Draft Final Station Area Analysis
HAM/CLE – OASIS Rail Corridor
PID No. 86463

PREPARED FOR:
Ohio Department of Transportation
District 8
505 S. State Route 741
Lebanon, Ohio 45036

PREPARED BY:

HDR Engineering, Inc.
9987 Carver Road, Suite 200
Cincinnati, Ohio 45242
513-984-7500

IN ASSOCIATION WITH:

PB Americas
312 Elm Street Suite 2500.
Cincinnati, OH 45202
513-639-2120

TranSystems Corporation
1105 Schrock Rd Suite 400
Columbus, Ohio 43229
614-433-7800

Barr & Prevost
2800 Corporate Exchange Drive Suite 240
Columbus, OH 43231
614-714-0270

Hull & Associates
4770 Duke Drive, Suite 300,
Mason, Ohio 45040
513/459-9677

Rasor Marketing Communications, LLC
7844 Remington Road
Cincinnati, OH 45242
(513) 600-2294

November 21, 2013

Table of Contents

List of Figures

List of Appendices

1.0 Introduction to Station Area Planning (SAP)

The Eastern Corridor Major Investment Study (MIS) completed in 2000 identified numerous stations located along the 17 mile Oasis passenger rail corridor, from the City of Milford to the Riverfront Transit Center (RTC) downtown. These 10 suggested station locations were evaluated as part of this document for the purpose of enabling stakeholders and the public to identify optimal station locations according to various measured criteria. Understanding the operational characteristics of a commuter rail operation, and need to provide reliable and efficient service, the stations were evaluated with the intended purpose of eliminating stations which did not meet minimum standards.

The primary purpose of this document is to provide a high level approach to not only understanding the associated measures typically considered in evaluating the potential for sustainable economic development and establishment of station area centric communities, but also locations which could fully compliment the local communities and land use plans.

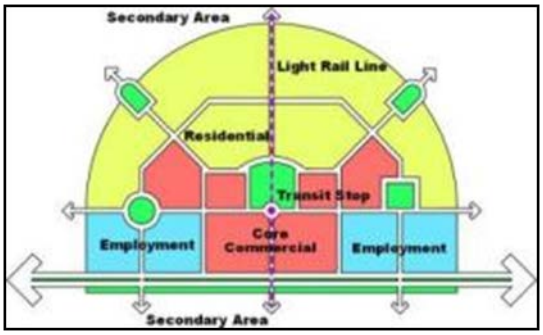
One of the interests for this study is to understand the role of stations as part of the Oasis corridor and to illustrate SAP and development potential for the 10 previously-identified stops. Each station is placed in the context of a corridor vision, and its specific development program issues and opportunities are noted. An important consideration of the analysis is to discern each station's attributes with respect to the regional rail transit service. This report focuses on the following topics:

- *Fundamental Precepts*
- *Tier I Findings – Regional Service and Proposed Stations*
- *The Oasis Corridor Land Use Vision*
- *Station by Station Analysis Methodology*
- *Station-by-Station Results*
- *Station Types and Elements*
- *Station Evaluation Process*

This study complements the earlier *Existing and Future Conditions Report* by providing a discrete focus on the stations themselves. The next phase of station development planning will include a Market Analysis to determine more precise and realistic development opportunities, and the attractiveness of the station locations proposed. Along with more focused coordination and collaboration with the local neighborhoods and jurisdictions impacted by potential station locations, as well as private developers and investors who will be crucial in maximizing the economic potential of each location, the next phase of work will offer a more detailed picture of the viability of each station.

2.0 Fundamental Precepts

It should be noted that Transit Oriented Development (TOD) is a mixed-use residential and commercial area located at a station and designed to maximize access to public transport, and often incorporates features to encourage transit ridership. A TOD neighborhood typically has a center with a transit station or stop surrounded by higher-density development than typically encountered in traditional roadway type developments and with progressively lower-density development spreading outward from the center.



To initiate the SAP process, this plan employs six fundamental premises to guide and inform the planning process. Fundamentally, the intent is to:

- *Develop stations to meet the proposed Oasis service plan and promote flexibility*
- *Promote complementary intermodal connectivity*

- *Understand and maximize local assets and opportunities*
- *Type and place stations in a vision context and concentrate mixed use activity at stations*
- *Respect environmental, historic and cultural resources*
- *Utilize federal Livability Principles to help secure a sustainable regional future*

3.0 Tier I Findings – Regional Service and Proposed Stations

3.1 The Tier I EIS encompassed the entire Eastern Corridor, and it, with the Purpose & Need (P&N) and resulting Record of Decision (ROD), set forth the basic framework for this more detailed analysis. Understanding the role of Oasis as an integral part of a regional mobility network helps place the stations in a proper context. Figure 1 shows the Tier I EIS general 17 mile alignment and the 10 suggested stations.Regional Service

There are numerous types of transit service a region might employ – one might be longer, more commuter-oriented with widely-spaced stations; one might be shorter with closer-spaced stations that are commuter and community-oriented; and another might be very local service, with slower speeds and more frequent stops. According to the P&N, Oasis corresponds to the first type noted above and is designed to:

- *Provide a regional scale alternative to driving*
- *Provide high-capacity transit mode to support other modes*
- *Reduce demand for highway capacity*
- *Meet future travel demand*
- *Increase mobility for non-drivers*

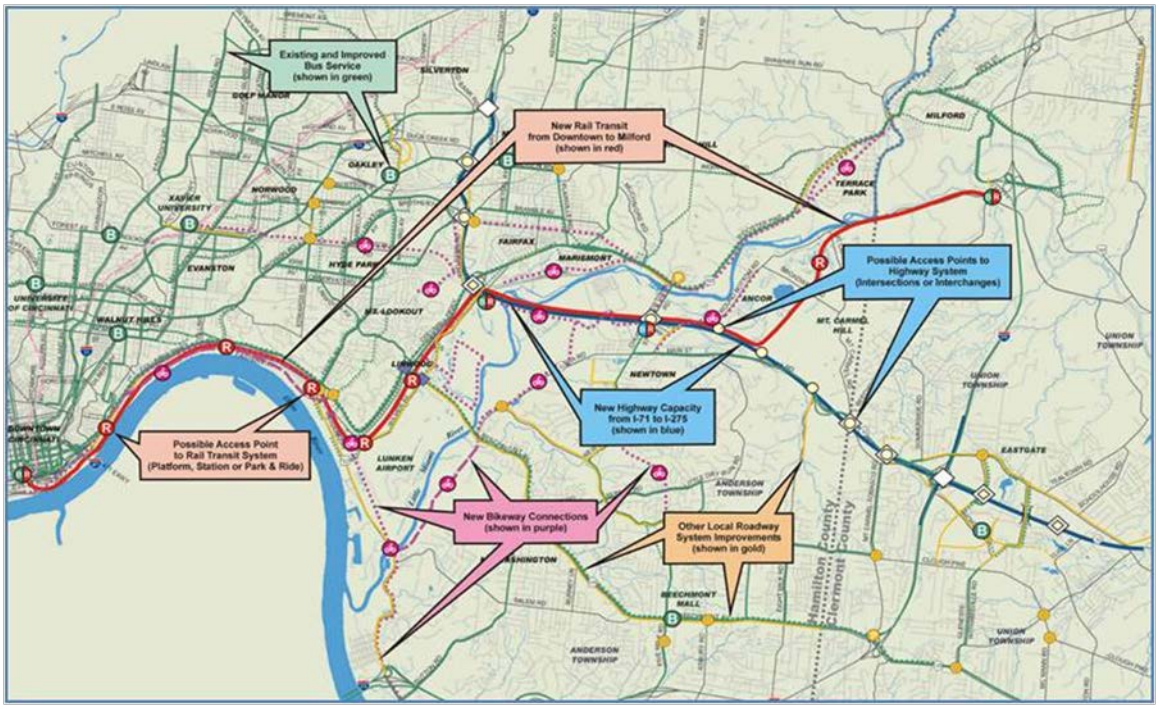
3.2 Proposed Stations

Likewise, the Tier I EIS report identified a set of 10 stations stretching from downtown Cincinnati and the RTC to the City of Milford. The intent of the station program was to:

- *Establish stations at effective locations and link other modes*
- *Connect downtown Cincinnati with outlying areas of population and employment*
- *Support neighborhood development and revitalization*

There are six stations in Cincinnati, three in Hamilton County and one in Clermont County.

Figure 1: The Oasis Regional Transit Line and Stations



4.0 The Oasis Corridor Land Use Vision

This study is more than just finding an alignment to get from downtown Cincinnati to Milford. It is matching the transit investment to land use potentials within a corridor context that is a subset of the larger Eastern Corridor. Transit and land use are reciprocals. In effect, transit is a means to help create more livable places in the Cincinnati region. In the process, new transit-supportive land uses in the corridor - and at stations – support increased transit ridership. This study approach is to maximize both. Such an approach recognizes that transit has a leveraging effect as a powerful Investment that:

- *Reinforces traditional neighborhoods and towns, such as in Cincinnati, Newtown, and Milford;*
- *Revitalizes by-passed and under-utilized properties mid-way along the corridor; and*
- *Redirects new development patterns in the more suburban locations to create critical mass of walkable, mixed use places (TOD).*

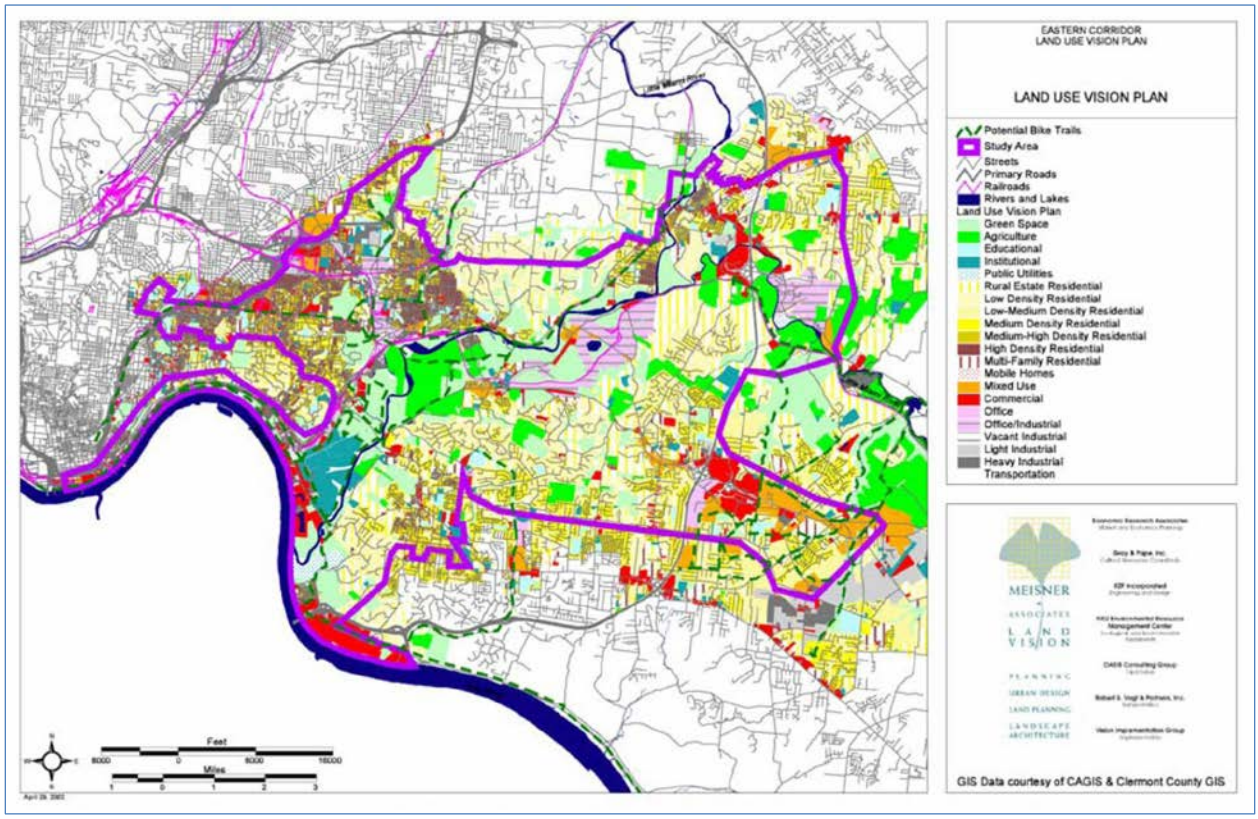
4.1 The Eastern Corridor Land Use Vision

The development of an Oasis Corridor Vision looks to the larger Eastern Corridor Land Use Vision. The Eastern Corridor process revealed a wide array of land use potentials, including mixed use opportunities, especially along the proposed Oasis line. There was a set of themes that guided the proposed land use vision:

- *Good Schools – understanding that schools are vital to economic development by providing an educated work force and attracting new employers to the region*
- *Diversity of residential opportunities – recognizing that choice in residential types, location and price is critical to future growth*
- *Smart growth – basing future growth on smart choices where land is developed, providing efficient services and conserving natural resources*
- *Access and Mobility – offering multiple modes and more directly linking housing and employment*

- *Economic Development – knowing that new and retained employment opportunities are necessary to sustain the region's quality of life*
- *Environment – valuing the natural environment as essential to wise development patterns*

Figure 2: The Eastern Corridor Land Use Vision Plan



4.2 The Oasis Corridor Focus

With Oasis as a more focused component of the Eastern Corridor - and more than a decade separates the Eastern Corridor Vision from this effort – a fresh look was taken to include contemporary themes. These themes are translated into the land use vision. There is a more microscopic recognition of the value of transit and land use integration. Finally, since securing funds is always difficult, Oasis needs to be positioned to attract federal funds. One of the changes since the Eastern Corridor Vision development was the creation of the federal Sustainable Communities Partnership, a joint HUD, DOT, and EPA initiative. The Partnership developed a set of six Livability Principles that would begin to reshape how communities invested federal funds. The Livability Principles are to:

- *Provide more transportation choices*

  Develop safe, reliable, and economical transportation choices in order to decrease household transportation costs, reduce our nations' dependence on foreign oil, improve air quality, reduce greenhouse gas emissions, and promote public health.

- *Promote equitable, affordable housing*

  Expand location and energy efficient housing choices for people of all ages, incomes, races, and ethnicities to increase mobility and lower the combined cost of housing and transportation.

- *Enhance economic competitiveness*

Enhance economic competitiveness through reliable and timely access to employment centers, educational opportunities, services, and other basic needs by workers, as well as expanded business access to markets.

- *Support existing communities*

Target federal funding toward existing communities to increase community revitalization, the efficiency of public works investments, and safeguard rural landscapes.

- *Coordinate policies and leverage investment*

Cooperatively align federal policies and funding to remove barriers, leverage funding, and increase the accountability and effectiveness of all levels of government to plan for future growth.

- *Value communities and neighborhoods*

Enhance the unique characteristics of all communities by investing in healthy, safe, and walkable neighborhoods – rural, urban, or suburban.

In such new competitive programs as theTransportation Investments Generating Economic Recovery program (TIGER, these Principles helped guide the awarding of grants to local applicants. Under other "livability" programs within each of these three agencies, these Principles are coming into play in very creative ways. Appendix A gives more detail on the Livability Principles.

4.3 The Oasis Land Use Themes

Given the Eastern Corridor themes, a complementary set of criteria was developed to focus the Oasis Corridor Vision:

- *Livability principles guide Oasis corridor planning*
- *Oasis is an integrated land use corridor*
- *Transit follows and supports land use*
- *Development is focused in a series mixed use activity centers at key stations*
- *Economic development is key to value creation for implementation*
- *Implementation is dependent on successful station placement and planning*

4.4 The Oasis Land Use Vision

The land use vision for the Oasis corridor considers both the individual stations and the entire corridor collectively. Of course, this vision is a subset of that for the greater Eastern Corridor, and its fundamentals remain intact. The Oasis vision becomes finer-grained, as it centers on the corridor's rail transit alignment and the buffer areas on each side. The vision asserts a strong and direct relationship between transit, land use, and economic development.

The Challenge to Achieving a Corridor Vision

One of the challenges for implementing the vision is a diversity of partners, including counties, cities, agencies, institutions, and stakeholders. An integrated corridor vision should be endorsed by the Partnership and recommended to the constituent jurisdictions. Since the vision involves land use, an uncommon level of coordination is required, one that recognizes turnover in civic leadership within the Partners and corridor communities. Maintaining the corridor vision necessitates continual education and community outreach/involvement efforts. That said, the long-term value of pursing a shared vision can yield multiple benefits – even if rail transit never comes. The corridor will be more compact, activity centers will allow robust economic activities, walkable communities will emerge, infrastructure and capital investments will be targeted, and "development gaps" will be avoided.

The Vision Elements

There are two essential elements to the vision – the Corridor defined by varying districts and a series of Activity Centers. The approach is to coordinate the two and to set general principles for planning and implementation.

