Pedestrian Rail on existing outside wall | 400 | \$200.00 | \$80,000.00 | |
| Underdrain | 300 | \$3.00 | \$900.00 | |
| 8' High Concrete Faced Soil Nail Wall at South Abutment | 1 | \$305,000.00 | \$305,000.00 | |
| Bridle Trail Removal | 263 | \$15.00 | \$3,945.00 | |
| Bridle Trail Pavement | 95 | \$35.00 | \$3,325.00 | |
| Trail Pavement | 178 | \$135.00 | \$24,030.00 | |

Bridge and Roadway Cost SubTotal

\$533,230.00

Incidentals

| | | | | |
|----------------------------|---|-------------|-------------|-------------------------|
| Construction Layout Stakes | 1 | 0.01 | \$5,332.30 | 1% of construction cost |
| Mobilization | 1 | \$5,000.00 | \$5,000.00 | |
| Field Office | 1 | \$9,000.00 | \$9,000.00 | \$1500 per 6 months |
| Maintenance of Traffic | 1 | \$20,000.00 | \$20,000.00 | |

Construction Cost SubTotal

\$572,562.30

Inflation and Contingency

| | Percentage | Cost | Assumption |
|------------------------|------------|--------------|------------|
| Construction Inflation | 0 | \$0.00 | Assume 0% |
| Design Contingency | 0.25 | \$143,140.58 | Assume 25% |

Construction Cost Total

\$715,702.88

Inspection

| | Percentage | Cost | Assumption |
|------------|------------|-------------|--------------------------------|
| Inspection | 0.05 | \$35,785.14 | Assume 5% of construction cost |

Inspection Cost Total

\$35,785.14

Design Costs

| | Percentage | Cost | Assumption |
|-----------------|------------|-------------|---------------------------------|
| Option 2 Design | 0.1 | \$71,570.29 | Assume 10% of construction cost |
| Surveying | 0.1 | \$7,157.03 | Assume 10% of design cost |
| Geotechnical | 0.03 | \$2,147.11 | Assume 3% of design cost |

Design Cost Total

\$80,874.42

GRAND TOTAL

\$832,362.44

ROUNDED TOTAL

\$840,000



I-80 Option 3

Construction Costs

IR-80 Option 3

Roadway Modifications

| | Quantity | Unit Price | Cost | Assumption |
|---|----------|-------------|-------------|------------|
| Guardrail | 50 | \$15.00 | \$750.00 | |
| Guardrail Removed | 50 | \$1.50 | \$75.00 | |
| Earthwork | 500 | \$8.00 | \$4,000.00 | |
| Erosion Control (Seeding, Etc) | 500 | \$1.00 | \$500.00 | |
| Drainage Improvements (Storm Sewer Cleaning, Etc) | 1 | \$10,000.00 | \$10,000.00 | |

Bridge Modifications

| | | | | |
|--|------|-------------|-------------|--|
| Wall Removal | 67 | \$200.00 | \$13,400.00 | |
| New Wall | 93 | \$500.00 | \$46,500.00 | |
| Underpass Lighting | 1 | \$10,000.00 | \$10,000.00 | |
| Excavation Rip Rap | 390 | \$35.00 | \$13,650.00 | |
| Replace Rip Rap | 120 | \$15.00 | \$1,800.00 | |
| Structure fill | 384 | \$25.00 | \$9,600.00 | |
| Rebar in wall | 3720 | \$2.00 | \$7,440.00 | |
| Remove pipe rail | 1 | \$5,000.00 | \$5,000.00 | |
| Add pipe rails between columns | 1 | \$15,000.00 | \$15,000.00 | |
| New Pedestrian Rail on existing outside wall | 100 | \$200.00 | \$20,000.00 | |
| Underdrain | 300 | \$3.00 | \$900.00 | |
| Bridle Trail Removal | 263 | \$15.00 | \$3,945.00 | |
| Bridle Trail Pavement | 134 | \$35.00 | \$4,690.00 | |
| Trail Pavement | 178 | \$135.00 | \$24,030.00 | |

