

# Red Bank Corridor Project HAM-32F-0.00 PID 86461

# PREFERRED ALTERNATIVE IMPLEMENTATION PLAN

**Prepared for** 

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# FORWARD

This document (Preferred Alternative Implementation Plan), moves forward for further development and consideration five project components proposed for the Red Bank Corridor project, an element of the Eastern Corridor Program.

These components have been developed in coordination with the Red Bank Corridor Community Partners Committee (CPC), Madisonville Community Council (MCC), Village of Fairfax, Eastern Corridor Implementation Partners, representatives of the Madisonville and Fairfax residential and business communities as well as other interest groups. The next phase of development will continue to involve much coordination and input from the CPC, MCC and community and organizational representatives.

This Preferred Alternative Implementation Plan summarizes key activities that have taken place thus far to develop the proposed components, provides direction for moving forward, and outlines areas requiring further study. With these further studies, additional design work will be completed to obtain information needed to make sound decisions on implementation strategy to best serve the needs of the traveling public and the local and regional community. The next steps in the development process include gathering more information on environmental concerns, refinement of traffic projections, determining the necessary lane configurations required to make these components work as well as integrating accommodations for bicyclists and pedestrians into project plans.

It is anticipated that the first project components to be implemented will focus on local roadway network improvements which will enhance maintenance of traffic and provide system relief. All components need further evaluation to ensure that each is properly designed relative to their influences on each other and the overall network.

This recommended program is dependent upon the availability of funding for construction. During upcoming months, project sponsors will be working to determine funding sources that best fit with the needs and goals of the community.

The recommended Red Bank Corridor project components are the result of much hard work and involvement by many dedicated individuals. Further studies, project development and community involvement will continue as part of the on-going effort to develop a transportation system for the Red Bank Corridor and adjoining communities that will support the area's current and future transportation needs.

# **RED BANK CORRIDOR PROJECT**

The Red Bank Corridor project is one of the four core Eastern Corridor Program projects. The Eastern Corridor is a program of integrated, multi-modal transportation investments. The program of projects will enhance the regional transportation network by improving travel and connections between central Cincinnati and the communities extending east through Hamilton County into western Clermont County. Program elements include improvements to existing road networks, new and expanded roadways, rail transit, expanded bus routes and improvements for pedestrians and bicyclists. The Eastern Corridor Program is administered by the Ohio Department of Transportation (ODOT) in cooperation with the Federal Highway Administration (FHWA) and the Eastern Corridor Implementation Partners: Hamilton County Transportation Improvement District (HCTID), Clermont County Transportation Improvement District (OCTID), City of Cincinnati, Ohio-Kentucky-Indiana Regional Council of Governments (OKI) and the Southwest Ohio Regional Transit Authority (SORTA).

The Red Bank Corridor Project extends along Red Bank Expressway (CR-67) from Interstate 71 at its northern terminus south to Fair Lane a distance of approximately 2.0 miles. The study extends east and west along the adjacent cross streets approximately 1,000 ft. in either direction. Major cross streets include Duck Creek Road, Madison Road, Hetzel Street, and Erie/Brotherton Avenues. Lateral limits of the study area along Red Bank Expressway are 300 ft. and 100 ft. along other local network streets. Its primary route, Red Bank Expressway, is one of the region's most heavily traveled north-south thoroughfares east of I-71 and the local roadway network supports multiple areas that are experiencing a resurgence of development and growth.

The purpose and need of the Red Bank Corridor project is to create a balance of mobility and access to better serve local communities, businesses and neighborhoods while at the same time, improving travel along this important community connector. The project will do this by:

- Reducing existing congestion and delays along Red Bank Expressway, particularly at major intersections with Madison, Duck Creek and Brotherton roads
- Improving accessibility, safety and flow of traffic
- Re-establishing and enhancing local roadway network connections to address local transportation needs and provide additional opportunities for congestion management
- Providing accommodations for bicyclists and pedestrians

The intersection capacity analysis techniques outlined in the Highway Capacity Manual were used to analyze the adequacy of the intersections within the Red Bank Corridor. These procedures provide a quantified level of service (LOS), which describes traffic conditions based on intersection control delay. These service conditions are defined by the letters "A" through "F", with "A" being excellent (no delay) traffic conditions, and "F" equating to congested, unstable traffic flow with excessive delay. In general, LOS D is considered acceptable within urban areas like the Red Bank Corridor. The level of service criteria for signalized intersections is defined in terms of control delay, which is a measure of driver discomfort frustration, fuel consumption, and increased travel time. Control delay includes intersection deceleration delay, queue move-up time, stopped delay, and final acceleration delay. The level of service criteria for signalized intersections is presented on Table 1.