The Corridor Districts – With places spanning from urban to suburban to rural, the existing corridor is a complex pattern of opportunities and constraints. As the region continues to grow and mature, land uses, in some cases, will need to transition; others will be enhanced; and open areas will change. Consequently, the corridor is divided into three district types, which can be overlapping. They are:

- *Urbanized Districts –This category is found in Cincinnati, Fairfax (Red Bank), and Milford. The definition is a uniformly developed pattern of generally compatible uses. The strategies here are to:*
    - *Conserve and reinforce existing resources*
    - *Provide selective infill, including transit-supportive mixed uses*
    - *Use accepted zoning densities and intensities to guide development especially near potential stations*
    - *Increase multi-modal connectivity for transit, pedestrians and bicyclists*
    - *Actively engage community stakeholders*
- *Transitional Districts –This category is found in the more industrialized sectors of Cincinnati, Fairfax (Red Bank), and Ancor. The scale, type, and character of uses vary from small service facilities to manufacturing facilities to distribution centers. These uses generally do not generate transit ridership because of their low employee-to-square foot ratio. Transitional means that change can occur toward more transit-supportive uses, but it will be more difficult due to the non-residential character of these areas. In many cases, there are environmental factors that negatively impact the ability to transition. The strategies for Transitional areas are to:*
    - *Undertake a coordinated public/private planning and redevelopment strategy at key locations*
    - *Preserve viable economic enterprises to retain current employment*
    - *Develop appropriate mitigation strategies*
    - *Use accepted zoning densities and intensities to guide development, especially near potential stations*
    - *Enhance multi-modal connectivity for transit riders, pedestrians and bicyclists*
    - *Engage community stakeholders actively*
- *Growth Districts –This category is found in Newtown, Ancor, and Milford, locations with larger, undeveloped properties. This category is where exciting opportunities exist to develop completely new patterns that support transit. The strategies here are to:*
    - *Conduct coordinated community planning*
    - *Support the more densely developed station areas*
    - *Use accepted zoning densities and intensities to guide new development patterns*
    - *Enhance multi-modal connectivity for transit, pedestrians and bicyclists*
    - *Engage community stakeholders actively*

Other strategies to be considered throughout the corridor where appropriate include: An increase in permitted density in Urbanized Districts, if feasible; preservation of manufacturing zoning (particularly within those districts identified in Plan Cincinnati as Transitional) to encourage more compact manufacturing facilities and operations; and consideration of transferring manufacturing development rights as a means to maintain the net balance of districts that permit manufacturing uses, in anticipation of pressures to convert manufacturing uses without provision for regional absorption of manufacturing opportunities.

Activity Centers – The corridor is a "host" for five Activity Center types that range from downtown Cincinnati as the region's Urban Activity Center to smaller Traditional Town Centers. Each center has a distinctive role and function within the corridor – and in station area planning and implementation. Activity Centers will house a variety of station types as described in Section 1.8 and shown in Figure 3. Without an essential restructuring of centers within the corridor, success only will come slowly and incrementally.

- Urban Activity Center – Downtown Cincinnati is the sole Urban Activity Center, and it anchors

the western terminus of the Oasis corridor. Downtown has the highest level of office and governmental employment, as well as hospitality, sports, and entertainment venues. Residential is re-emerging through loft conversion and new development formats. Consistent with the policy principles in the City's recently-adopted Comprehensive Plan, called Plan Cincinnati (November 2012)[1], the strategy will be to continue implementing and encouraging compact, walkable mixed-use development, along with transit of all types. Intermodal activity will increase at the RTC with rails, streetcar and enhanced bus service connectivity. This Activity Center will have the Region-serving station.

- Regional Activity Centers (RAC) – Regional is the next level in the Activity Centers hierarchy. The core of a RAC is office, service-oriented commercial, hospitality, entertainment, and retail uses. Multi-family housing is necessary to begin activating the center for enhanced livability. RACs have high to medium high densities and intensities. There is less emphasis on residential development at the Ancor station (for example), since the intent there is for it to be more employment-oriented. Each potential center has specific issues and opportunities, but this type center is important for helping build long-term transit ridership. RACs are designated at Fairfax (Red Bank), Ancor, and Milford. Milford is unique due to its interstate-adjacent (I-275) location and the existing office park base west of the interstate. The RAC may have Region-serving or District-serving stations. Strategies here are to:
    - Conduct area-wide economic development planning
    - Identify key market sectors
    - Focus the most active uses – institutional, office, retail and residential – near the station
    - Use accepted zoning densities and intensities specific to the jurisdiction to guide new development patterns
    - Enhance multi-modal connectivity for transit, pedestrians and bicyclists
    - Consider a circulator system to link with the station
    - Engage community stakeholders actively
- Community Activity Centers (CAC) – The third level in the Activity Centers hierarchy is the CAC. The role of this Activity Center is to provide a core in areas with multiple existing neighborhoods or emerging community-scale development. Principal uses are office, commercial, retail uses, and multi-family housing to begin activating the center for enhanced livability. CACs will have medium density and intensity development. Each CAC has specific issues and opportunities, and this type center is supportive of long-term transit ridership. CACs are designated at the Boathouse (Special Use only), Columbia Tusculum, and Newtown. Strategies here are to:
    - Conduct community-scale planning with a strong urban design orientation
    - Focus the most active uses – office, retail and residential – near the station
    - Use accepted zoning densities and intensities specific to the jurisdiction to guide new development patterns
    - Enhance bus, pedestrian and bicycle access and connectivity to the stations
    - Engage community stakeholders actively
- Traditional Town Centers (TTC) – The corridor has several traditional town centers that need to be recognized for the value they bring. TTCs also help strengthen the corridors solely by their presence. Mariemont, Newtown, and Milford have fundamental urban patterns that offer examples for current or emerging CACs, since they have walkability and livability traits. The intent is to complement their locations in the corridor type and most-closely associated Activity

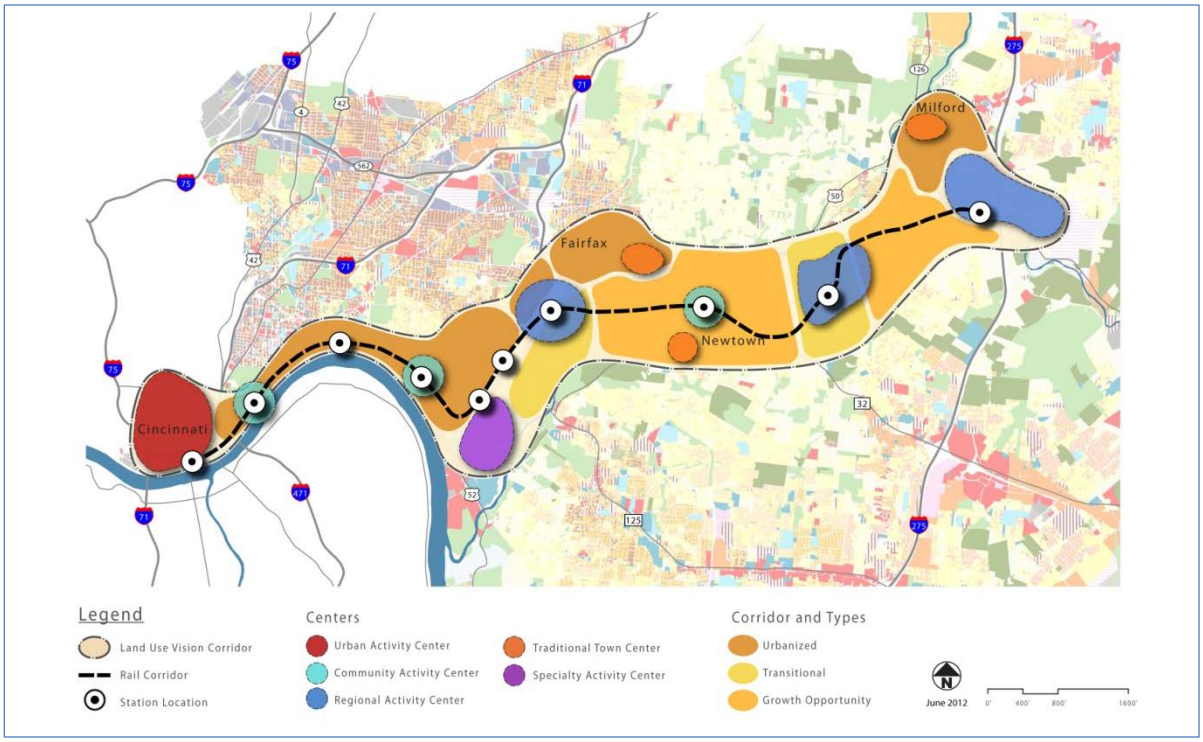
[1] http://www.plancincinnati.org/

Center. Strategies for TTCs are :

- Conduct urban design studies to support or enhance current TTCs
- Use accepted zoning densities and intensities specific to the jurisdiction to guide new development patterns
- Enhance multi-modal connectivity for transit, pedestrians and bicyclists to the appropriate Activity Center
- Engage community stakeholders actively

- Specialty Activity Centers (SAC) – The final type is the Specialty Activity Center, and it is associated with Lunken Airport and its industrial and airport support services. The City's Comprehensive Plan identifies this area as a major industrial complex. Future area wide master planning, including the airport, can better define a mix of uses that may be more transit-supportive.

Figure 3: Oasis Corridor Land Use Vision



5.0 Station-by Station Analysis Methodology

The purpose of this station-by-station analysis is to understand the Tier I EIS recommended station locations. From this analysis comes a station-by-station assessment that will reveal existing conditions, issues and opportunities, and development capacity. Too, the analysis is fundamental to assessing how each one relates to the recommended regional-type transit service. The analysis methodology includes the following steps.

- *Define the ¼ and ½ mile capture radii – These two distances are accepted standards for station planning, and represent five and ten minute walks to the stations from existing and proposed transit-supportive land uses.*
- *Identify vacant and "susceptible-to-change" properties – These two standards provide a focus on the potential development capacity around each station. The analysis allows the rating of stations based on their potential. A spreadsheet is prepared for each station and can be found in Appendix B.*
- *Analyze development factors – This helps understand where and how growth could be accommodated and any physical limitations to station area development and/or access to stations*
- *Summarize issues and opportunities – The summary highlights strengths to maximize and weaknesses to overcome.*

5.1 Vacant, Susceptible-to-Change (StC) and Development Factors

Where and how to place future development within station areas requires the analysis of two property types: vacant and susceptible-to-change. Vacant properties are defined as open areas, platted and un-built, or previously built and cleared. Susceptible-to-change (StC) properties are those that are:

- Currently in some form of land use transition,

- "Infill" parcels or properties with the potential for change (brownfields, large parking lots, etc.) and
- Underutilized properties (where the value of improvements 25% or less of the total property value).

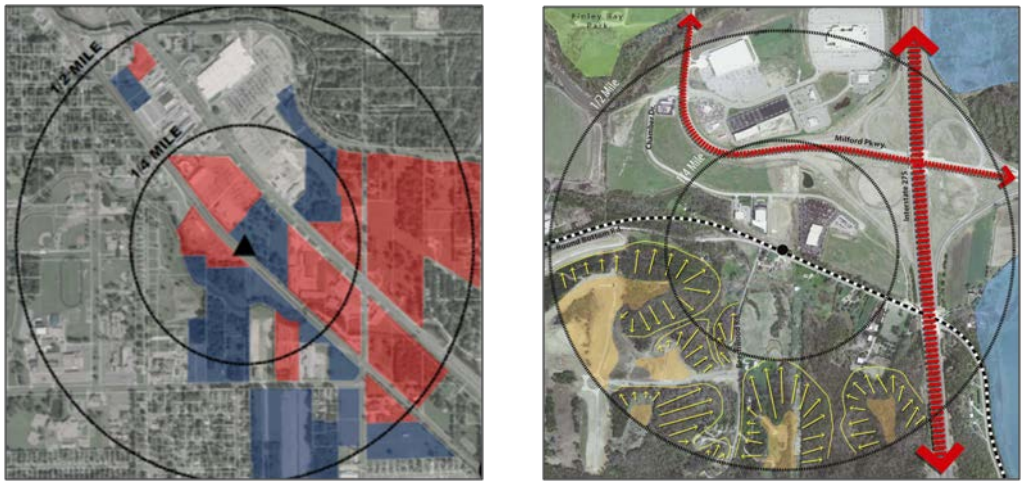
The vacant and underutilized properties were identified using GIS-based Property Appraiser data from Hamilton and Clermont counties, and it is geo-referenced to their aerials. These data were used because the analysis was parcel based, allowing accurate measuring and calculation. Because the aerials were not the most current, any questions about changed conditions were compared to more up-to-date ones, along with field verification, Each station area then was mapped and tabulated to help size and estimate future development capacity. Any "on-ground" changes were noted and calculations adjusted. Figure 4 depicts both type properties, along with associated lot lines; blue areas represent vacant properties, and red areas are susceptible-to-change.

A companion analysis depicts physical constraints and limitations. Among the environmental issues confronting many of the stations are floodway, floodplain, and, in some cases, steep slopes. In determining available developable land within the station areas, floodways and steep slopes were excluded. However, floodplains were not excluded, since they are defined as limitations not absolute prohibitions against development. In Phase 2, more detailed analysis of floodplains will be included before station area development is proposed. The end result is an understanding of development capacity, not market potential. A corridor-wide and station specific market study will set forth development potential – and matched against the development capacity. However, Phase 1 considerations did include future land use plans and zoning designated by individual jurisdictions.

It should be noted that in our analysis, Susceptible-to-change properties were considered already developed properties that do not meet the measures of TOD type development and could subsequently be redeveloped within the next 20 years of our analysis. As has been demonstrated elsewhere, stations can be the catalyst for property conversion.

Figure 4 illustrates the two types of analysis. On the left is the Vacant and Susceptible-to-change map (blue represents vacant properties and red represents susceptible-to-change). The Development Factors map is on the right. Larger scale maps for both series and spreadsheets for each station are presented in Appendix B.

Figure 4: Vacant and Susceptible-to-Change and Development Factors



Station-by-Station Results

With the analysis methodology defined, the next step in the process was to take a detailed look at each station area. Note – The Riverfront Transit Center (RTC) is not part of the analysis, since it is a multimodal station that is already in place. Following is a summary of results for:

- *Boathouse Station*
- *East End Station*

- *Columbia-Tusculum Station*
- *Lunken Station*
- *Beechmont Station*
- *Fairfax (Red Bank) Station*
- *Newtown Station*
- *Ancor Station*
- *Milford Station*

At the end of the station-by-station review, a summary table is presented that allows a "quick view" of the comparative development capacity by station. The results include:

- *A vacant and susceptible-to-change analysis based on GIS information, Property Appraiser data and field investigations*
- *Development Factors map that denotes potential limiting factors for effective station development*
- *A listing of Issues and Opportunities*

Boathouse Station – The Boathouse is the first station east from downtown, and it centers on the Friendship International Park. The station, for a number of reasons, has development limitations, including being extremely close to the Riverfront Transit Center.

Figure 5: Boathouse Station

Issues

- *Station spacing between RTC and East End station*
- *Limited development potential - only 14% vacant or StC*
- *½ of station area is in the river and beyond*
- *Primary land use is park/open space*
- *Access to station affected by*
    - *Distance from development*
    - *Roadways as barriers*
    - *Slopes requiring elevator access*
    - *Tracks impact access to park*

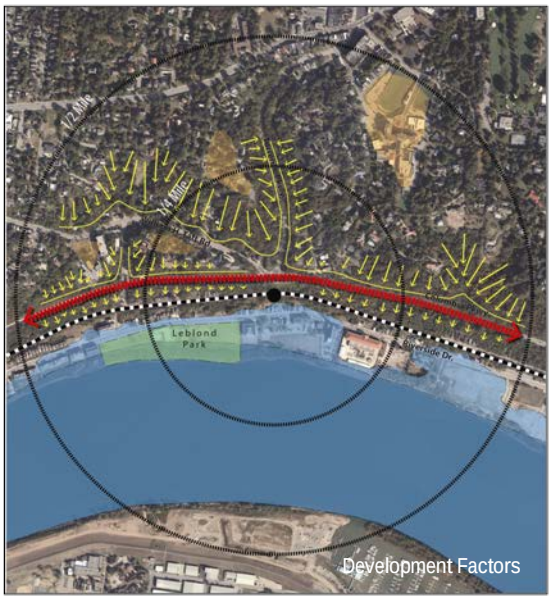
- *Visual effect concerns to abutting residential overlooking the line*

Opportunities

- *Potential as special use station due to established destination*
- *International Friendship Park*
- *Boathouse restaurant*
- *Selective infill sites*

East End Station – The second station out is similar to the Boathouse due to its limited development capacity, being close to the river, and having topographic and other physical limitations.