Bridge and Roadway Cost SubTotal

\$191,280.00

Incidentals

| | | | | |
|----------------------------|---|-------------|-------------|-------------------------|
| Construction Layout Stakes | 1 | 0.01 | \$1,912.80 | 1% of construction cost |
| Mobilization | 1 | \$5,000.00 | \$5,000.00 | |
| Field Office | 1 | \$9,000.00 | \$9,000.00 | \$1500 per 6 months |
| Maintenance of Traffic | 1 | \$20,000.00 | \$20,000.00 | |

Construction Cost SubTotal

\$227,192.80

Inflation and Contingency

| | Percentage | Cost | Assumption |
|------------------------|------------|-------------|------------|
| Construction Inflation | 0 | \$0.00 | Assume 0% |
| Design Contingency | 0.25 | \$56,798.20 | Assume 25% |

Construction Cost Total

\$283,991.00

Inspection

| | Percentage | Cost | Assumption |
|------------|------------|-------------|--------------------------------|
| Inspection | 0.05 | \$14,199.55 | Assume 5% of construction cost |

Inspection Cost Total

\$14,199.55

Design Costs

| | Percentage | Cost | Assumption |
|-----------------|------------|-------------|---------------------------------|
| Option 3 Design | 0.1 | \$28,399.10 | Assume 10% of construction cost |
| Surveying | 0.1 | \$2,839.91 | Assume 10% of design cost |
| Geotechnical | 0.03 | \$851.97 | Assume 3% of design cost |

Design Cost Total

\$32,090.98

GRAND TOTAL

\$330,281.53

ROUNDED TOTAL

\$340,000



I-80 Option 4

Construction Costs

IR-80 Option 4

Roadway Modifications

| | Quantity | Unit Price | Cost | Assumption |
|---|----------|-------------|-------------|------------|
| Earthwork | 500 | \$8.00 | \$4,000.00 | |
| Erosion Control (Seeding, Etc) | 500 | \$1.00 | \$500.00 | |
| Drainage Improvements (Storm Sewer Cleaning, Etc) | 1 | \$10,000.00 | \$10,000.00 | |

Bridge Modifications

| | | | | |
|--|-------|-------------|----------------|--|
| Jacked tunnel 16'x12' on new alignment | 27000 | \$180.00 | \$4,860,000.00 | |
| Underpass Lighting | 1 | \$10,000.00 | \$10,000.00 | |

Bridge and Roadway Cost SubTotal

\$4,884,500.00

Incidentals

| | | | | |
|----------------------------|---|--------------|--------------|-------------------------|
| Construction Layout Stakes | 1 | 0.01 | \$48,845.00 | 1% of construction cost |
| Mobilization | 1 | \$100,000.00 | \$100,000.00 | |
| Field Office | 1 | \$9,000.00 | \$9,000.00 | \$1500 per 6 months |
| Maintenance of Traffic | 1 | \$5,000.00 | \$5,000.00 | |

Construction Cost SubTotal

\$5,047,345.00

Inflation and Contingency

| | Percentage | Cost | Assumption |
|------------------------|------------|----------------|------------|
| Construction Inflation | 0 | \$0.00 | Assume 0% |
| Design Contingency | 0.25 | \$1,261,836.25 | Assume 25% |

Construction Cost Total

\$6,309,181.25

Inspection

| | Percentage | Cost | Assumption |
|------------|------------|--------------|--------------------------------|
| Inspection | 0.05 | \$315,459.06 | Assume 5% of construction cost |

Inspection Cost Total

\$315,459.06

Design Costs

| | Percentage | Cost | Assumption |
|-----------------|------------|--------------|---------------------------------|
| Option 4 Design | 0.1 | \$630,918.13 | Assume 10% of construction cost |
| Surveying | 0.1 | \$63,091.81 | Assume 10% of design cost |
| Geotechnical | 0.03 | \$18,927.54 | Assume 3% of design cost |