Level of Service	Average Control Delay (sec/veh)	
А	≤10	
В	>10-20	
С	>20-35	
D	>35-55	
E	>55-80	
F	>80	

Table 1 – Level of Service Criteria for Signalized Intersections

Highway Capacity Manual, 2010, Transportation Research Board, National Research Council, Washington, DC.

The existing intersection of Red Bank Expressway and Madison Road has a failing level of service during peak periods today as well forecasted in the 2030 design year The intersection delay in the afternoon rush hour is forecasted to be 136 seconds in 2030. This delay is longer than one traffic signal cycle resulting in traffic queues along Red Bank Expressway which back up from Madison Road through the intersection of Duck Creek Road and sometimes to I-71. The recommended improvements will reduce the forecasted intersection delay to 43 seconds improving overall intersection level of service to "D". The additional capacity will allow traffic to proceed through the intersection during a single signal cycle reducing queuing on Red Bank Expressway.

Additionally, traffic can back up on the I-71 access ramps due to the inability to maneuver around accidents or disabled vehicles given the lack of shoulders on Red Bank Expressway north of Duck Creek Road. Providing shoulders in this area will help to minimize the impacts of accidents or disabled vehicles on Red Bank Expressway access from I-71.

There is a lack of alternative north-south routes in the corridor for diversion from Red Bank Expressway to avoid the congested intersections at Madison or Duck Creek Roads. By providing local network roadway improvements which provide alternative connectivity local traffic can divert from Red Bank Expressway reducing congestion.

# PUBLIC INVOLVEMENT

The following are summaries of official project community partner meetings and public meetings. For details regarding information provided at each of these meetings as well as comments provided, please refer to Appendices D-I. Additional meetings were held with business, property owners and stakeholder groups.

# Cincinnati City Council Committee Meeting – August 2011

This meeting was organized by the Livable Communities Subcommittee of Cincinnati City Council. The meeting primarily was a review of alternatives developed in 2006 during Tier I Planning. These alternatives included a continuous flow intersection or grade separation at Red Bank's intersections with Erie Ave and Madison Rd as well as improvements to the local street network. Traffic modeling of these alternatives was not performed when they were initially developed. Meeting minutes were not developed by ODOT.

## Five Red Bank Community Partners Committee meetings

#### December 2011 – Madisonville Recreation Center

ODOT reviewed project purpose and need, funding, timeline and project development process. Meeting presentation focused on existing conditions including traffic counts, roadway geometry and ODOT Red Flag Summary Report findings. Community Partners Committee (CPC) members discussed design criteria including lane widths, speeds, context sensitive design, and accommodations of bikes and pedestrians. The CPC also discussed economic development plans with City staff. See Appendix I for additional information.

# February 2012 – Meeting with CAC at Medpace

ODOT provided an update on traffic modeling and stated that 2030 forecasts were still under development. ODOT requested input on existing problems and needs within the project area. The Madisonville Community Advisory Committee (CAC) provided input on existing problem and needs which included but are not limited to the following. See Appendix H for additional information.

- Provide more attractive and widened shoulders along Red Bank Expressway north of Duck Creek Road for disabled vehicles or emergencies
- Address congestion and pedestrian accommodations at the intersection of Duck Creek
- and Red Bank Expressway
- Address congestion at Madison and Red Bank Expressway and improve pedestrian safety
- Grade Separated intersection of Erie/Brotherton, Murray and Red Bank Expressway is confusing and not intuitive for drivers not familiar with the area.
- Plans for bicycle/pedestrian facilities should consider separate shared use path from Murray to Duck Creek and Red Bank Road along the west side of Red Bank Expressway or along railroad
- Red Bank Road should be improved between Medpace Way and Erie with new railroad overpass

# May 2012 – Madisonville Recreation Center

ODOT and CPC members reviewed 2030 traffic forecasts and travel demand modeling results. CPC members inquired about modeling assumptions, design speeds and future land use plans.

The design team presented initial alternatives to increase capacity of Red Bank Expressway at its intersections with Duck Creek Rd., Madison Rd., and Brotherton Ave. Alternatives included widening of existing roads at grade, replacing signalized intersections with roundabouts, as well as various grade separated configurations. The improvements also would include local network improvements as discussed in the February 2012 meeting.

CPC members did not favor the grade separated alternatives, especially those that impacted John P. Parker Elementary. The CPC requested further investigation of roundabout alternatives. See Appendix G for additional information.