Figure 6: East End Station



Issues

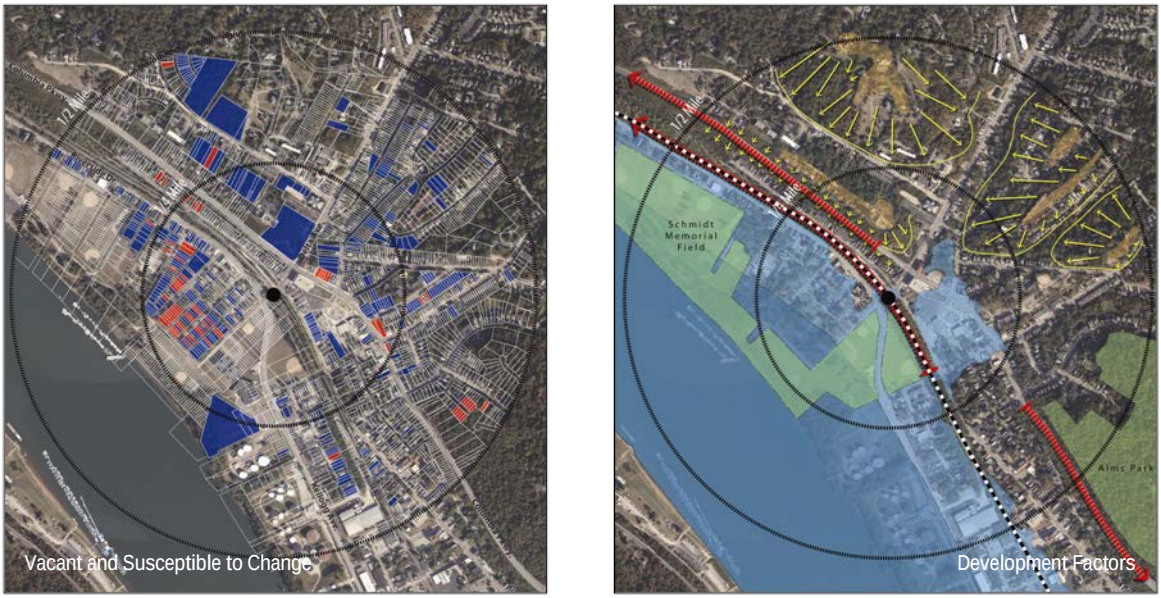
- *Station spacing w/ Boathouse and Columbia-Tusculum*
- *Low development potential - only 9% vacant or StC*
- *1/3 of station area in river and beyond*
- *Extensive floodway/floodplain along river*
- *1/2 of station area is large lot development pattern on north*
- *Difficult station location on the slope between*
- *The slope location requires elevator access*
- *Wedged between Riverside Drive and Columbia Parkway*

Opportunities

- *Riverfront location*
- *Potential for urban infill/ redevelopment based on historic patterns*

Columbia Tusculum Station – With a re-emerging urban core, this station, located some 4.4 miles from RTC, reflects station development potential. There was a train station at this location up until 1970. At the time, ll passenger rail traffic passed through Columbia Tusculum area, although the station was abandoned much earlier.

Figure 7: Columbia Tusculum Station



Issues

- *Medium development potential (25% vacant or StC)*
- *Floodway/floodplain areas south and west of tracks are limitations*
- *Tracks are raised requiring an elevated station*
- *Development pattern is generally established*
- *Steep slopes toward the north and east*
- *Delta and railroad crossing is complex intersection*

Opportunities

- *Station at this location may help catalyze and drive development along the route due to density and intensity of potential*
- *It is a known market, the right demographics, and positive neighborhood characteristics .*

- *Emerging mixed-use "core" and very good residential areas*
- *Current land uses and pattern to the east of tracks are transit-supportive*
- *Small lot platting supports walkability*
- *Potential infill/redevelopment to the south and west*
- *Civic spaces include park/green space and school*

Lunken Station – This station is centered on Lunken Airport, the City's general aviation facility. While Lunken gives an opportunity for a Special Use station, its proximity to Columbia Tusculum and Beechmont creates spacing and separation issues. The long term potential and viability of the airport may affect the opportunities for a station in the future..

Figure 8: Lunken Station

Issues

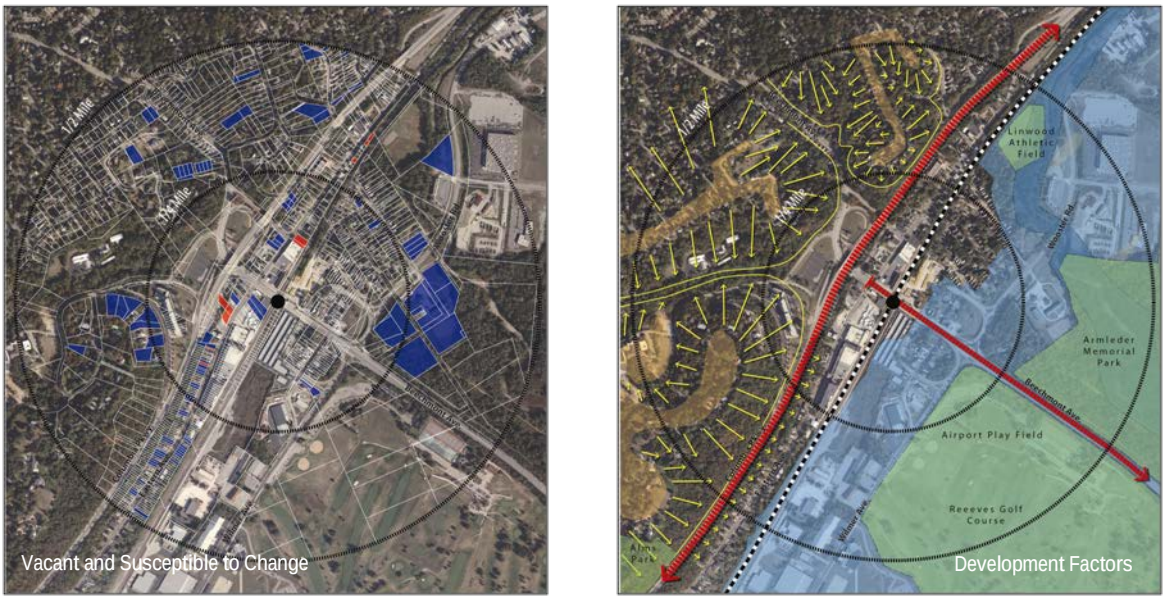
- *Station spacing w/Columbia Tusculum and Beechmont*
- *Low development potential*
    - *1/3 of station area located in runway and park/golf course*
    - *25% in parks*
    - *6% vacant or StC*
- *1/2 of station area is large lot pattern to the north and west, above Columbia Parkway*
- *Industrial uses not transit-supportive*
- *Access to station affected by*
    - *Distance from up slope development*
    - *Roadways as barriers*
    - *Slopes requiring elevator access*

Opportunities

- *Lunken Airport offers a unique use/destination*
    - *Lunken's economic impact estimated at $236M (2004)*
    - *General aviation/corporate service is stable*
    - *Adding future commuter service would enhance the station potential*
- *Area can attract more office development at selective locations*
- *Potential as Special Use station*

Beechmont Station – Located in an interesting historic setting, the station is beset with a variety of transportation infrastructure impacts and physical challenges. Much of the station's center is located under the Beechmont bridge structure. Other limitations, including its close proximity to Lunken Airport, render Beechmont a problematic station location.

Figure 9: Beechmont Station



Issues

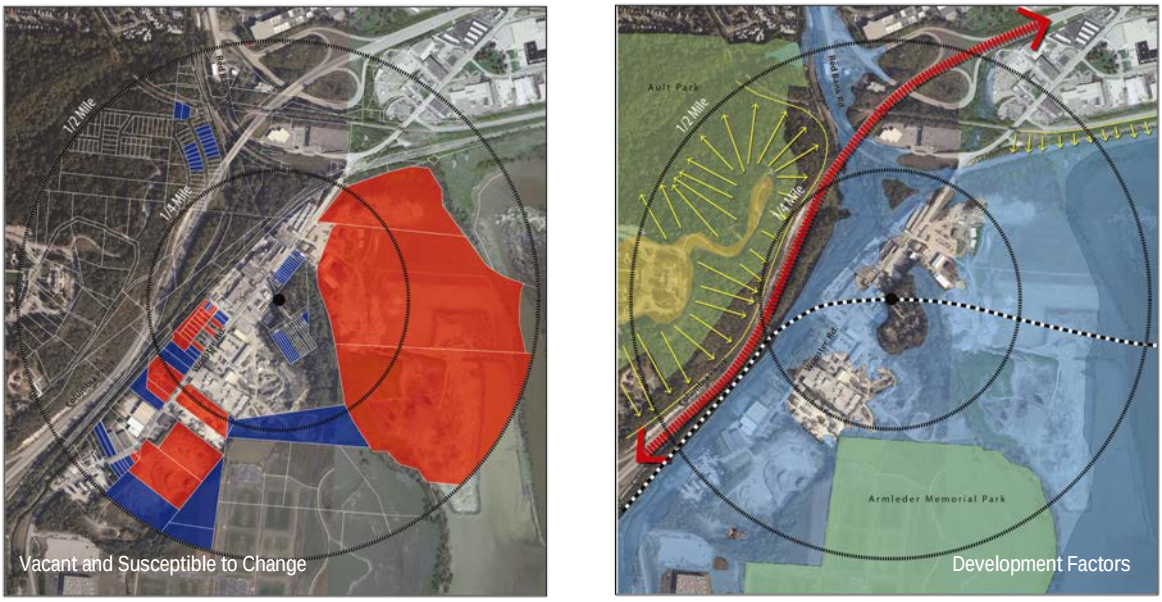
- *Major elevated highways impact development opportunities*
- *Low development potential*
  - *20% of SAP in park/golf course*
  - *Only 10% vacant or StC*
- *1/2 of station area is large lot pattern to west (up-slope)*
- *Access to station affected by*
  - *Distance from development*
  - *Roadways as barriers*
  - *Slopes requiring elevator access*
- *Extensive floodplain areas to east*

Opportunities

- *Highly accessible transportation network*
- *Interesting urban uses along Eastern Ave north and east of station*
- *Selective infill sites available*
- *Employment center along Wooster Road*

Fairfax (Red Bank) Station – Fairfax (Red Bank) is in a pivotal location because it is a "cross-roads" for east/west and north/south intermodal connections. Since the US 32 alignment is not established at the issuance of this report, there are several station location options. The station analyzed for this study is the one presented in the ROD. Further analysis will be forth-coming as the highway decision is made, since station locations may change. However, for this particular station, its highly industrial setting and topographic factors offer station planning and design challenges.

Figure 10: Fairfax (Red Bank) Station



Issues

- *Complex location due to transportation, land use, environmental and topographic conditions*
  - *Dominant uses are industrial and not transit-supportive*
  - *Extensive floodplain/topographic constraints*
- *Wasson Line is 60' above the Oasis line, complicating intermodal connectivity and transfer opportunities on this potential future rail corridor. Figure 11 shows the vertical relationship between the Oasis and Wasson lines.*
- *Columbia Parkway and railroad wye both have barrier effects*
- *Requires extensive public intervention (planning and infrastructure investment)*

Opportunities

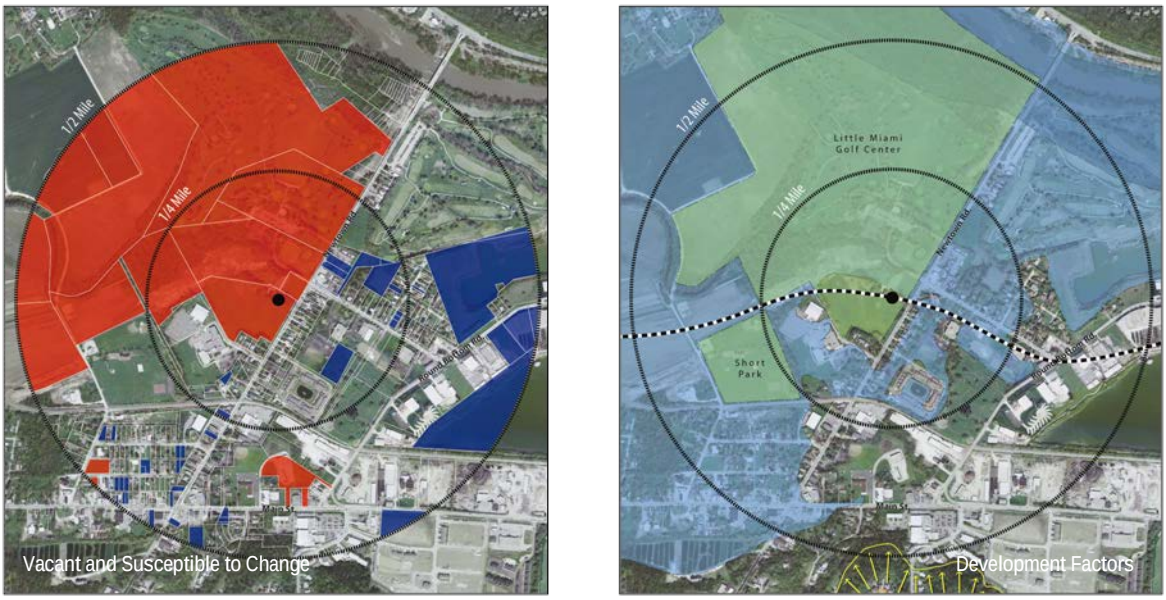
- *Proximity to Mariemont is an asset*
- *Rail lines offer potential for major multimodal/intermodal location*
- *Opportunity to improve the employment base as a regional activity center*
- *Take advantage of adaptive reuse opportunities and limited vacant properties toward the northern end of the station area*
- *High development potential*
  - *69% available*
  - *Utilize large vacant/ agricultural land for development to the east*
  - *Connect with regional park to the south*
- *Allow access to Little Miami River*

Figure 11: Wasson Line above Oasis Rail Corridor near Red Bank Road

Photo Credit: http:wassonway.org/gallery

Newtown Station – This is the first "suburban" station on the line, one with broader development potential. Like Fairfax (Red Bank), there are alternate station options. A Newtown station can build off its traditional town form to create a potentially dynamic place. The station analyzed is one of the potential US 32 alignments on Newtown Road, north of the current NS railroad tracks

Figure 12: Newtown Station



Issues

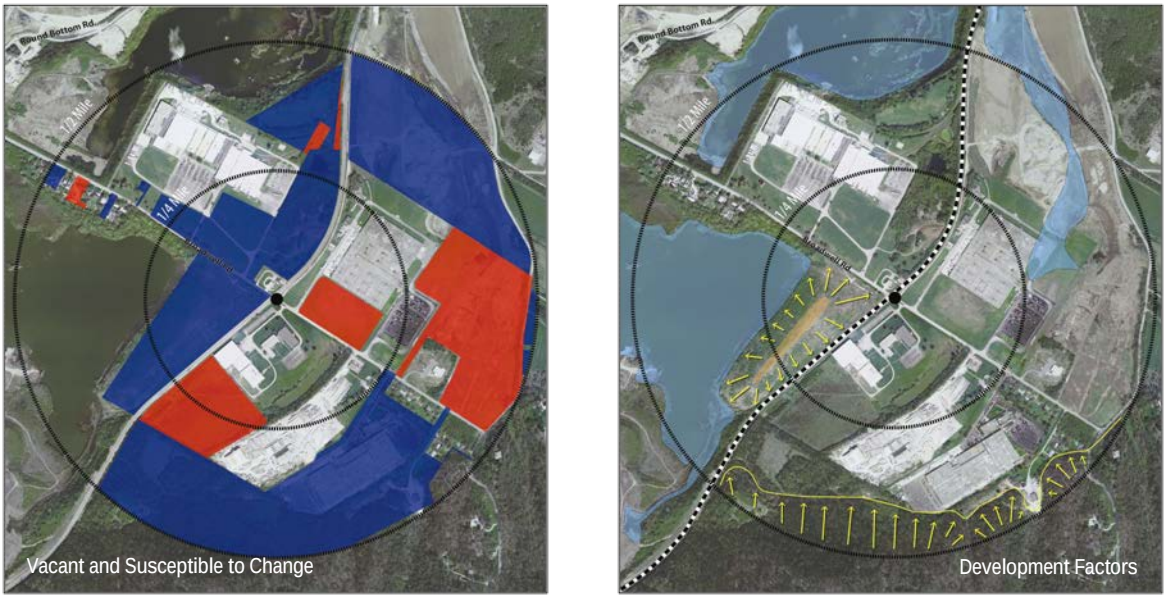
- *Highway/transit alignment not finalized through Newtown*
- *25% of station area is located in parks, golf course and public uses*
- *Extensive floodplain areas*
- *Impact on golf course undetermined*

Opportunities

- *Newtown has a traditional town pattern - supports walkability*
- *First station from downtown Cincinnati with significant development potential – nearly 50% of the station area is available*
- *Multiple station area options are possible to the north and west based on alignments to*
    - *Extend urban pattern*
    - *Develop transit-supportive uses*
- *Rail already in center of town*
- *Traditional Newtown can be enhanced with well-located station*
- *Supportive zoning provisions are in place*

Ancor Station– An immediate issue confronting Ancor is the large footprint industrial use pattern on three of the four station corners, and lake/wetlands on the fourth. Long-term, this station has the potential to become a regional employment center.