Design Cost Total

\$712,937.48

GRAND TOTAL

\$7,337,577.79

ROUNDED TOTAL

\$7,340,000



I-77 Option 1

Construction Costs

IR-77 Option 1

Roadway Modifications

| | Quantity | Unit Price | Cost | Assumption |
|-------------------|----------|------------|------------|------------|
| Guardrail | 100 | \$15.00 | \$1,500.00 | |
| Guardrail Removed | 100 | \$1.50 | \$150.00 | |
| Curb | 100 | \$15.00 | \$1,500.00 | |
| Curb Removed | 100 | \$5.00 | \$500.00 | |
| Striping | 0.5 | \$3,500.00 | \$1,750.00 | |

Bridge Modifications

| | | | | |
|--|-------|-------------|--------------|--|
| Remove existing Type 2 Railing | 1 | \$10,000.00 | \$10,000.00 | |
| Remove existing curb, pedestal, and barrier | 56 | \$1,500.00 | \$84,000.00 | |
| Bridge Asphalt Overlay | 74 | \$135.00 | \$9,990.00 | |
| Vertical concrete parapets | 606 | \$320.00 | \$193,920.00 | |
| Rebar in parapets | 18500 | \$2.00 | \$37,000.00 | |
| Railings on parapets | 606 | \$200.00 | \$121,200.00 | |
| Drilling and grouting (for anchoring parapets to deck) | 1818 | \$25.00 | \$45,450.00 | |
| Approach Slab Modifications | 1 | \$5,000.00 | \$5,000.00 | |
| Strengthening for bridge | 1 | \$50,000.00 | \$50,000.00 | |
| Trail Pavement | 67 | \$135.00 | \$9,045.00 | |

Bridge and Roadway Cost SubTotal

\$571,005.00

Incidentals

| | | | | |
|----------------------------|---|-------------|-------------|-------------------------|
| Construction Layout Stakes | 1 | 0.01 | \$5,710.05 | 1% of construction cost |
| Mobilization | 1 | \$10,000.00 | \$10,000.00 | |
| Field Office | 1 | \$9,000.00 | \$9,000.00 | \$1500 per 6 months |
| Maintenance of Traffic | 1 | \$10,000.00 | \$10,000.00 | |

Construction Cost SubTotal

\$605,715.05

Inflation and Contingency

| | Percentage | Cost | Assumption |
|------------------------|------------|--------------|------------|
| Construction Inflation | 0 | \$0.00 | Assume 0% |
| Design Contingency | 0.25 | \$151,428.76 | Assume 25% |

Construction Cost Total

\$757,143.81

Inspection

| | Percentage | Cost | Assumption |
|------------|------------|-------------|--------------------------------|
| Inspection | 0.05 | \$37,857.19 | Assume 5% of construction cost |

Inspection Cost Total

\$37,857.19

Design Costs

| | Percentage | Cost | Assumption |
|-----------------|------------|-------------|---------------------------------|
| Option 1 Design | 0.1 | \$75,714.38 | Assume 10% of construction cost |
| Surveying | 0.1 | \$7,571.44 | Assume 10% of design cost |
| Geotechnical | 0.03 | \$22,714.31 | Assume 3% of design cost |

Design Cost Total

\$106,000.13

GRAND TOTAL

\$901,001.14

ROUNDED TOTAL

\$902,000



I-77 Option 2

Construction Costs

IR-77 Option 2

Roadway Modifications

| | Quantity | Unit Price | Cost | Assumption |
|-------------------|----------|------------|------------|------------|
| Guardrail | 100 | \$15.00 | \$1,500.00 | |
| Guardrail Removed | 100 | \$1.50 | \$150.00 | |
| Curb | 100 | \$15.00 | \$1,500.00 | |
| Curb Removed | 100 | \$5.00 | \$500.00 | |
| Striping | 0.5 | \$3,500.00 | \$1,750.00 | |