#### May 2013 – Madisonville Recreation Center

ODOT reviewed various at-grade and grade separated alternatives for capacity improvements. These included at-grade and grade separated roundabout intersections developed by ODOT as well as those developed by Madisonville's outside consultant, per their request. ODOT provided a matrix with advantages and disadvantages of each alternative for comparison and information.

The CPC requested that ODOT also look at separate bike\pedestrian facilities east of Red Bank Expressway. CPC members wished to maintain access at Hetzel Ave and minimize impacts of any grade separated alternatives. Some community representatives also inquired about the feasibility of the extension of Duck Creek east of Red Bank Expressway linking directly to Madison Road. ODOT stated that this alternative could be evaluated if desired.

The CPC members attending the meeting expressed significant concerns about the size of the roundabout footprints and impacts on the surrounding areas. In this meeting and at the July Madisonville Community Council meeting, CPC representatives requested that ODOT instead look at "low-build" alternatives that would have a lesser impact along the Corridor. See Appendix F for additional information.

#### September 2013 – Madisonville Recreation Center

In response to requests from the CPC and Madisonville Community Council, ODOT developed. ODOT developed several local roadway network improvements combined with at-grade intersection improvements of Red Bank Expressway at Madison Road and Duck Creek. Grade separated alternatives are not included in the revised proposed improvements as the community felt they would have a negative impact. ODOT noted that the local roadway network improvements increase access and circulation of local traffic while avoiding the congested intersection at Madison and Duck Creek Roads however they do not fully address long term capacity needs on Red Bank Expressway.

The CPC generally endorsed the recommended local roadway network improvements with the exception of the proposed Duck Creek extension to Madison Road. There remained a lack of consensus of the potential benefits vs. impacts to John P. Parker Elementary School property pending more detailed evaluation. The CPC agreed that proposed alternatives could be shared with the public at large for input. See Appendix E for additional information.

#### **October 2013 Public Meeting- - Madisonville Recreation Center**

ODOT provided exhibits for the local roadway network alternatives and mainline improvement on Red Bank Expressway at the September 2013 CPC meeting. Feedback received from the public during the meeting and the two-week public comment period that followed the meeting have been reviewed and considered by ODOT as part of the process for identifying a preferred project alternative.

The information/exhibit boards at the meeting were primarily focused on the Local Network Roadway Improvements (LRNI) component projects being proposed for the Red Bank Corridor:

- Component 1: Reconstruction of Red Bank Road
- Component 2: Babson Place and Hetzel Street Extensions
- Component 3: Realign Brotherton Road, Erie Avenue and Murray Avenue/connecting Red Bank Road to Erie Avenue
- Component 4: Duck Creek Road Extension to Madison Road at Medpace Way
- Component 5: Red Bank Expressway and Madison Road Intersection Improvements/Widen Red Bank Expressway

Questions at the meeting and comments provided were primarily focused on traffic forecasts and modeling assumptions. There was debate about the impacts and benefits of the proposed Duck Creek extension component as well as the reconfiguration of the Eric/Brotherton intersection. A follow up letter of support from the Red Bank Corridor Business Group indicated support for the proposed improvements. See Appendix D for additional information.

# PROPOSED IMPROVEMENTS

# Local Roadway Network Improvements

- 1. Reconstruct Red Bank Road from Red Bank Drive to its existing southern terminus at Red Bank Expressway including accommodations for bicyclists and a sidewalk. Construct a new bridge over the Indiana & Ohio Railroad. Maintain existing access points to Red Bank Road including Tomkins Ave and a new connection with Hetzel Ave. Red Bank Road north of Red Bank Drive will be removed and vacated. This would provide alternative access for properties along the east side of Red Bank Expressway. It also provides an alternative route for through traffic from Madison to Erie to avoid Red Bank Expressway if congested.
- 2. Reconstruct Hetzel Street (two lane configuration with turn lanes as needed) from Red Bank Expressway to Red Bank Road. Maintain access to adjacent businesses and parking (Red Bank Center and Izzy's). Relocate existing City of Cincinnati Dunbar Public Services Center. It is likely that retaining walls will be necessary. Sidewalks and accommodations for bicyclists will be included as appropriate. The limits for public right of way remain to be determined. This improvement will eliminate existing cut through traffic in private parking areas and allow for alternative access to the reconstructed Red Bank Road (component 1).
- 3. Extend Babson Place to Red Bank Expressway at existing location of Hetzel Street. Remove existing right-in right out access on Red Bank Expressway north of this intersection. New bridge or culvert over Duck Creek will be required. Maintain parking and access to Red Bank Plaza and Medvet if possible. When combined with the Hetzel Connection (component 2) this connection will provide alternative access to and from Madison Road to avoid the intersection of Red Bank Expressway and Madison Road. Also provides more direct access to remaining development parcels on the west side of Red Bank Expressway.
- 4. Reconstruct and realign intersection of Brotherton, Erie and Murray Avenues. Relocate southern terminus of Red Bank Road to Erie Ave from Red Bank Expressway. Evaluate consolidation of intersections. Provide accommodations for bicyclists and pedestrians as appropriate. The intersection configuration and geometry remain to be determined. This