Figure 13: Ancor Station



Issues

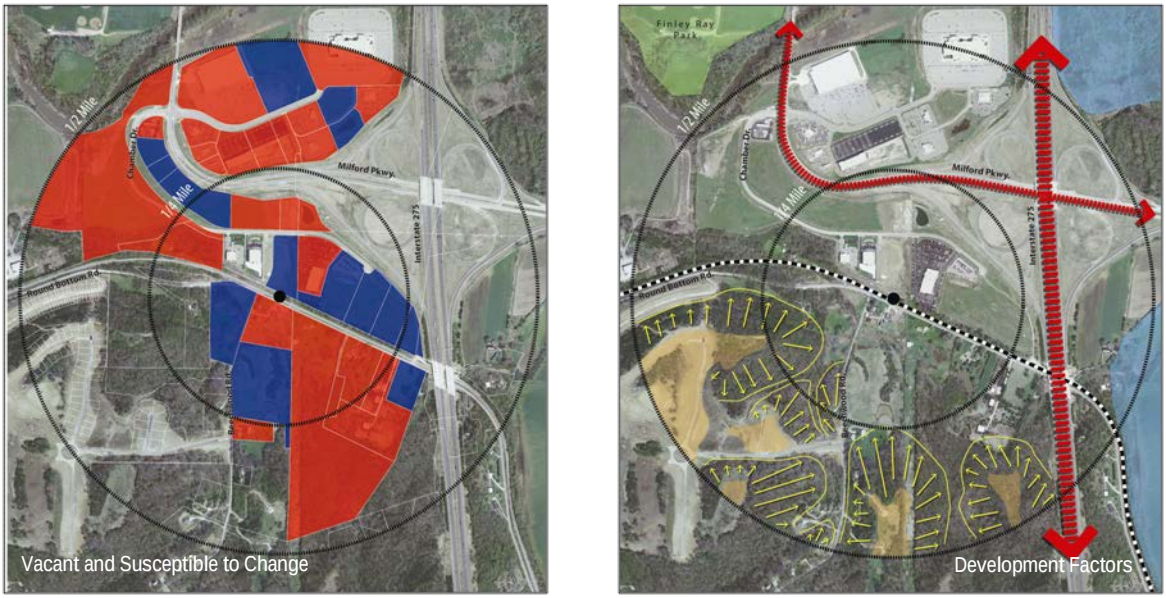
- *Extensive lake and wetlands west of tracks limits full station area development*
- *Large footprint industrial uses anchor the center of the station area*
- *Current industrial development pattern argues against near-term redevelopment*
- *Longer-term station area development for transit-supportive uses*
    - *Industrial has low ridership potential due to low employee/SF ratio*
    - *Space-intensive uses*
- *Likely lesser opportunity for residential in station area*

Opportunities

- *Larger and fewer properties are opportunities*
- *54% available for development*
- *Potential regionally-significant employment center*
    - *Office*
    - *Support commercial*
    - *Strategically-placed residential*
- *New Anderson Township comprehensive plan supports the station area employment strategy*
- *Likely less opposition to area-wide rezoning*

Milford Station – The last station offers an interesting opportunity to transform an incomplete suburban center into a mixed use, transit-supportive "core". Milford has the ability to serve as a regional, terminal location while being able to host residential, commercial and hospitality uses.

Figure 14: Milford Station



Issues

- *Interstate and off-ramps are barriers to full station area development*
- *Currently suburban-style development pattern with auto-oriented uses*
- *Heavy vegetation and steep slopes dominate southwest quad*
- *Public/private intervention/coordination required*
- *Need circulator to/from station from downtown Milford and office parks to the east.*

Opportunities

- *Recognized regional location w/visibility and accessibility from I-275*
- *66% vacant and StC properties available for proactive TOD development strategy*
- *Potential to create a walkable, mixed-use, transit-supportive activity center*
    - *Residential*
    - *Commercial*
    - *Office*
    - *Hospitality*
    - *Entertainment*
- *Good location to capture Milford to Cincinnati commuters (park & ride as part of mixed use)*

5.2 Station Development Capacity Comparison

The development capacity for each new station to grow and contribute to the success of the corridor is based on the amount of available vacant and susceptible-to-change acreage at stations. The development capacity is expressed as a percentage, calculated by dividing the total vacant and susceptible-to-change properties by the total net station area (based on the spreadsheet analysis). For comparative purposes, each station was ranked from Low to High, based on percentage of all vacant and susceptible-to-change properties available - Low (6%-20%), Medium (21%-50%) and High (50% +). The results are shown in Figure 15.

Figure 15: Summary Station Development Capacity Summary

Station	TOTAL NET 1/2 Mile (~ 502 acres)*	Vacant 1/4 mile (acres)	Vacant 1/2 mile (acres)	Vacant TOTAL	STC 1/4 mile (acres)	STC 1/2 mile (acres)	STC TOTAL	Vacant/STC TOTAL	Percentage Vacant/STC
Boathouse	147	3.9	13.9	17.8	0.8	2.28	3.08	**20.88**	**14.2**
East End	296	5.7	19.9	25.6	0.2	0.3	0.5	**26.1**	**8.8**
Columbia Tusculum	294	18.9	40.3	59.2	6.2	7.9	14.1	**73.3**	**24.9**
Lunken Airport	250	4.9	11.8	11.8	1.8	2	3.8	**15.6**	**6.2**
Beechmont	362	6.2	27.1	33.3	1.1	1.2	2.3	**35.6**	**9.8**
Red Bank	270	7.3	27	34.3	22	128.7	150.7	**185**	**68.5**
Newtown (Existing Track)	463	4.6	45.1	49.7	4.3	49.2	53.5	**103.2**	**22.3**
Newtown (B) **	486	6.5	44.1	50.6	59.7	126.4	186.1	**236.7**	**48.7**
Ancor	396	16.5	121.4	137.9	14.6	61.1	75.7	**213.6**	**53.9**
Milford	422	38.2	59.8	98	39.4	141.6	181	**279**	**66.1**

Based on the analysis, the stations with the lowest ranking are Boathouse, East End, Lunken, and Beechmont. Conversely, the highest ranked stations were Fairfax (Red Bank), Ancor, and Milford, with Newtown just under the threshold for High. This ranking reflects and supports the anticipated regional service that focuses on moving the suburban riders to downtown Cincinnati.

6.0 Station Types and Elements

Based on the regional approach to transit service, three station types were developed. Each has specific characteristics, role and function. In addition, stations share common elements to give riders a sense of place, safety and convenience.

6.1 Station Types

The three station types proposed for the Oasis line are shown o=in Figure 15 and include:

- *Regional-serving*
- *District-serving*
- *Community-serving*

Regional-serving Stations

This is the largest scale station type and typically an “end-of-the-line” station. Regional serving means it has major intercept points and offers modal interchange and service functions. In addition, it has bus/transit staging, along with the largest Park & Ride lots, especially at the eastern terminus. These stations have limited walk-up riders but may have bike-up riders. From a land use perspective, these stations are more likely to host high intensity/density mixed use development. In all cases, the local plans and codes will guide the planning for mixed use development. The Regional-serving station, as with the other two types, can be a Special Use station to accommodate special events.

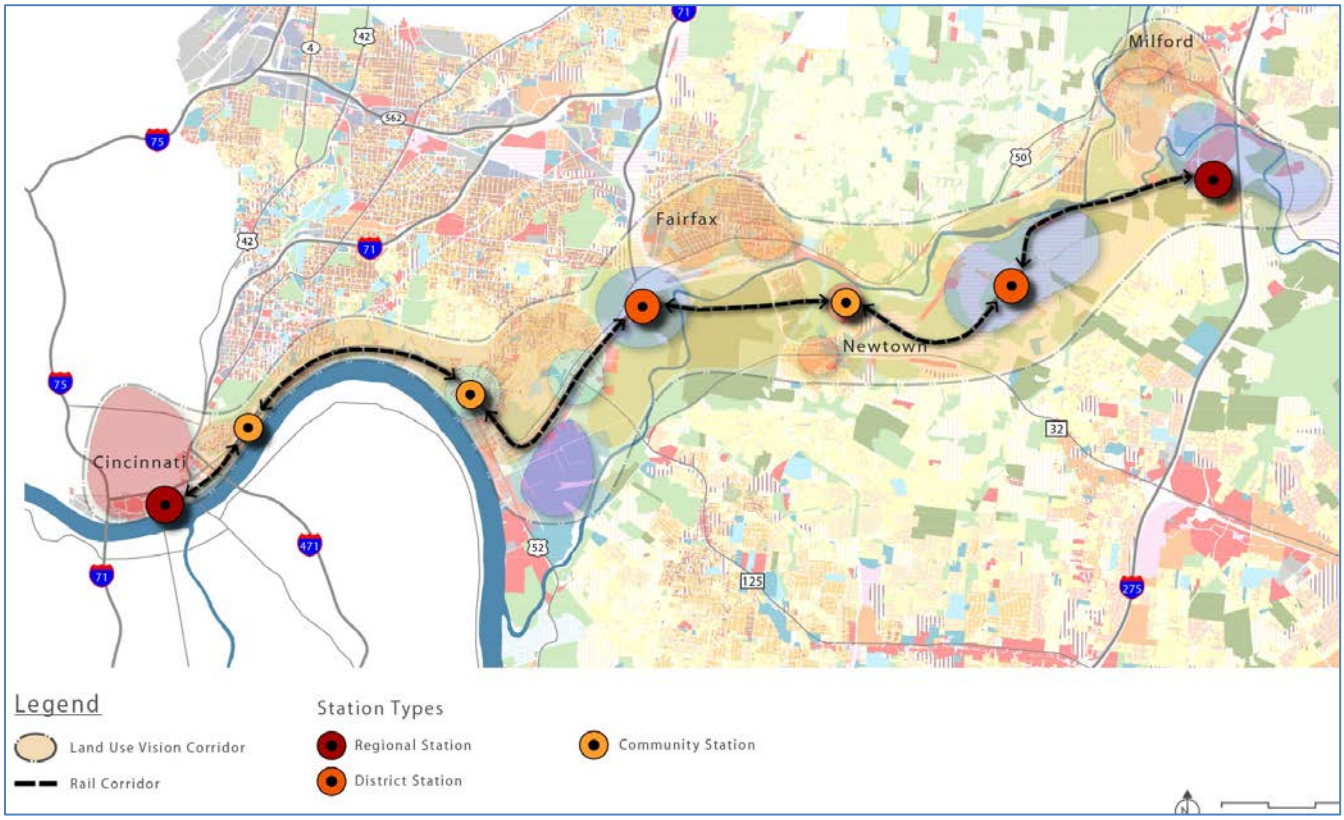
District-serving Stations

The mid-level station has a sub-regional function and is connected by freeways, arterials and main bus routes. It also serves as a major bus/rail transfer point. While it will have Park & Ride lots, they will not be as large as the Regional ones; they will have limited walk-up riders but can expect bike-up riders. High-to-moderate intensity/density mixed use development is expected at these locations. In all cases, the local plans and codes will guide the planning for mixed use development. The District-serving station, as with the other two types, can be a Special Use station to accommodate special events.

Community-serving Stations

The last station type is still a significant station, and it has the added benefit of being able to provide an important community focal point. It is served by major arterials and lower modal transfers are expected. The station is served by feeder bus system, and, as opposed to the Regional and District stations, has a high walk-up/walk-up riders. Park & Ride lots are more limited. For land use, moderate intensity/density mixed use development is anticipated. In all cases, the local plans and codes will guide the planning for mixed use development. The District station, as with the other two types, can be a Special Use station to accommodate special events.

Figure 16 Recommended Station Types by Location



6.2 Station Elements

For each station, common design elements are employed. These elements give predictability, continuity, and a sense of security for passengers who might use multiple stations. Of equal importance is their integration within the context of the individual community. Station elements include:

- A civic or public space identifies the station as a special place for the community. The space can have either a hardscape and/or landscape style design - but it should fit within the specific community. An important function is to serve as a local gathering place and enhancing security by creating additional "eyes-on-the-street".
- A properly-sized platform is required to meet the requirements of the selected transit vehicle. The platform should be located on a straight track segment. Shelters are part of the platform, and the design should reflect the community's character.
- Off-board ticket machine, lighting, Next Train communication technologies, benches, lean rails, banners, trash receptacles, and an information kiosk.

7.0 Station Evaluation Process

The final step in the Station Analysis process is to develop a rating/ranking system to identify those stations that are most appropriate in response to two factors - the proposed regional service system and at start up. Under any scenario, the Riverfront Transit Center (RTC) will be utilized, so it is not included in the evaluation matrix.

7.1 Rating Factors

A matrix approach is utilized, and it has a set of nine factors. The evaluation factors were chosen because of their value and contribution to a composite finding. The summary results are shown in Figure 16. There are multiple evaluation features within the set of factors. Each is identified in the description following.

Some factors are independent of the station analysis itself. For example, ridership and planning and zoning considerations are from other study components. The intent of the evaluation is to identify the most appropriate set of stations to meet the start-up goal. Each is described, and in some cases, supporting data are found in referenced Appendices.

Factor 1 - Supports the Oasis Corridor Land Use Vision

Since the intent of the Oasis proposal is to align land use and transit, and a vision plan was cast for the corridor, each station will play its desired role. The rating was "Yes" or "No". In every case, the result is "Yes".

Factor 2 – Reflects Livability Principles

As introduced earlier in this document, the federal new Partnership for Sustainable Communities adopted six Livability Principles. Stations were evaluated as to which Principles were evident in each. If a station reflected two principles, it was rated as "Low"; up to four principles, it was rated "Medium"; up to six principles, it was rated "High".

Factor 3 - Consistency with local plans/zoning

The earlier technical report, *Existing and Future Conditions*, described the comprehensive land use plans or zoning districts for each jurisdiction. Those results were summarized as a "Yes" or "No", with the intent of determining their level of transit-supportiveness.

Factor 4 – Appropriate Station Spacing

Station spacing is an important fact for two reasons. First, for regional transit the standard for station spacing is between 2 and 5 miles. Closer spacing limits effective vehicle performance. Secondly, the greater the number of stations on a line, the slower the end-to-end travel time will be due to more stops. For this factor, the actual distance from the neighboring stations is listed. Station spacing most consistent with the 2 to 5 mile standard is considered more positive.

Factor 5 – Station Development Capacity (within the 1/2 mile radius)

Since one of the goals is to link land use and transit as a means of increasing ridership and stimulating economic development, the capacity of each station is critical. Within the ½ mile radius, there are 500 acres, so the higher the capacity the better. For Oasis, there are a number of close-in Cincinnati stations that are limited by their proximity to the river, and often one-half of the potential station area is not available for development. The results of the vacant and susceptible–to-change analyses presented earlier were used to rank each station's capacity (See Appendix C). Percentages in the 6% to 20% range are considered "Low"; the 21% to 50% range was considered "Medium"; the 51%+ range was considered "High".

Factor 6 – Bus and Bicycle Accessibility

Bus and Bicycle access helps to improve ridership at stations by creating more mobility choice. Using the recommended Transportation Improvements for Tier 2 Evaluation (in the Tier 1 EIS) as the basis of evaluation, stations were rated "Low", "Medium", or "High". The rating is based on the increasing incidence of existing or proposed new bus and bicycle routes. Several stations can be characterized as "hubs", where the two transit-supportive modes coincide. The Transportation Improvements map is found in Appendix D.

Factor 7 – Multi-modal/Inter-modal Potential

While similar to Factor 6, the orientation here is to existing or potential connections with other rail or railroad facilities. This is a future-oriented factor that can help strengthen Oasis and foster more regional connectivity. Based on the coincidence of existing or planned facilities, stations are rated "Low", "Medium", or "High" with respect to intermodal connectivity.

Factor 8 – 2035 Ridership Estimates

Stations will have variable ridership draws based on current and future population characteristics, development capacity, the proposed service and schedule, and travel demand conditions. The estimated 2035 ridership is shown in Figure 16, by system and by station, and defines this factor. As shown, the ridership forecast corresponds to the proposed regional service – with higher boardings in the more suburban locations and lower boarding closer to downtown Cincinnati. More detailed ridership information is found in Appendix C.

Factor 9 – Constraints on Pedestrian Access to Stations

In addition to some station areas being limited due to location, there are specific conditions that further compound several stations' ability for riders to access stations on foot. Instead of "rating" each, a list of discrete factors is identified and applied to stations, as applicable. Topography is critical in five of the first six stations closest to downtown Cincinnati. Sharp topographic features mean that vertical circulation (elevators) is necessary and becomes a capital cost issue. Other factors are direct or disconnected pedestrian access; density of existing pattern; and roadways that serve as impediments or barriers to pedestrian access.

7.2 Composite Results

The Composite Results represents how the combination of the nine factors supported a particular station as part of the initial start-up. The results are shown in Figure 16. Based on the evaluation of the stations against the factors, the priority stations for start-up include:

- *RTC*

- *Columbia Tusculum*
- *Fairfax (Red Bank)*
- *Newtown*
- *Milford*

Overall, Ancor has positive results across most indicators. For start-up, however, the station currently does not have transit-supportive land uses, but could be an important park-and-ride based station. Phase 2 of the Oasis study will focus on this station's capacity and potential for development.

Two other stations, the Boathouse and Lunken, are designated Special Use stations to meet specific situations. They are not daily-use stations. The Boathouse is located central to the International Friendship Park, and it is reserved for major public gatherings. The basic rating for Lunken does not rise to the level of a daily-use station. In the next phase, Lunken will receive further evaluation depending on the role of the airport.