Bridge Modifications

| | | | | |
|---|-------|-------------|--------------|--|
| Excavation (for new piers or abutments) | 111 | \$15.00 | \$1,665.00 | |
| Remove existing Type 2 Railing | 1 | \$10,000.00 | \$10,000.00 | |
| Remove existing curb, pedestal, and barrier | 56 | \$1,500.00 | \$84,000.00 | |
| Vertical concrete parapets | 606 | \$320.00 | \$193,920.00 | |
| Rebar in parapets | 18500 | \$2.00 | \$37,000.00 | |
| Railings on parapets | 606 | \$200.00 | \$121,200.00 | |
| Drilling and grouting (for anchoring parapets to deck) | 909 | \$25.00 | \$22,725.00 | |
| Drilling and grouting (for connecting new deck to old deck) | 400 | \$10.00 | \$4,000.00 | |
| New steel beam(s) | 61200 | \$3.00 | \$183,600.00 | |
| New structural concrete deck slab | 56 | \$1,200.00 | \$67,200.00 | |
| Rebar in new deck | 13000 | \$2.00 | \$26,000.00 | |
| Piles | 600 | \$25.00 | \$15,000.00 | |
| Furnishing equipment for pile driving | 1 | \$50,000.00 | \$50,000.00 | |
| Structural concrete for new substructures | 100 | \$1,200.00 | \$120,000.00 | |
| Rebar for new substructures | 20000 | \$2.00 | \$40,000.00 | |
| Approach Slab Modifications | 1 | \$5,000.00 | \$5,000.00 | |
| Strengthening for bridge | 1 | \$25,000.00 | \$25,000.00 | |
| Trail Pavement | 92 | \$135.00 | \$12,420.00 | |

Bridge and Roadway Cost SubTotal

\$1,024,130.00

Incidentals

| | | | | |
|----------------------------|---|-------------|-------------|-------------------------|
| Construction Layout Stakes | 1 | 0.01 | \$10,241.30 | 1% of construction cost |
| Mobilization | 1 | \$20,000.00 | \$20,000.00 | |
| Field Office | 1 | \$9,000.00 | \$9,000.00 | \$1500 per 6 months |
| Maintenance of Traffic | 1 | \$10,000.00 | \$10,000.00 | |

Construction Cost SubTotal

\$1,073,371.30

Inflation and Contingency

| | Percentage | Cost | Assumption |
|------------------------|------------|--------------|------------|
| Construction Inflation | 0 | \$0.00 | Assume 0% |
| Design Contingency | 0.25 | \$268,342.83 | Assume 25% |

Construction Cost Total

\$1,341,714.13

Inspection

| | Percentage | Cost | Assumption |
|------------|------------|-------------|--------------------------------|
| Inspection | 0.05 | \$67,085.71 | Assume 5% of construction cost |

Inspection Cost Total

\$67,085.71

Design Costs

| | Percentage | Cost | Assumption |
|-----------------|------------|--------------|---------------------------------|
| Option 2 Design | 0.1 | \$134,171.41 | Assume 10% of construction cost |
| Surveying | 0.1 | \$13,417.14 | Assume 10% of design cost |
| Geotechnical | 0.03 | \$40,251.42 | Assume 3% of design cost |