improvement will increase intersection capacity as well as simplify existing traffic circulation making it more intuitive for drivers.

5. Extend Duck Creek Road to Madison Road near the intersection of Medpace Way. Minimize impacts to John P. Parker Elementary School to the extent possible. Two lane section with turn lanes at the intersections. New culvert will be required over Deerfield Creek. Modify intersection of Red Bank Expressway and Duck Creek Road for new four legged configuration. Given the current lack of consensus to support this component and potential impacts to John P. Parker Elementary School property, it is recommended it be further evaluated with local stakeholders. Provides alternative access and some diversion of traffic from the Madison Road intersection with Red Bank Expressway.

# Mainline Improvements to Red Bank Expressway

Red Bank Expressway would be widened to add an additional through lane in each direction from I-71 to south of Hetzel Street with additional turn lanes as needed at Duck Creek and Madison Roads meeting current design standards. It is likely that existing access between Hetzel Street and Madison Road would be controlled. Existing access from UDF, Jiffy Lube and Rally's would be eliminated. Red Bank Drive would become right in/right out only. Direct access to Plastic Surgery Plaza from Red Bank Expressway would be relocated to Red Bank Road. Existing grades would be maintained with minor adjustments. Full-width shoulders would be added to Red Bank Expressway north of Duck Creek Road. These improvements will provide additional capacity for through traffic on Red Bank Expressway reducing existing queues, delay and improving overall intersection levels of service from F to D as noted previously. It may be necessary to provide additional capacity along Red Bank Expressway south of Hetzel Street in the future to accommodate forecasted traffic volumes associated with full build out of SR-32 Segment 2-3.

# **Bike and Pedestrian Improvements**

The proposed mainline and local roadway network improvements will incorporate facilities for bicycles and pedestrians. Details of specific improvements will be developed in future phases of project development. An advisory bike/pedestrian subcommittee has been formed by ODOT to provide recommendations on specific facilities and connectivity to existing or proposed bike and pedestrian linkages in the surrounding area. See Appendix J for an illustrative map of potential bike and pedestrian facilities proposed by others linking the Red Bank Corridor to the surrounding area.

# Other Elements to be evaluated during Future Phases of Project Development

- Shared use path along the west side of Red Bank Expressway between Murray and Duck Creek
- Widen shoulders along Red Bank Expressway from I-71 Ramps to Duck Creek Road in both directions
- Landscaped median in Red Bank Expressway
- Improved bus stops or other transit accommodations
- Providing Gateway Elements and Lighting



**Exhibit from October 1st Public Meeting** 

#### RECOMMENDATIONS

The preliminary engineering phase of this project was comprised of environmental screening, travel demand forecasts, traffic analysis, conceptual roadway engineering as well as an extensive public involvement process. Several conceptual alternatives to address the project purpose and need have been developed and evaluated. Based on this information and input from the Eastern Corridor Implementation Partners, community stakeholders and the general public, it is recommended that local network improvements and mainline improvements be implemented as funding permits. Each of these components will include provisions for bicyclists and pedestrians as well as urban design elements. Roadway improvements will be developed in a context sensitive manner with eleven foot travel lanes and an appropriate design speed. Right of way acquisition will be minimized to the extent possible.

- 1. Reconstruct Red Bank Road from Red Bank Drive to its existing southern terminus including new bridge over the I&O Railroad.
- 2. Reconstruct Hetzel Street and extend Babson Place to Red Bank Expressway at existing location of Hetzel Street.
- 3. Improve Red Bank Expressway adding an additional through lane in each direction from I-71 to south of Hetzel Street with additional turn lanes as needed at Duck Creek and Madison Roads. Widen shoulders north of Duck Creek Road.
- 4. Reconstruct and realign intersection of Brotherton, Erie and Murray Avenues.
- 5. Further evaluate the potential extension of Duck Creek Road to Madison Road, opposite of Medpace Way, following implementation of other elements.