Figure 17 Oasis Station Evaluation Composite Results

Station	Oasis Corridor Vision	Livability Principles[8]	Planning / Zoning	Approximate Station Spacing (miles)[2]	Development Potential within 1/2 mile buffer (acres)[3]	Bus /Bike Access to Station[4]	Multimodal Potential[5]	2030 Ridership Forecast[6]	Constraints on Access to Station	Composite Results: Recommended Initial Stations
RTC	Yes	High	Yes	0.0	High	High	High	1,720	None	✓
Boathouse[7]	Yes	Med	No	1.0	Low 21/147 (14%)	Low	Low		Distance, pattern, topo, roadways	✓
East End	Yes	Low	Yes	2.0	Low 26/296 (9%)	Low	Low		Distance, pattern, topo, roadways	
Columbia-Tusculum	Yes	Med	Yes	1.4	Medium 73/294 (25%)	Medium	Medium	220	Distance, topo, roadways	✓
Lunken Airport[7]	Yes	Low	Yes	1.5	Low 16/250 (6%)	Low	Low		Distance, topo, roadways	
Beechmont	Yes	Med	Yes	0.7	Low 36/362 (10%)	Low	Low		Distance, pattern, topo, roadways	
Fairfax (Red Bank)	Yes	Med	Yes	1.5	Low 185/270 (69%)	Low	Low	410	Distance, pattern, topo, roadways	✓
Newtown	Yes	High	Yes	2.0	Medium 237/486 (49%)	High	High	360	None	✓
Ancor	Yes	Low	No[1]	2.7	Low 21/147 (14%)	High	Low	290	None	✓
Milford	Yes	High	Yes	3.3	Low 21/147 (14%)	High	High	440	Distance, pattern, topo, roadways	✓
Notes:										
1. Under threshold due to number of industrial parcels.										
2. Desired station spacing is 2-5 miles.										
3. Percent is calculated by dividing the potential developable area by the total net area. Based on low (6-20%), medium (21-50%) and high (50%+).										
4. Access to station is based on bus and bike master plans.										
5. 'Intermodal Potential' is based on other transit connections in the vicinity of the station.										
6. Projections show daily boardings, both inbound and outbound under "Six Station" Scenario described in the Conceptual Alternative Solutions report (V12, November 2013)										
7. Boathouse and Lunken Airport can be special-use stations.										
8. Low = Meets up to 2 Liveability Principles. Medium = Up to 4 principles. High = Up to 6 principles.										

Appendix A
Livability Principles

HUD, DOT and EPA Partnership: Sustainable Communities

June 16, 2009

U.S. Department of Housing and Urban Development (HUD) Secretary Shaun Donovan, U.S. Department of Transportation (DOT) Secretary Ray LaHood, and U.S. Environmental Protection Agency (EPA) Administrator Lisa Jackson today announced a new partnership to help American families in all communities – rural, suburban and urban – gain better access to affordable housing, more transportation options, and lower transportation costs.

Earlier this year, HUD and DOT announced an unprecedented agreement to implement joint housing and transportation initiatives. With EPA joining the partnership, the three agencies will work together to ensure that these housing and transportation goals are met while simultaneously protecting the environment, promoting equitable development, and helping to address the challenges of climate change.

DOT, HUD and EPA have created a high-level interagency partnership to better coordinate federal transportation, environmental protection, and housing investments and to identify strategies that:

- **Provide more transportation choices**. Develop safe, reliable and economical transportation choices in order to decrease household transportation costs, reduce our nations' dependence on foreign oil, improve air quality, reduce greenhouse gas emissions and promote public health.
- **Promote equitable, affordable housing**. Expand location and energy efficient housing choices for people of all ages, incomes, races and ethnicities to increase mobility and lower the combined cost of housing and transportation.
- **Increase economic competitiveness**. Enhance economic competitiveness through reliable and timely access to employment centers, educational opportunities, services and other basic needs by workers as well as expanded business access to markets.
- **Support existing communities**. Target federal funding toward existing communities to increase community revitalization, the efficiency of public works investments and safeguard rural landscapes.
- **Leverage federal investment**. Cooperatively align federal policies and funding to remove barriers, leverage funding and increase the accountability and effectiveness of all levels of government to plan for future growth.
- **Value communities and neighborhoods**. Enhance the unique characteristics of all communities by investing in healthy, safe and walkable neighborhoods – rural, urban or suburban.

The HUD/DOT/EPA partnership will:

- **Enhance integrated planning and investment**. The partnership will seek to integrate housing, transportation, water infrastructure, and land use planning and investment. HUD, EPA, and DOT propose to make planning grants available to metropolitan areas, and create mechanisms to ensure those plans are carried through to localities.
- **Provide a vision for sustainable growth**. This effort will help communities set a vision for sustainable growth and apply federal transportation, water infrastructure, housing and other investments in an integrated approach that reduces the nation's dependence on foreign oil, reduces greenhouse gas emissions, protects America's air and water and improves quality of life. Coordinating planning efforts in housing, transportation, air quality and water – including planning cycles, processes and geographic coverage – will make more effective use of federal housing and transportation dollars.
- **Redefine housing affordability and make it transparent**. The partnership will develop federal housing affordability measures that include housing and transportation cost and other expense that are affected by

location choices. Although transportation costs now approach or exceed housing costs for many working families, federal definitions of housing affordability do not recognize the strain of soaring transportation costs on homeowners and renters who live in areas isolated from work opportunities and transportation choices. The partnership will redefine affordability to reflect those costs, improve consideration of the cost of utilities and provide consumers with enhanced information to help them make housing decisions.

- **Redevelop underutilized sites**. The partnership will work to achieve critical environmental justice goals and other environmental goals by targeting development to locations that already have infrastructure and offer transportation choices. Environmental justice is a particular concern in areas where disinvestment and past industrial use caused pollution and a legacy of contaminated or abandoned sites. This partnership will help return such sites to productive use.
- **Develop livability measures and tools**. The partnership will research, evaluate and recommend measures that indicate the livability of communities, neighborhoods and metropolitan areas. These measures could be adopted in subsequent integrated planning efforts to benchmark existing conditions, measure progress toward achieving community visions and increase accountability. HUD, DOT and EPA will help communities attain livability goals by developing and providing analytical tools to evaluate progress as well as state and local technical assistance programs to remove barriers to coordinated housing, transportation and environmental protection investments. The partnership will develop incentives to encourage communities to implement, use and publicize the measures.
- **Align HUD, DOT and EPA programs**. HUD, DOT and EPA will work to assure that their programs maximize the benefits of their combined investments in our communities for livability, affordability, environmental excellence, and the promotion of green jobs of the future. HUD and DOT will work together to identify opportunities to better coordinate their programs and encourage location efficiency in housing and transportation choices. HUD, DOT and EPA will also share information and review processes to facilitate better-informed decisions and coordinate investments.
- **Undertake joint research, data collection and outreach**. HUD, DOT and EPA will engage in joint research, data collection, and outreach efforts with stakeholders, to develop information platforms and analytic tools to track housing and transportation options and expenditures, establish standardized and efficient performance measures, and identify best practices.

Appendix B
Vacant Susceptible to Change and Development Factors

Boathouse Station

1/4 Mile and 1/2 Mile Radius From Potential Station Location

Potential Station Location

Susceptible to Change

Vacant

N

0′ 500′ 1000′ 2000′

Boathouse Station

1/4 Mile and 1/2 Mile Radius From Potential Station Location

Potential Station Location

Rail Corridor

Floodway

100 year Floodplain

Barriers

Public Owned

High Points

Green Space/Park

N

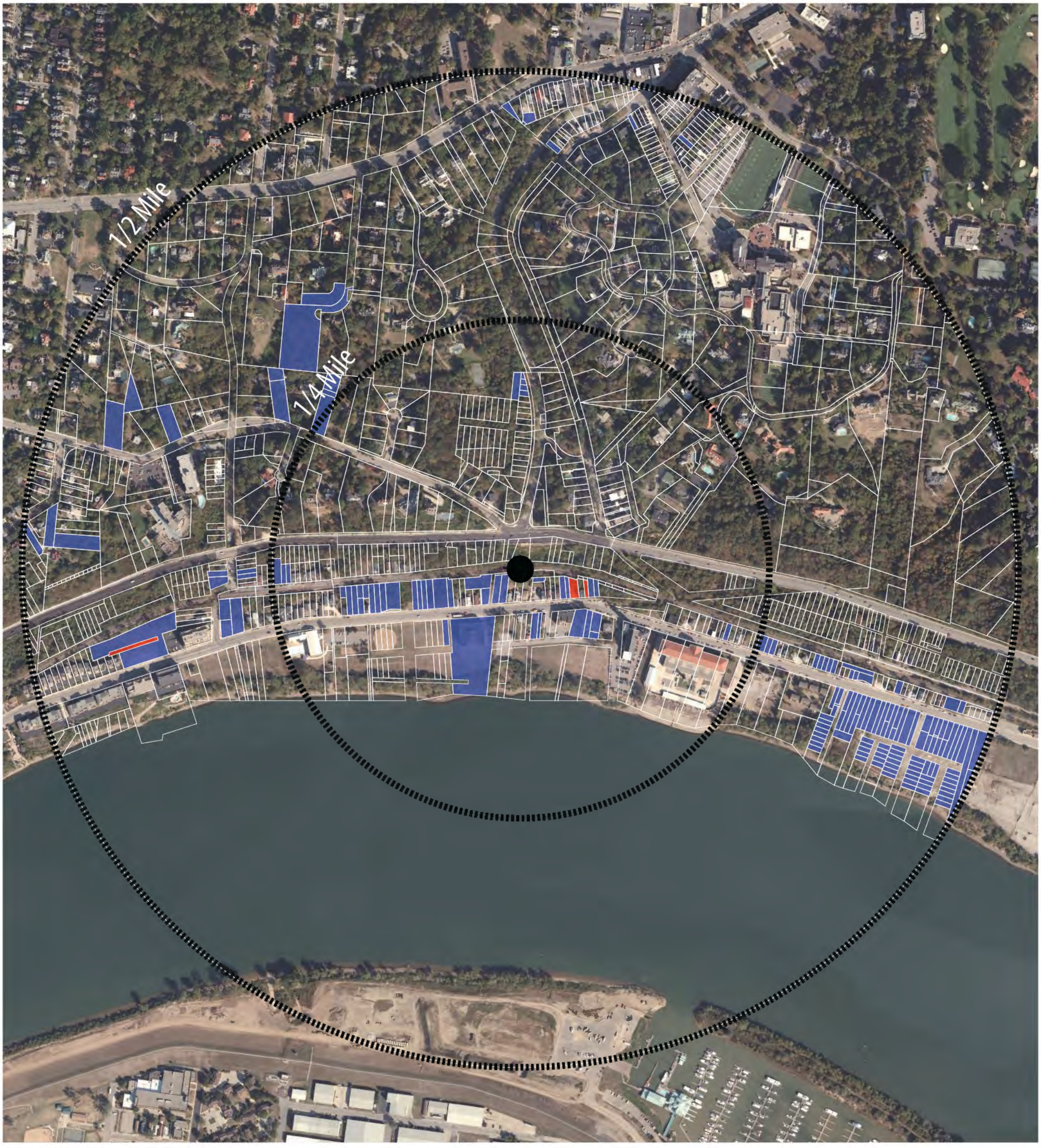
0′ 500′ 1000′ 2000′

Boathouse Station

Vacant & Underutilized Lands (HDR Estimate)

	Within 1/4 Mile	Within 1/2 Mile
Land w Dev Potential (vacant)	3.9	13.9
Land w Dev Potential (STC)	0.8	2.28
Street/Public Space Factor	0%	
Net Land w Dev Potential	4.7	16.18

East End Station



1/4 Mile and 1/2 Mile Radius From Potential Station Location

Potential Station Location

Susceptible to Change

Vacant

Public Owned

Green Space/Park

N

0′ 500′ 1000′ 2000′

1/4 Mile and 1/2 Mile Radius From Potential Station Location

Potential Station Location

Rail Corridor

Floodway

100 year Floodplain

Barriers

Steep Slopes

High Points

Green Space/Park

N

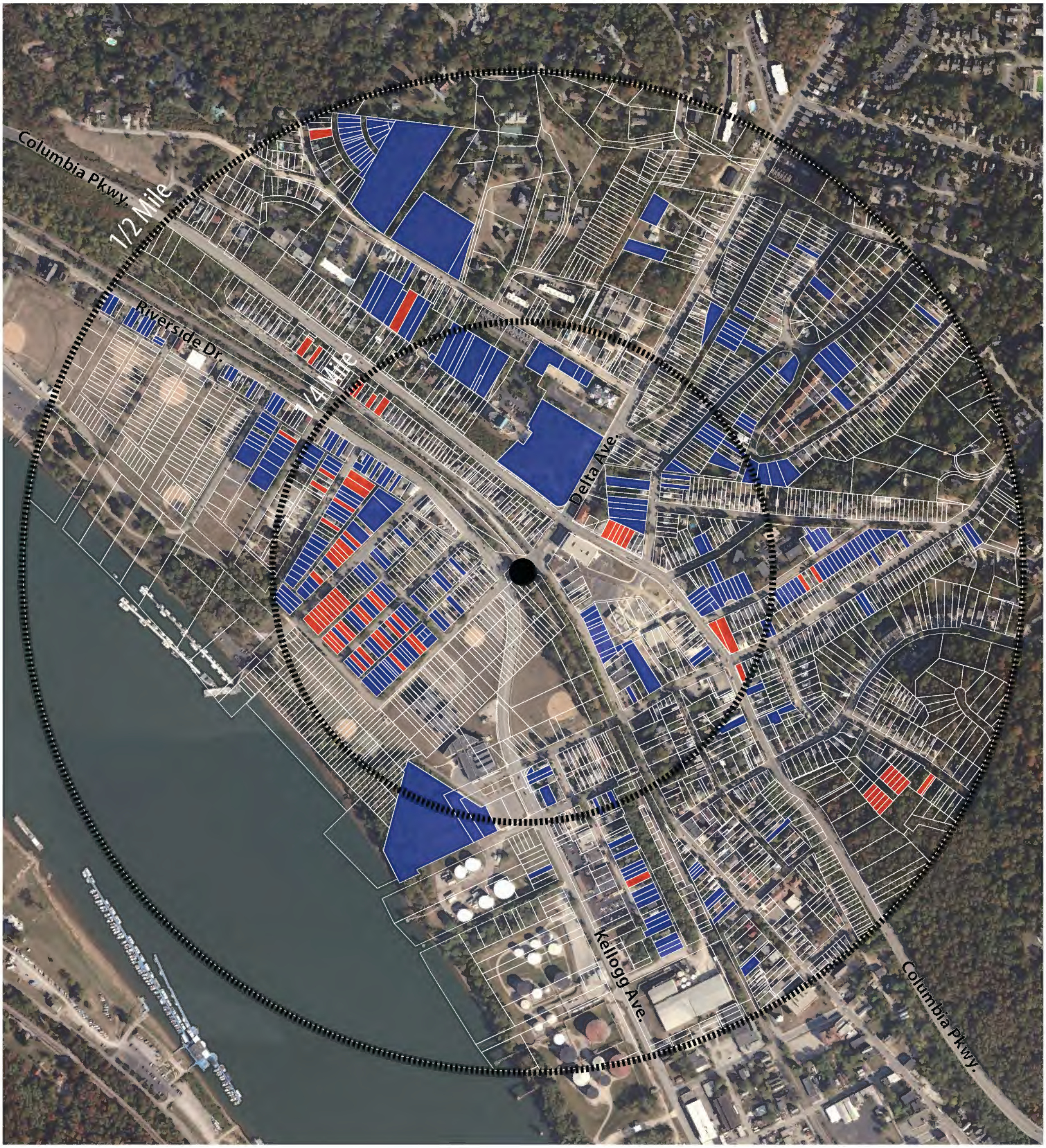
0′ 500′ 1000′ 2000′

East End Station

Vacant & Underutilized Lands (HDR Estimate)

	Within 1/4 Mile	Within 1/2 Mile
Land w Dev Potential (vacant)	5.7	19.9
Land w Dev Potential (STC)	0.2	0.3
Street/Public Space Factor	0%	
Net Land w Dev Potential	5.9	20.2