Design Cost Total

\$187,839.98

GRAND TOTAL

\$1,596,639.81

ROUNDED TOTAL

\$1,600,000



I-77 Option 3

| Construction Costs | | | | |
|---|-------------------|-----------------------|-----------------------|---------------------------------|
| IR-77 Option 3 | | | | |
| | Quantity | Unit Price | Cost | Assumption |
| Roadway Modifications | | | | |
| Guardrail | 100 | \$15.00 | \$1,500.00 | |
| Guardrail Removed | 100 | \$1.50 | \$150.00 | |
| Curb | 100 | \$15.00 | \$1,500.00 | |
| Curb Removed | 100 | \$5.00 | \$500.00 | |
| Striping | 0.5 | \$3,500.00 | \$1,750.00 | |
| Bridge Modifications | | | | |
| Excavation (for new piers or abutments) | 170 | \$15.00 | \$2,550.00 | |
| Remove existing Type 2 Railing | 1 | \$10,000.00 | \$10,000.00 | |
| Remove existing curb, pedestal, and barrier | 56 | \$1,500.00 | \$84,000.00 | |
| Bridge Asphalt Overlay | 74 | \$135.00 | \$9,990.00 | |
| Vertical concrete parapets | 909 | \$320.00 | \$290,880.00 | |
| Rebar in parapets | 27725 | \$2.00 | \$55,450.00 | |
| Railings on parapets | 909 | \$200.00 | \$181,800.00 | |
| Drilling and grouting (for anchoring parapets to deck) | 2727 | \$25.00 | \$68,175.00 | |
| Drilling and grouting (for connecting new deck to old deck) | 10 | \$10.00 | \$100.00 | |
| New steel beam(s) | 122400 | \$3.00 | \$367,200.00 | |
| New structural concrete deck slab | 135 | \$1,200.00 | \$162,000.00 | |
| Rebar in new deck | 30000 | \$2.00 | \$60,000.00 | |
| Piles | 600 | \$25.00 | \$15,000.00 | |
| Furnishing equipment for pile driving | 1 | \$50,000.00 | \$50,000.00 | |
| Structural concrete for new substructures | 150 | \$1,200.00 | \$180,000.00 | |
| Rebar for new substructures | 30000 | \$2.00 | \$60,000.00 | |
| Approach Slab Modifications | 1 | \$5,000.00 | \$5,000.00 | |
| Strengthening for bridge | 1 | \$25,000.00 | \$25,000.00 | |
| Bridle Trail Pavement Removal | 44 | \$15.00 | \$660.00 | |
| Bridle Trail Pavement | 45 | \$35.00 | \$1,575.00 | |
| Trail Pavement | 150 | \$135.00 | \$20,250.00 | |
| Bridge and Roadway Cost SubTotal | | | <u>\$1,655,030.00</u> | |
| Incidentals | | | | |
| Construction Layout Stakes | 1 | 0.01 | \$16,550.30 | 1% of construction cost |
| Mobilization | 1 | \$20,000.00 | \$20,000.00 | |
| Field Office | 1 | \$9,000.00 | \$9,000.00 | \$1500 per 6 months |
| Maintenance of Traffic | 1 | \$10,000.00 | \$10,000.00 | |
| Construction Cost SubTotal | | | <u>\$1,710,580.30</u> | |
| Inflation and Contingency | | | | |
| | Percentage | Cost | | |
| Construction Inflation | 0 | \$0.00 | | Assume 0% |
| Design Contingency | 0.25 | \$427,645.08 | | Assume 25% |
| Construction Cost Total | | <u>\$2,138,225.38</u> | | |
| Inspection | | | | |
| | Percentage | Cost | | |
| Inspection | 0.05 | \$106,911.27 | | Assume 5% of construction cost |
| Inspection Cost Total | | <u>\$106,911.27</u> | | |
| Design Costs | | | | |
| | Percentage | Cost | Assumption | |
| Option 3 Design | 0.1 | \$213,822.54 | | Assume 10% of construction cost |
| Surveying | 0.1 | \$21,382.25 | | Assume 10% of design cost |
| Geotechnical | 0.03 | \$64,146.76 | | Assume 3% of design cost |
| Design Cost Total | | <u>\$299,351.55</u> | | |
| GRAND TOTAL | | | \$2,544,488.20 | |
| ROUNDED TOTAL | | | \$2,550,000 | |