#### NEXT STEPS

Next steps are as follows:

- 1. Program the recommended components as individual projects for further development and assign a project sponsor.
- 2. Continue development of environmental documents
- 3. Update the OKI Transportation Improvement Plan (TIP)
- 4. Coordinate with Red Bank Corridor project implementation subcommittees (such as the Bicycle/Pedestrian and Aesthetics subcommittees) during further project design development
- 5. Work with SORTA to identify and integrate potential transit improvements within the Study area.

ODOT is currently working to identify implementation subcommittees to assist the partners to establish design details during future project development steps. Preliminary Engineering is ongoing for HAM 32- 2.50 (Relocated SR-32 Segment 2-3) located immediately south of the Red Bank Corridor project area. Identification of a preferred alternative for the relocation of SR-32 has not been completed to date. The recommended Red Bank Corridor improvements will not preclude the potential future relocation of SR-32 and linkages with US-50 south of Fair Lane. It may be necessary to provide additional capacity along Red Bank

Expressway/Road in the future to accommodate forecasted traffic volumes associated with full build out of SR-32 Segment 2-3. See Appendix C for additional information regarding forecasted traffic volumes.

#### Identify project sponsors funding, and timeline

Since the Red Bank Corridor Project recommendations include improvements to County routes and local streets not maintained by ODOT, it is assumed that local sponsors (City of Cincinnati, Hamilton County Engineer or others) will assume responsibility for final development. It is likely that an intergovernmental agreement between the parties will be necessary to share funding, resources and advance the recommendations. Given that that the recommended improvements are located within the City of Cincinnati, it is assumed the City will maintain any improvements. There are no funds identified or committed for final design, right of way and construction at this time.

The current estimated costs for the recommended improvements (shown below) are significantly less that the overall estimated costs for the Red Bank Corridor programmed in the ODOT Ellis database (\$26 M vs. \$208 M). The Eastern Corridor Implementation Partners, which include the Ohio Department of Transportation, the Hamilton County Transportation Improvement District, the Clermont County Transportation Improvement District, the Clermont County Transportation Improvement District, the Clermont Regional Council of Governments and Southwest Ohio Regional Transit Authority, will evaluate the potential funding available for the projects to move forward as currently planned.

<u>Component</u>	Estimated Cost
Red Bank Road Reconstruction	\$ 6,200,000
Babson Extension	\$ 2,500,000
Hetzel Connection (does not include Dunbar relocation)	\$ 2,100,000
Brotherton/Murray Realignment	\$ 2,600,000
Duck Creek Connector **	\$ 2,700,000
Red Bank Exp./Madison/Duck Creek Improvements	\$ 9,800,000
Total Estimated Costs	<u>\$ 25,900,000</u>

#### Construction Cost Estimate (2013 Dollars)

**\*\*** To be evaluated further following implementation of other project components.

#### **NEPA Documentation**

It is recommended that individual NEPA documentation and associated environmental base studies be completed for each of the five recommended components based on the overall context and purpose and need for the Red Corridor and Eastern Corridor Framework. Based on information identified in the project Red Flag Summary Report, there will be a need to conduct additional field investigations and coordination. See Appendix A for additional information. It is anticipated that potential ecological (stream, wetland and endangered species), hazardous materials, noise, cultural resources, Section 4f/6f and environmental justice, and other environmental considerations will be manageable and should not prevent implementation of the recommended improvements.

#### **Development of Stage I Plans**

Development of the recommended components to date has been conceptual in nature. The recommended components are based on planning level traffic forecasts resulting in an assumed number of lanes and conceptual horizontal geometry. The following tasks must be undertaken for the recommended components (i.e., each project) to identify construction limits, right of way needs, and develop more refined construction costs prior to proceeding into final design.

- Establish certified traffic and refine lane assignments, storage lengths and tapers
- Develop preliminary horizontal alignment and vertical profile
- Develop typical sections including bicycle and pedestrian facilities
- Update 2009 basemapping performed by the Hamilton County TID
- Execute preliminary engineering agreement with I&O Railroad to design a new bridge conveying Red Bank Road over the railroad
- Begin Utility Coordination to identify and mitigate potential utility relocations
- Plan for relocation of City of Cincinnati Dunbar Service Center
- Identify right of way needs and perform relocation assistance survey
- Develop phasing and conceptual maintenance of traffic plans
- Work with stakeholders to identify potential urban design elements to be included (landscaping, signage, lighting, etc.)