Columbia Tusculum Station



1/4 Mile and 1/2 Mile Radius From Potential Station Location

Potential Station Location

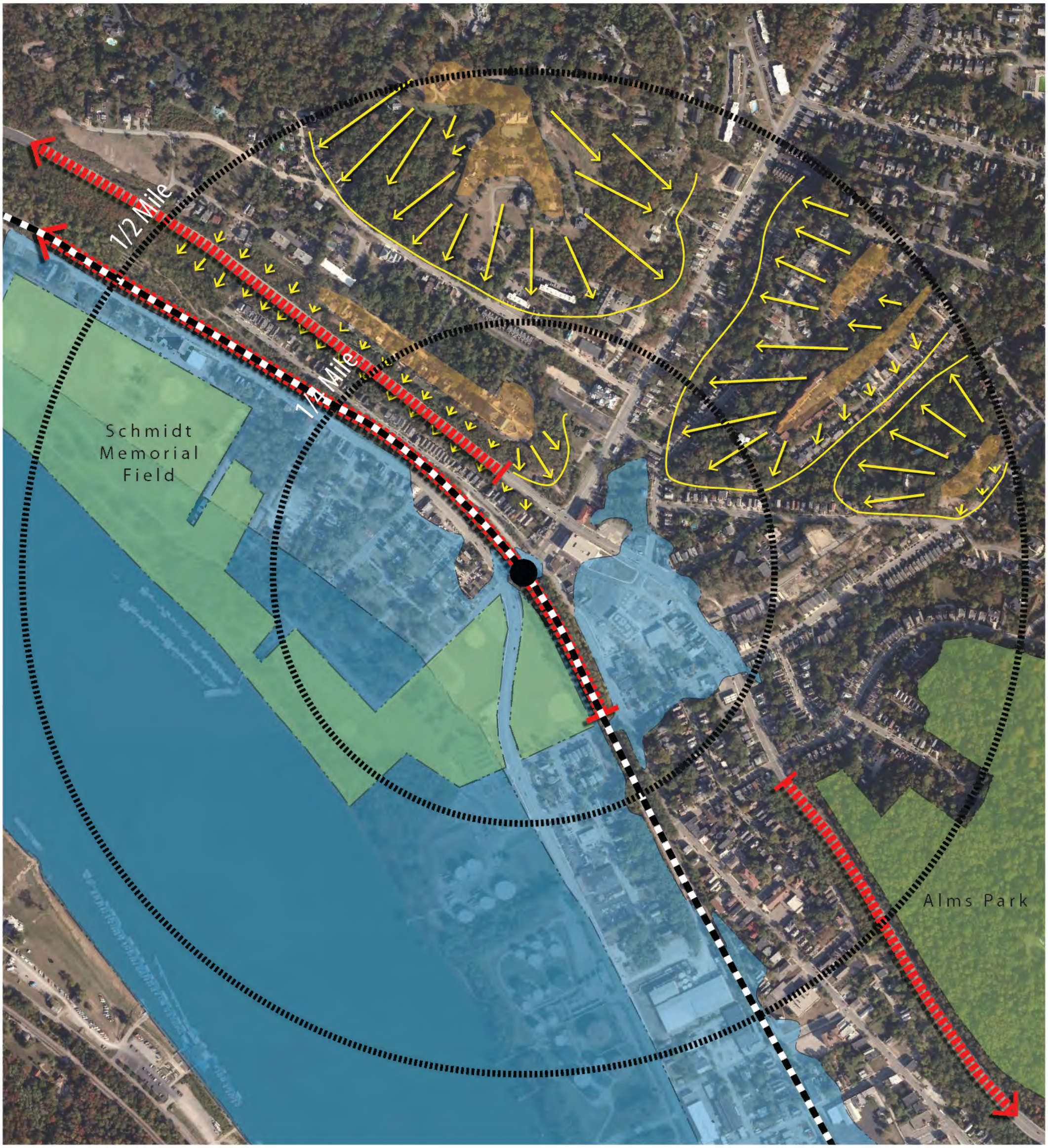
Susceptible to Change

Vacant

N

0′ 500′ 1000′ 2000′

Columbia Tusculum Station



1/4 Mile and 1/2 Mile Radius From Potential Station Location

Potential Station Location

Rail Corridor

Floodway

100 year Floodplain

Barriers

Public Owned

High Points

Green Space/Park

N

0′ 500′ 1000′ 2000′

Columbia Tusculum Station

Vacant & Underutilized Lands (HDR Estimate)

	Within 1/4 Mile	Within 1/2 Mile
Land w Dev Potential (vacant)	18.9	40.3
Land w Dev Potential (STC)	6.2	7.9
Street/Public Space Factor	0%	
Net Land w Dev Potential	25.1	48.2

Lunken Airport Station

1/4 Mile and 1/2 Mile Radius From Potential Station Location

Potential Station Location

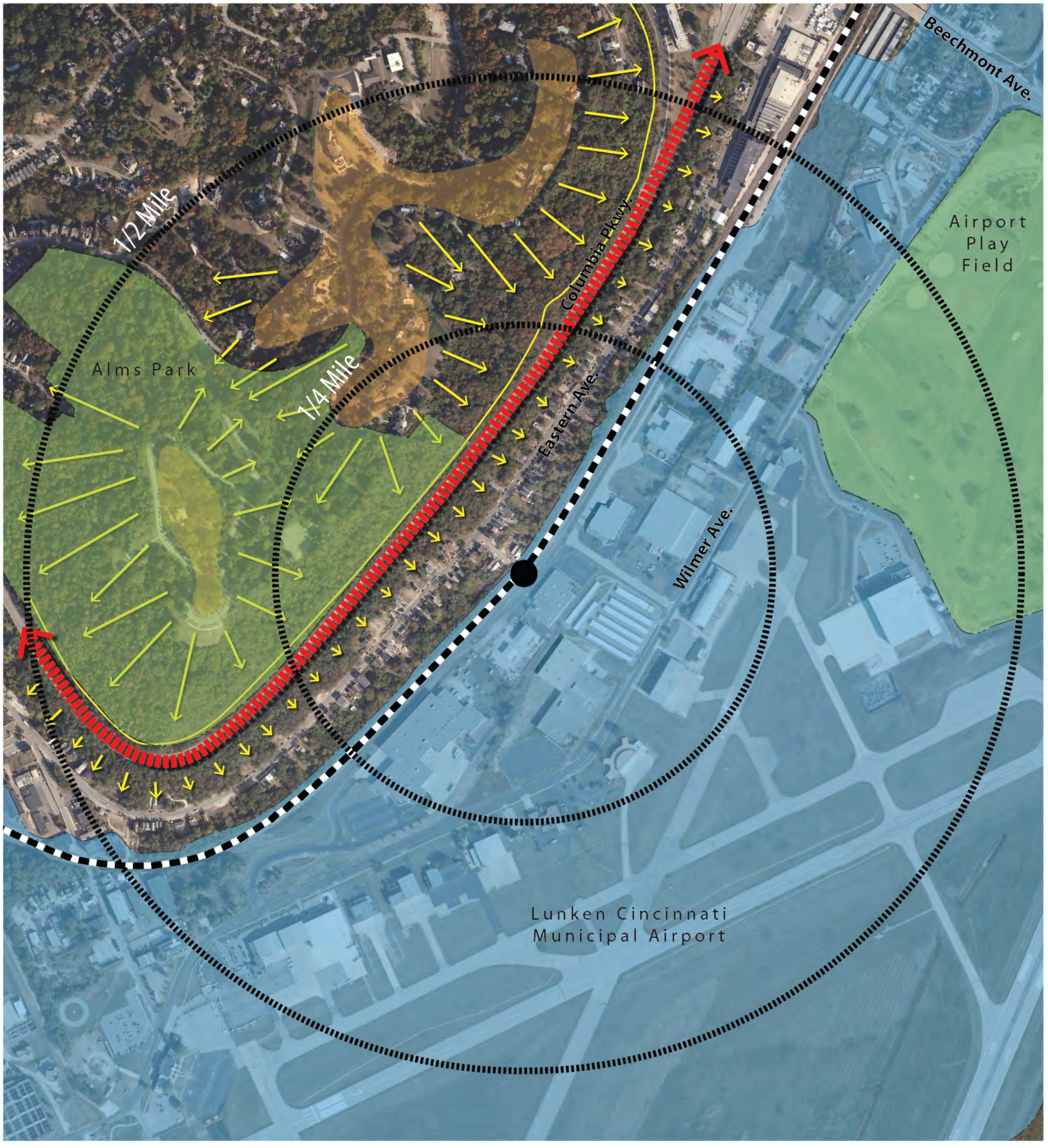
Susceptible to Change

Vacant

N

0′ 500′ 1000′ 2000′

Lunken Airport Station



1/4 Mile and 1/2 Mile Radius From Potential Station Location

Potential Station Location

Rail Corridor

Floodway

100 year Floodplain

Barriers

Public Owned

High Points

Green Space/Park

N

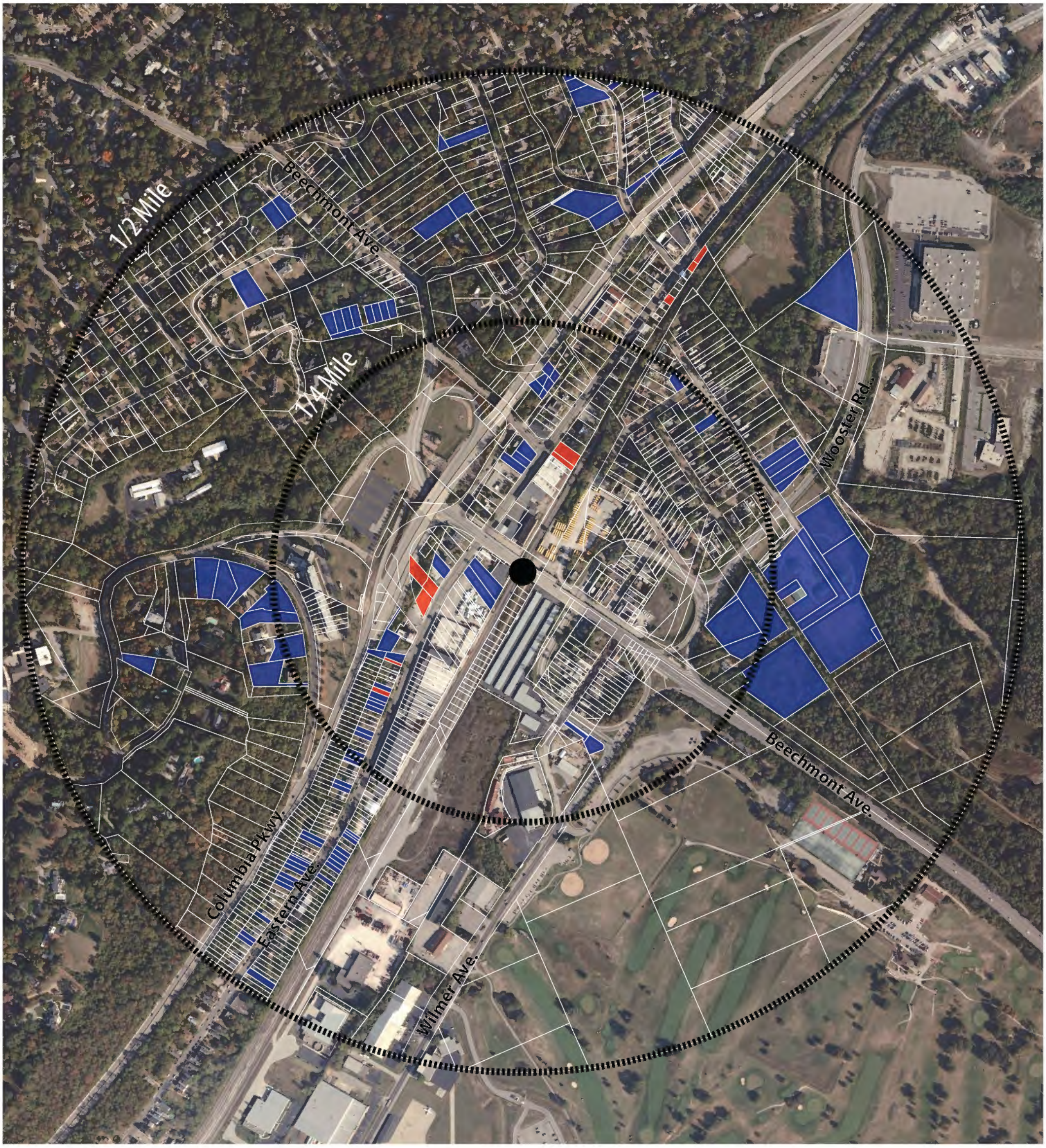
0′ 500′ 1000′ 2000′

Lunken Station

Vacant & Underutilized Lands (HDR Estimate)

	Within 1/4 Mile	Within 1/2 Mile
Land w Dev Potential (vacant)	4.9	11.8
Land w Dev Potential (STC)	1.8	2
Street/Public Space Factor	0%	
Net Land w Dev Potential	6.7	13.8

Beechmont Station



1/4 Mile and 1/2 Mile Radius From Potential Station Location

Potential Station Location

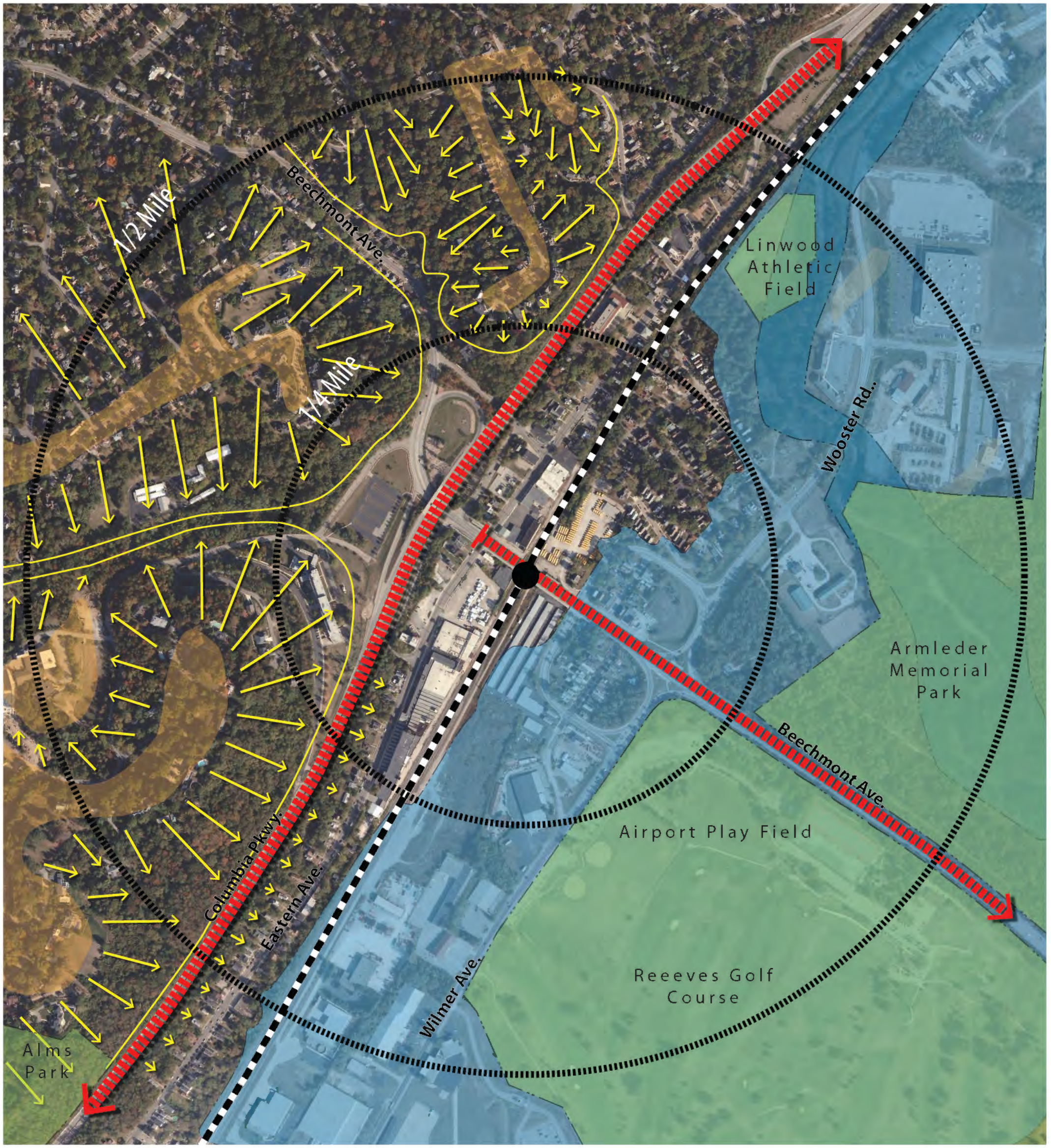
Susceptible to Change

Vacant

N

0′ 500′ 1000′ 2000′

Beechmont Station



1/4 Mile and 1/2 Mile Radius From Potential Station Location

Potential Station Location

Rail Corridor

Floodway

100 year Floodplain

Barriers

Public Owned

High Points

Green Space/Park

N

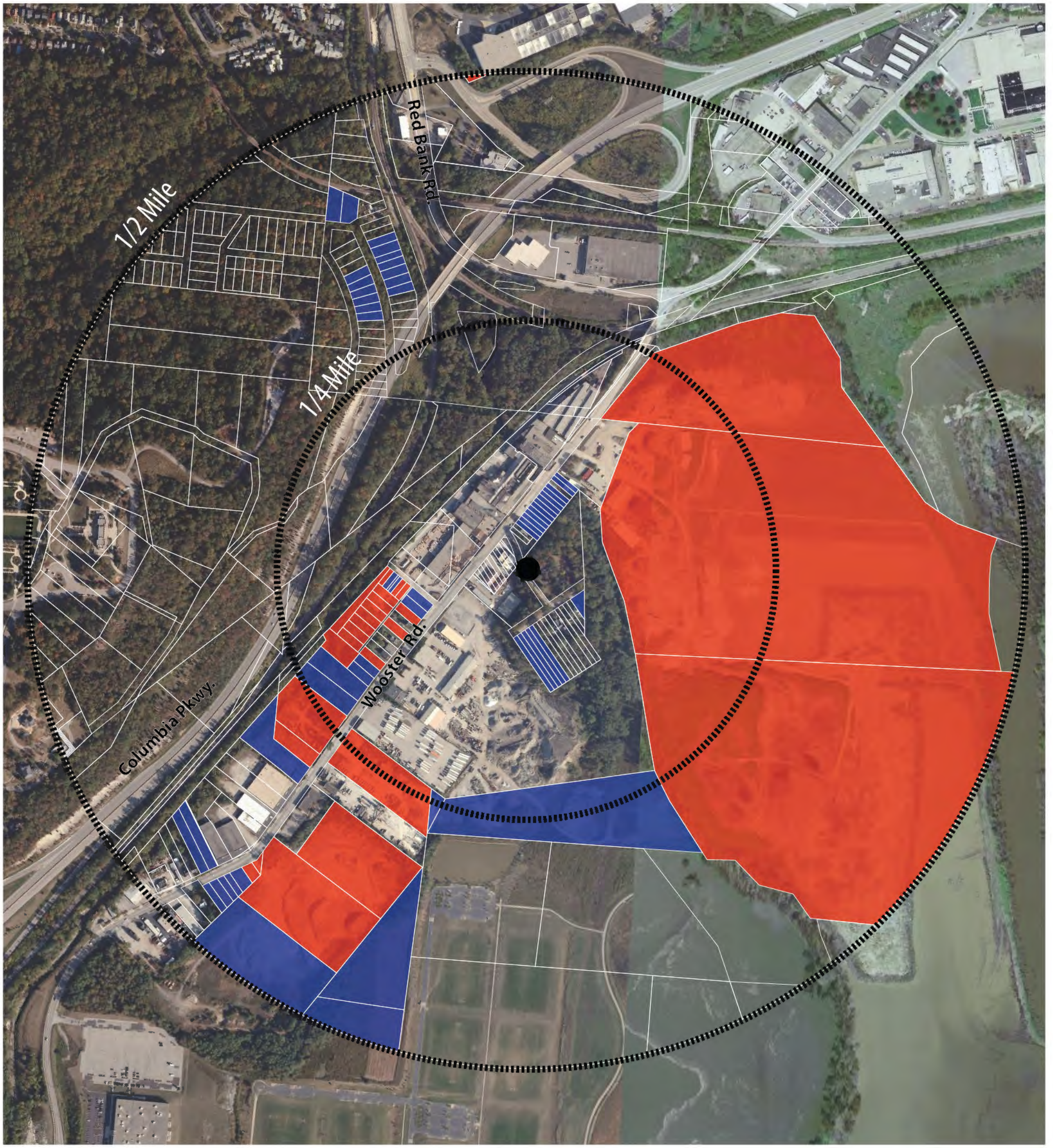
0′ 500′ 1000′ 2000′

Beechmont Station

Vacant & Underutilized Lands (HDR Estimate)