I-77 Option 4

Construction Costs

IR-77 Option 4

Roadway Relocation (400 FT EACH SIDE)

| | Quantity | Unit Price | Cost | Assumption |
|--------------------------------|----------|------------|-------------|---|
| Asphalt Pavement | 437 | \$150.00 | \$65,550.00 | 17600 SF, 1956 SY 8" THICK, 22 FT WIDE |
| Aggregate Base | 326 | \$40.00 | \$13,040.00 | 6" ITEM 304 |
| Pavement Removed | 1956 | \$5.00 | \$9,780.00 | |
| Guardrail | 1600 | \$15.00 | \$24,000.00 | |
| Guardrail Removed | 1600 | \$1.50 | \$2,400.00 | |
| Striping | 0.65 | \$3,500.00 | \$2,275.00 | |
| Roadway Curb | 100 | \$15.00 | \$1,500.00 | |
| Roadway Curb Removed | 100 | \$5.00 | \$500.00 | |
| Earthwork | 1800 | \$8.00 | \$14,400.00 | |
| Erosion Control (Seeding, Etc) | 4000 | \$1.00 | \$4,000.00 | |

Bridge Modifications

| | | | | |
|---|--------|-------------|--------------|--|
| Excavation (for new piers or abutments) | 170 | \$15.00 | \$2,550.00 | |
| Remove existing Type 2 Railing | 2 | \$10,000.00 | \$20,000.00 | |
| Remove existing curb, pedestal, and barrier | 56 | \$1,500.00 | \$84,000.00 | |
| Bridge Asphalt Overlay | 74 | \$135.00 | \$9,990.00 | |
| Vertical concrete parapets | 1212 | \$320.00 | \$387,840.00 | |
| Rebar in parapets | 37000 | \$2.00 | \$74,000.00 | |
| Railings on parapets | 1212 | \$200.00 | \$242,400.00 | |
| Drilling and grouting (for anchoring parapets to deck) | 3636 | \$25.00 | \$90,900.00 | |
| Drilling and grouting (for connecting new deck to old deck) | 10 | \$10.00 | \$100.00 | |
| New steel beam(s) | 122400 | \$3.00 | \$367,200.00 | |
| New structural concrete deck slab | 135 | \$1,200.00 | \$162,000.00 | |
| Rebar in new deck | 30000 | \$2.00 | \$60,000.00 | |
| Piles | 600 | \$25.00 | \$15,000.00 | |
| Furnishing equipment for pile driving | 1 | \$50,000.00 | \$50,000.00 | |
| Structural concrete for new substructures | 150 | \$1,200.00 | \$180,000.00 | |
| Rebar for new substructures | 30000 | \$2.00 | \$60,000.00 | |
| Approach Slab Modifications | 1 | \$5,000.00 | \$5,000.00 | |
| Strengthening for bridge | 1 | \$25,000.00 | \$25,000.00 | |
| Bridle Trail Pavement Removal | 44 | \$15.00 | \$660.00 | |
| Bridle Trail Pavement | 55 | \$35.00 | \$1,925.00 | |
| Trail Pavement | 150 | \$135.00 | \$20,250.00 | |

Bridge and Roadway Cost SubTotal

\$1,996,260.00

Incidentals

| | | | | |
|----------------------------|---|-------------|-------------|-------------------------|
| Construction Layout Stakes | 1 | 0.01 | \$19,962.60 | 1% of construction cost |
| Mobilization | 1 | \$20,000.00 | \$20,000.00 | |
| Field Office | 1 | \$9,000.00 | \$9,000.00 | \$1500 per 6 months |
| Maintenance of Traffic | 1 | \$10,000.00 | \$10,000.00 | |

Construction Cost SubTotal

\$2,055,222.60

Inflation and Contingency

| | Percentage | Cost | Assumption |
|------------------------|------------|--------------|------------|
| Construction Inflation | 0 | \$0.00 | Assume 0% |
| Design Contingency | 0.25 | \$513,805.65 | Assume 25% |

Construction Cost Total

\$2,569,028.25

Inspection

| | Percentage | Cost | Assumption |
|------------|------------|--------------|--------------------------------|
| Inspection | 0.05 | \$128,451.41 | Assume 5% of construction cost |

Inspection Cost Total

\$128,451.41

Design Costs

| | Percentage | Cost | Assumption |
|-----------------|------------|--------------|---------------------------------|
| Option 4 Design | 0.1 | \$256,902.83 | Assume 10% of construction cost |
| Surveying | 0.1 | \$25,690.28 | Assume 10% of design cost |
| Geotechnical | 0.03 | \$77,070.85 | Assume 3% of design cost |

Design Cost Total

\$359,663.96

GRAND TOTAL

\$3,057,143.62

ROUNDED TOTAL

\$3,060,000



I-77 Option 5

Construction Costs

IR-77 Option 5

Roadway Modifications

| | Quantity | Unit Price | Cost | Assumption |
|----------|----------|------------|----------|------------|
| Striping | 0.06 | \$3,500.00 | \$210.00 | |

Bridge Modifications

| | | | | |
|--|-------|--------------|--------------|--|
| Excavation (for new piers or abutments) | 320 | \$15.00 | \$4,800.00 | |
| Trail Pavement | 94 | \$135.00 | \$12,690.00 | |
| New prefabricated steel trussed or arch span | 1 | \$960,000.00 | \$960,000.00 | |
| Piles | 1800 | \$25.00 | \$45,000.00 | |
| Furnishing equipment for pile driving | 1 | \$50,000.00 | \$50,000.00 | |
| Structural concrete for new substructures | 134 | \$1,200.00 | \$160,800.00 | |
| Rebar for new substructures | 30000 | \$2.00 | \$60,000.00 | |

Bridge and Roadway Cost SubTotal

\$1,293,500.00

Incidentals

| | | | | |
|----------------------------|---|-------------|-------------|-------------------------|
| Construction Layout Stakes | 1 | 0.01 | \$12,935.00 | 1% of construction cost |
| Mobilization | 1 | \$20,000.00 | \$20,000.00 | |
| Field Office | 1 | \$9,000.00 | \$9,000.00 | \$1500 per 6 months |
| Maintenance of Traffic | 1 | \$20,000.00 | \$20,000.00 | |

Construction Cost SubTotal

\$1,355,435.00

Inflation and Contingency

| | Percentage | Cost | Assumption |
|------------------------|------------|--------------|------------|
| Construction Inflation | 0 | \$0.00 | Assume 0% |
| Design Contingency | 0.25 | \$338,858.75 | Assume 25% |

Construction Cost Total

\$1,694,293.75

Inspection

| | Percentage | Cost | Assumption |
|------------|------------|-------------|--------------------------------|
| Inspection | 0.05 | \$84,714.69 | Assume 5% of construction cost |

Inspection Cost Total

\$84,714.69

Design Costs

| | Percentage | Cost | Assumption |
|-----------------|------------|--------------|---------------------------------|
| Option 5 Design | 0.1 | \$169,429.38 | Assume 10% of construction cost |
| Surveying | 0.1 | \$16,942.94 | Assume 10% of design cost |
| Geotechnical | 0.03 | \$5,082.88 | Assume 3% of design cost |

Design Cost Total

\$191,455.19

GRAND TOTAL

\$1,970,463.63

ROUNDED TOTAL

\$1,980,000



I-77 Option 6

Construction Costs

IR-77 Option 6

Roadway Relocation (400 FT EACH SIDE)

| | Quantity | Unit Price | Cost | Assumption |
|--------------------------------|----------|------------|-------------|---|
| Asphalt Pavement | 437 | \$150.00 | \$65,550.00 | 17600 SF, 1956 SY 8" THICK, 22 FT WIDE |
| Aggregate Base | 326 | \$40.00 | \$13,040.00 | 6" ITEM 304 |
| Pavement Removed | 1956 | \$5.00 | \$9,780.00 | |
| Guardrail | 1600 | \$15.00 | \$24,000.00 | |
| Guardrail Removed | 1600 | \$1.50 | \$2,400.00 | |
| Striping | 0.65 | \$3,500.00 | \$2,275.00 | |
| Roadway Curb | 100 | \$15.00 | \$1,500.00 | |
| Roadway Curb Removed | 100 | \$5.00 | \$500.00 | |
| Earthwork | 1800 | \$8.00 | \$14,400.00 | |
| Erosion Control (Seeding, Etc) | 4000 | \$1.00 | \$4,000.00 | |