	Within 1/4 Mile	Within 1/2 Mile
Land w Dev Potential (vacant)	6.2	27.1
Land w Dev Potential (STC)	1.1	1.2
Street/Public Space Factor	0%	
Net Land w Dev Potential	7.3	28.3

Fairfax Station



1/4 Mile and 1/2 Mile Radius From Potential Station Location

Potential Station Location

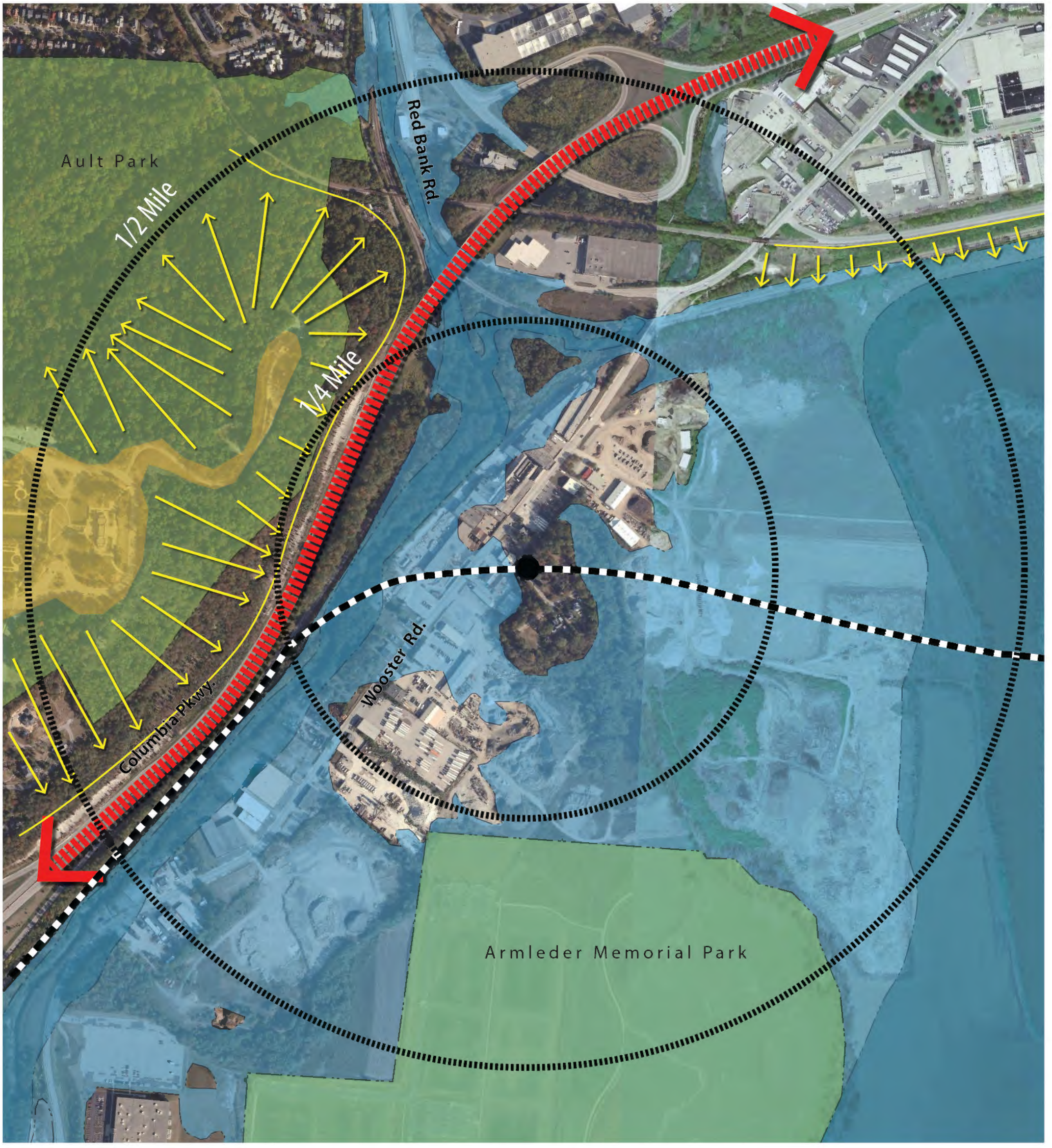
Susceptible to Change

Vacant

N

0′ 500′ 1000′ 2000′

Fairfax Station

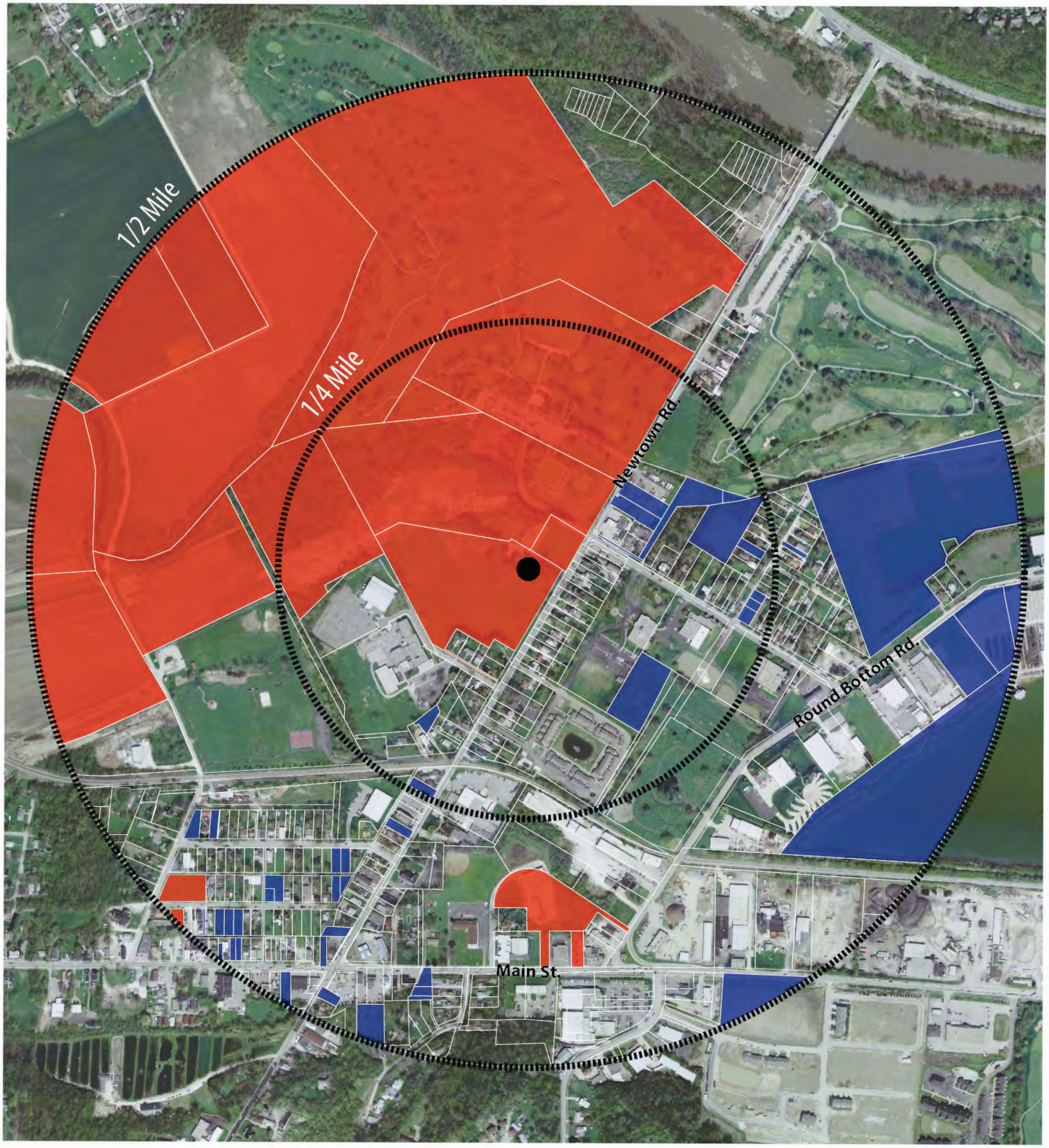


Red Bank Station

Vacant & Underutilized Lands (HDR Estimate)

	Within 1/4 Mile	Within 1/2 Mile
Land w Dev Potential (vacant)	7.3	27
Land w Dev Potential (STC)	22	128.7
Street/Public Space Factor	0%	
Net Land w Dev Potential	29.3	155.7

Newtown B Station



1/4 Mile and 1/2 Mile Radius From Potential Station Location

Potential Station Location

Susceptible to Change

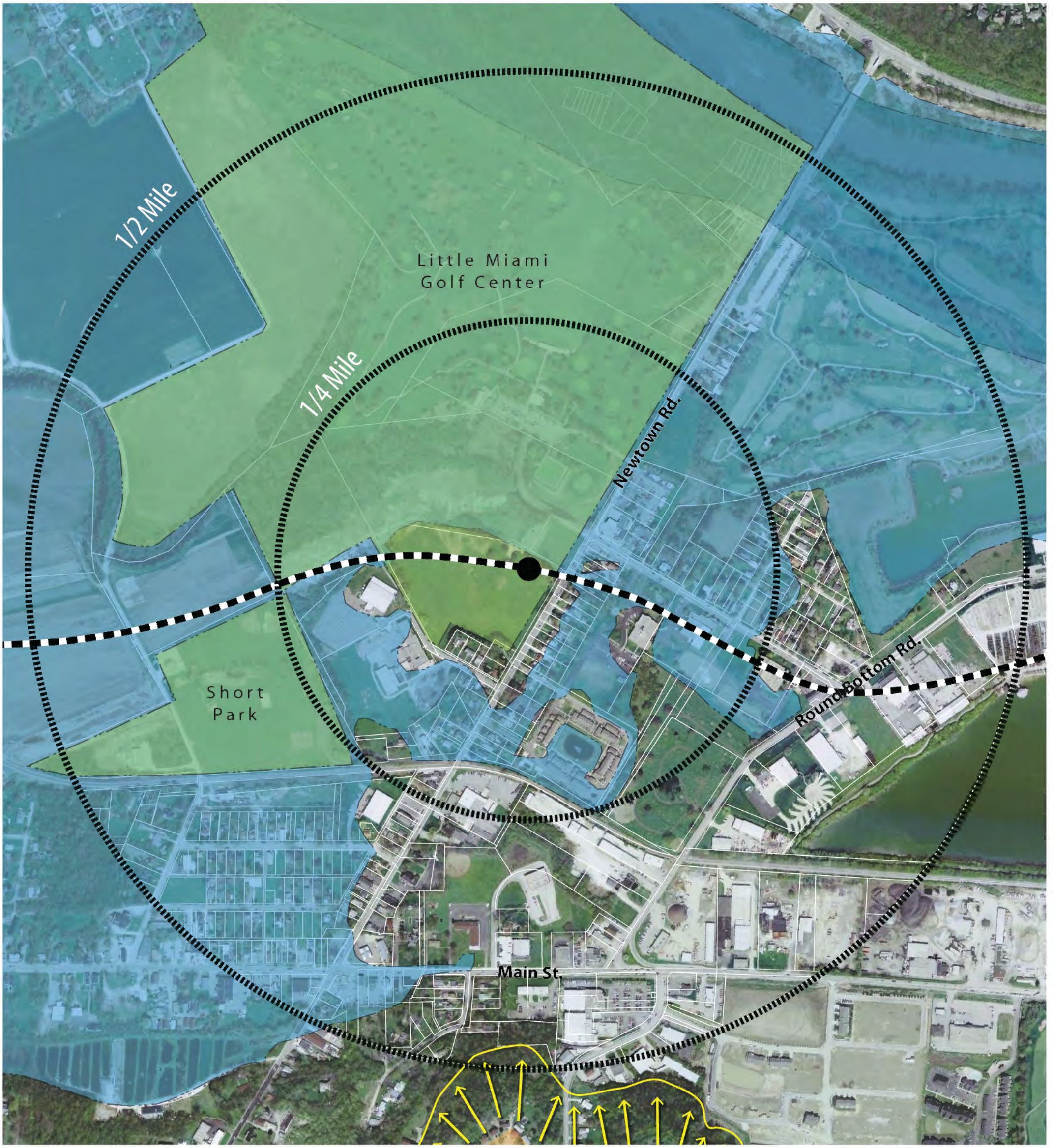
Vacant

Note: *In Newtown B Option the Little Miami Golf Center would be susceptible to change and depend on the location of the rail line.*

N

0′ 500′ 1000′ 2000′

Newtown B Station



1/4 Mile and 1/2 Mile Radius From Potential Station Location

Potential Station Location

Rail Corridor

Floodway

100 year Floodplain

Barriers

Steep Slopes

High Points

Green Space/Park

N

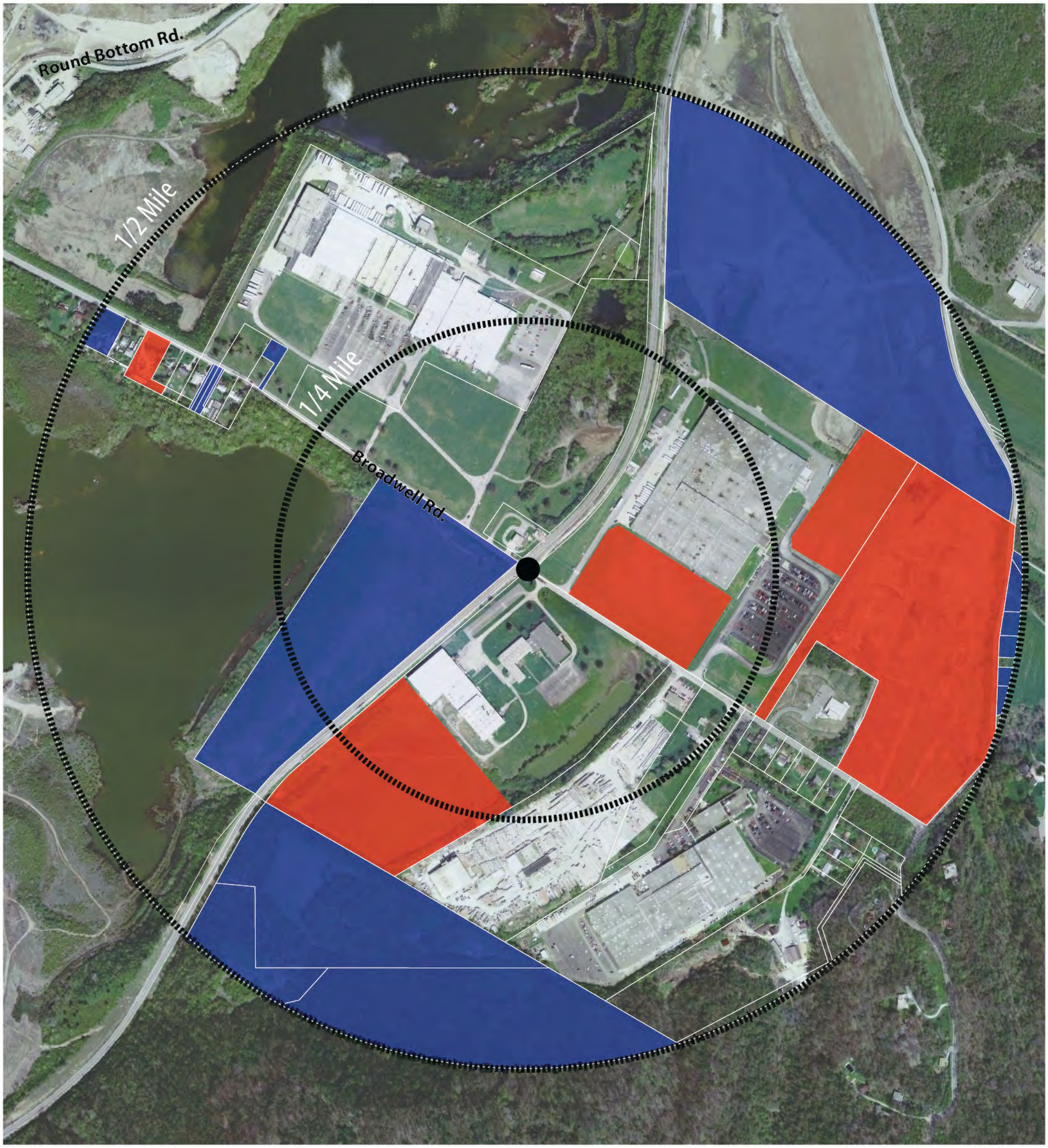
0′ 500′ 1000′ 2000′

Newtown Station

Vacant & Underutilized Lands (HDR Estimate)