New Shared Use Path Bridge

| | | | |
|--|-------|--------------|--------------|
| Excavation (for new piers or abutments) | 320 | \$15.00 | \$4,800.00 |
| Trail Pavement | 94 | \$135.00 | \$12,690.00 |
| New prefabricated steel trussed or arch span | 1 | \$960,000.00 | \$960,000.00 |
| Piles | 1800 | \$25.00 | \$45,000.00 |
| Furnishing equipment for pile driving | 1 | \$50,000.00 | \$50,000.00 |
| Structural concrete for new substructures | 134 | \$1,200.00 | \$160,800.00 |
| Rebar for new substructures | 30000 | \$2.00 | \$60,000.00 |

Bridge Modifications

| | | | |
|---|-------|-------------|--------------|
| Approach Slab | 156 | \$200.00 | \$31,200.00 |
| Approach Slab Removal | 156 | \$30.00 | \$4,680.00 |
| Bridle Trail Pavement | 55 | \$35.00 | \$1,925.00 |
| Bridle Trail Pavement Removal | 44 | \$15.00 | \$660.00 |
| Remove existing Type 2 Railing | 1 | \$10,000.00 | \$10,000.00 |
| Remove existing curb, pedestal and barrier | 56 | \$1,500.00 | \$84,000.00 |
| Bridge Asphalt Overlay | 74 | \$135.00 | \$9,990.00 |
| Vertical concrete parapets | 606 | \$320.00 | \$193,920.00 |
| Rebar in parapets | 18500 | \$2.00 | \$37,000.00 |
| Railings on parapets | 606 | \$200.00 | \$121,200.00 |
| Drilling and grouting (for anchoring parapets to deck) | 1818 | \$25.00 | \$45,450.00 |

Bridge and Roadway Cost SubTotal

\$1,970,760.00

Incidentals

| | | | | |
|----------------------------|---|-------------|-------------|-------------------------|
| Construction Layout Stakes | 1 | 0.01 | \$19,707.60 | 1% of construction cost |
| Mobilization | 1 | \$20,000.00 | \$20,000.00 | |
| Field Office | 1 | \$9,000.00 | \$9,000.00 | \$1500 per 6 months |
| Maintenance of Traffic | 1 | \$20,000.00 | \$20,000.00 | |

Construction Cost SubTotal

\$2,039,467.60

Inflation and Contingency

| | Percentage | Cost | Assumption |
|------------------------|------------|--------------|------------|
| Construction Inflation | 0 | \$0.00 | Assume 0% |
| Design Contingency | 0.25 | \$509,866.90 | Assume 25% |

Construction Cost Total

\$2,549,334.50

Inspection

| | Percentage | Cost | Assumption |
|------------|------------|--------------|--------------------------------|
| Inspection | 0.05 | \$127,466.73 | Assume 5% of construction cost |

Inspection Cost Total

\$127,466.73

Design Costs

| | Percentage | Cost | Assumption |
|-----------------|------------|--------------|---------------------------------|
| Option 6 Design | 0.1 | \$254,933.45 | Assume 10% of construction cost |
| Surveying | 0.1 | \$25,493.35 | Assume 10% of design cost |
| Geotechnical | 0.03 | \$7,648.00 | Assume 3% of design cost |

Design Cost Total

\$288,074.80

GRAND TOTAL

\$2,964,876.02

ROUNDED TOTAL

\$2,970,000

Appendix G: Cost Estimates