	Within 1/4 Mile	Within 1/2 Mile
Land w Dev Potential (vacant)	6.5	48.1
Land w Dev Potential (STC)	0	41.4
Street/Public Space Factor	0%	
Net Land w Dev Potential	6.5	89.5

Ancor Station



1/4 Mile and 1/2 Mile Radius
From Potential Station Location

Potential Station Location

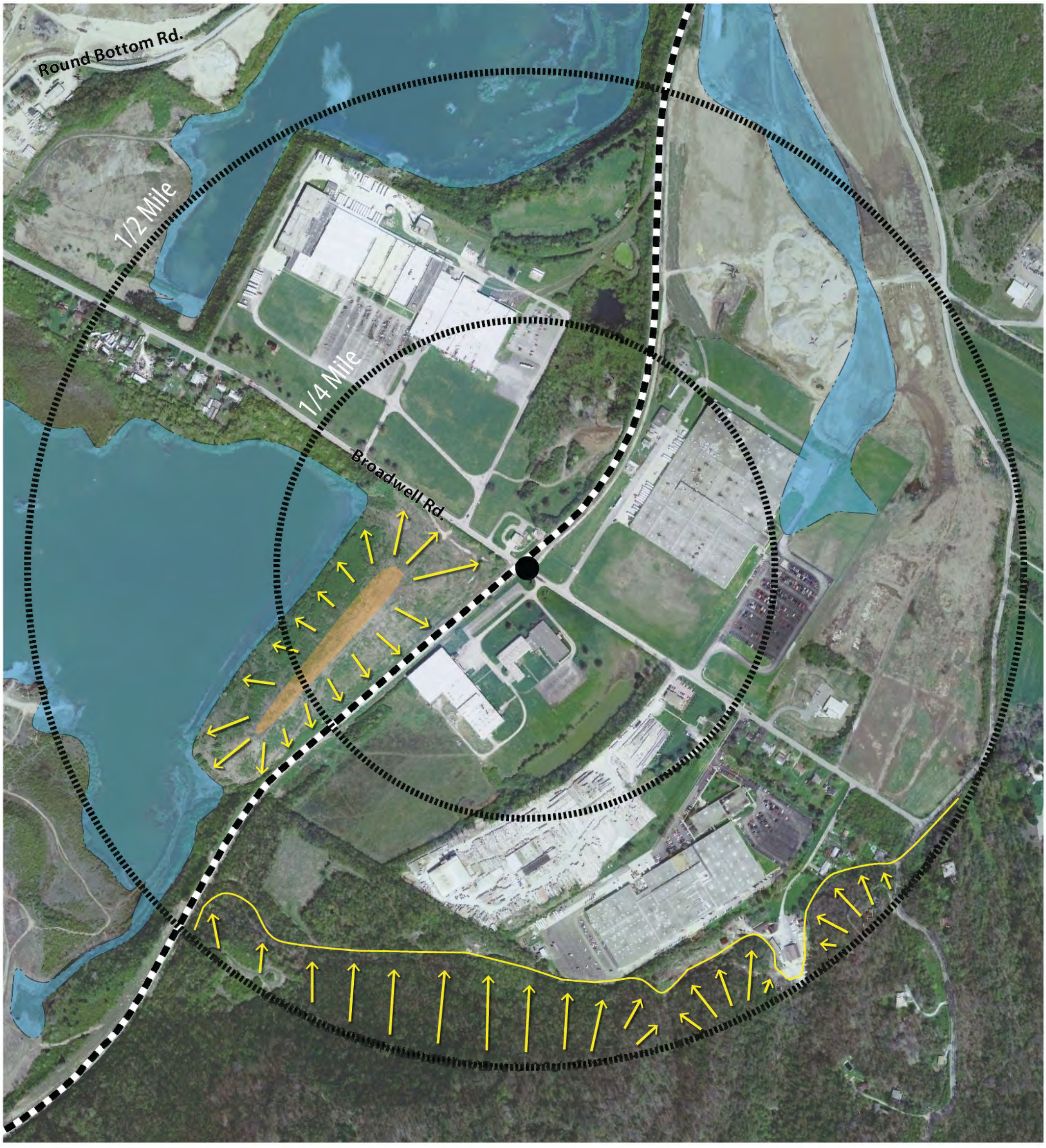
Susceptible to Change

Vacant

N

0′ 500′ 1000′ 2000′

Ancor Station



1/4 Mile and 1/2 Mile Radius From Potential Station Location

Potential Station Location

Rail Corridor

Floodway

100 year Floodplain

Barriers

Public Owned

High Points

Green Space/Park

N

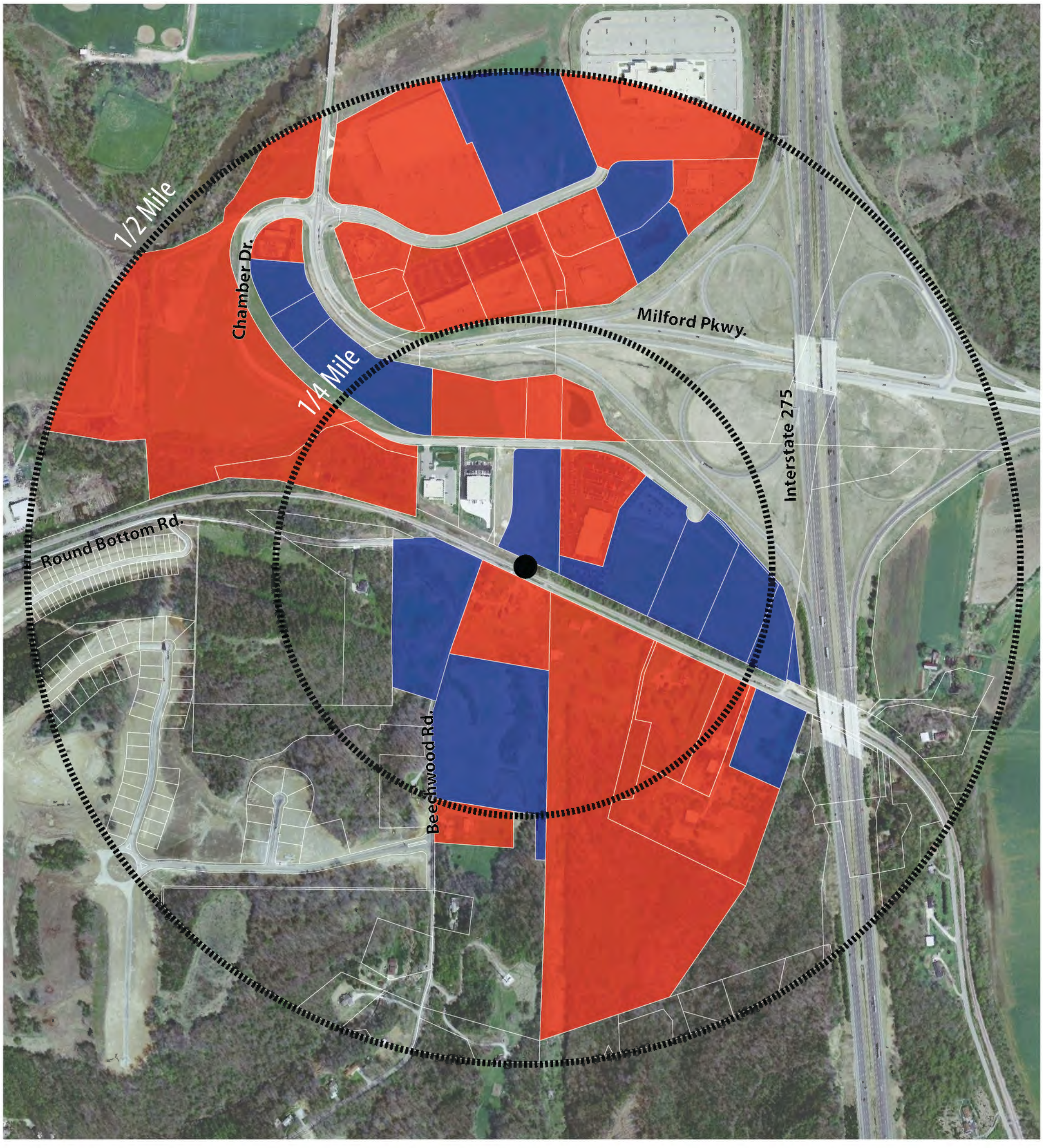
0′ 500′ 1000′ 2000′

Ancor Station

Vacant & Underutilized Lands (HDR Estimate)

	Within 1/4 Mile	Within 1/2 Mile
Land w Dev Potential (vacant)	16.5	121.4
Land w Dev Potential (STC)	14.6	61.1
Street/Public Space Factor	0%	
Net Land w Dev Potential	31.1	182.5

Milford Station



1/4 Mile and 1/2 Mile Radius From Potential Station Location

Potential Station Location

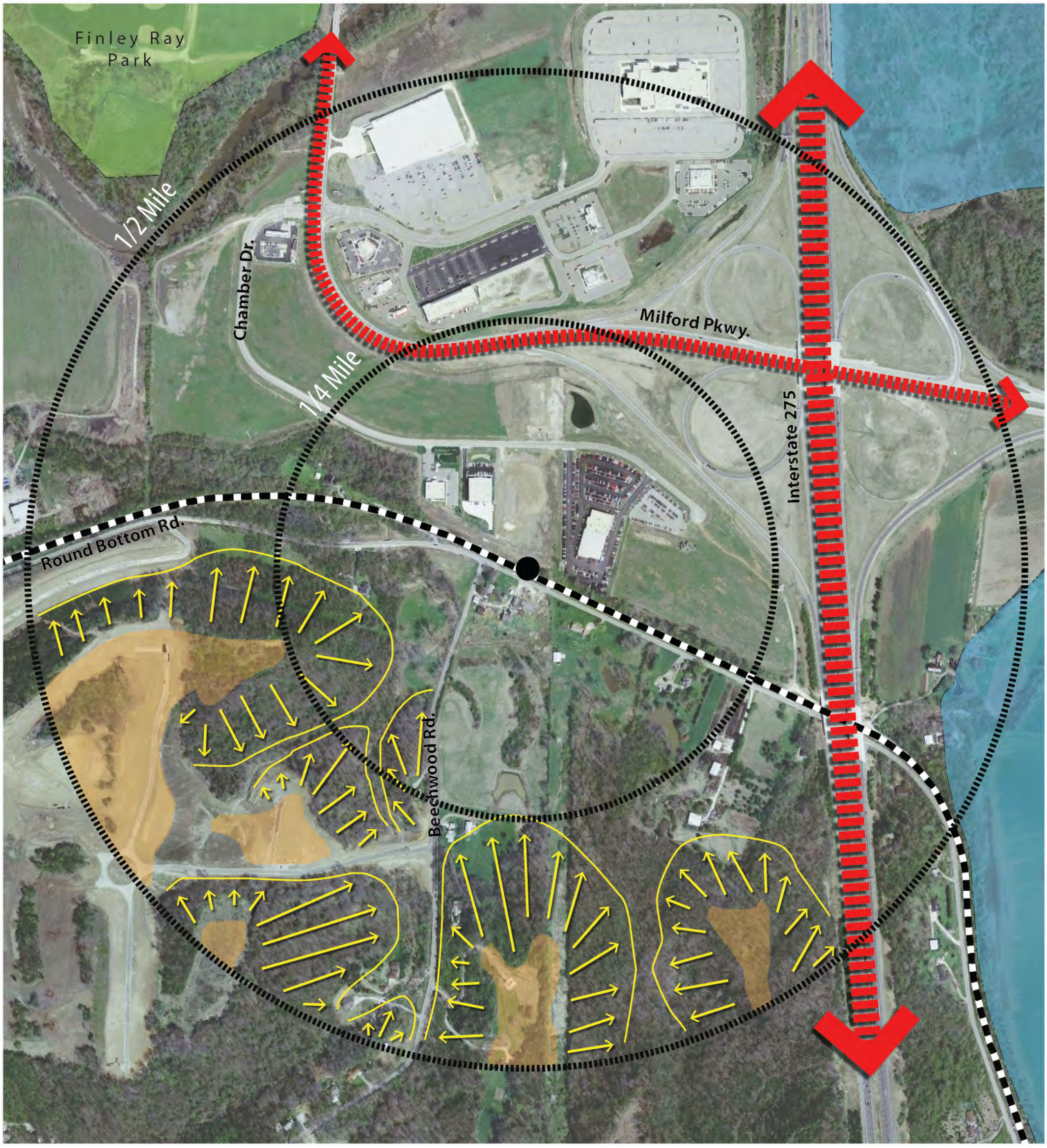
Susceptible to Change

Vacant

N

0′ 500′ 1000′ 2000′

Milford Station



1/4 Mile and 1/2 Mile Radius From Potential Station Location

Potential Station Location

Rail Corridor

Floodway

100 year Floodplain

Barriers

Public Owned

High Points

Green Space/Park

N

0′ 500′ 1000′ 2000′

Milford Station

Vacant & Underutilized Lands (HDR Estimate)

	Within 1/4 Mile	Within 1/2 Mile
Land w Dev Potential (vacant)	38.2	59.8
Land w Dev Potential (STC)	39.4	141.6
Street/Public Space Factor	0%	
Net Land w Dev Potential	77.6	201.4

Appendix C
Ridership

Projected Ridership

Station	Opening Year 2015/2016 Daily Boardings	Long-term 2030 Forecast Year Daily Boardings
Milford	380	440
Ancor	260	290
Newtown	320	360
Redbank	380	410
Beechmont		
Lunken Airport		
Columbia Tusculum	190	220
East End		
Boathouse		
Regional Transit Center (RTC)	1,530	1,720
Total Line Boardings	**3,060**	**3,440**

Based on the results of this Station Area Planning process, and the recommendations for station locations to be considered as part of the initial Basic Service, the table above shows the ridership projections for both the opening year (2015-2016) as well as the potential increase by the 2030 forecast year.

Appendix D
Pedestrian-Bike Plan Tier 1

Eastern Corridor Multi-Modal Projects

Note: This figure illustrates general schematic locations. See Figure 2 and Draft EIS description for more detailed information on alternatives.

Hamilton County • Clermont County
Ohio Department of Transportation
City of Cincinnati • SORTA/Metro
OKI Regional Council of Governments

Expanded Bus (Bus Hubs, Expanded Routes, New Circulators)

New Highway Capacity Segment I (Redbank Rd, I-71 to US-50)

New Highway Capacity Segment II / III (US 50 to Bells Lane)

Oasis Rail Transit Segment 4 (Ancor to Milford)

New highway Capacity Segment IV (I-275/SR 32 Interchange)

New Highway Capacity Segment IV A (SR 32, Gleneste to Olive Branch Stonelick)

New Highway Capacity Segment IV B (Additional I-275 Interchange Study)

Oasis Rail Transit Segment 2 (Boathouse to Fairfax)

Oasis Rail Transit Segment 3 (Shared ROW, Fairfax to Ancor)

Oasis Rail Transit Segment 1 (Riverfront to Boathouse)

Existing System Improvements ("TSM") (more frequent bus, park-and-ride lots, intersection upgrades, roadway corridor improvements)

- = New Highway Capacity Corridors
- = Oasis Rail Transit Corridor
- = Primary Bus Service Routes (Preliminary)
- = Bus Community Circulator Routes (Preliminary)
- = Bus Hub/Rail Transit Station Location (Preliminary)
- = Rail Transit Station Location (Preliminary)
- = Bus Transit Hub Location (Preliminary)
- = Park and Ride Location (TSM project)
- = Roadway Corridor Improvement (TSM project)
- = More Frequent Bus Service (TSM project)
- = Possible At-Grade Intersection
- = Possible At-Grade Intersection of Urban Interchange
- = Possible Signalized Interchange
- = Possible Interchange (free flow) With Grade Separation
- = Intersection Improvement (TSM project)
- = Minor Interchange Improvement or Addition (TSM project)
- = Existing Bike Path
- = Dedicated Bikeways and Trails
- = Alternative Bike Links Under Consideration
- ? = Access at These Locations Varies by Alternative

Figure 7: Transportation Improvements for Tier 2 Evaluation

Tier 1 Final Environmental Impact Statement
Eastern Corridor Multi-Modal Projects
Hamilton and Clermont Counties, Ohio

North

Scale: 0 1500 3000