Appendix B
Value Engineering Report

This report consists of three parts.
Click HERE to access Parts 1 and 2.

Kentucky Transportation Cabinet

State of Ohio Department of Transportation

BRENT SPENCE BRIDGE REPLACEMENT/REHABILITATION PROJECT

ODOT Project HAM-71/75-0.00/0.22, PID 75119
KYTC PROJECT ITEM NO. 6-17
Project Development Process Step 6

FINAL - Value Engineering Study Report

October 2009

Design Engineering Consultant

Value Engineering Consultant

Lewis & Zimmerman Associates

an ARCADIS company

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Ms. G. Jeanne Braxton
Value Engineering Coordinator,
Management Analyst Supvr. II
State of Ohio, Department of Transportation
1980 West Broad Street
Columbus, Ohio 43223

re: ODOT Project HAM-71/75-0.00/0.22, PID 75119
KYTC Project Item No. 6-17
Brent Spence Bridge Replacement/Rehabilitation Project
Final Value Engineering Study Report

Date:
October 23, 2009

Contact:
Stephen Havens

Phone:
608.438.8227

Email:
shavens@lza.com

Our ref:
MY096502.0000

Dear Ms. Braxton:

Lewis & Zimmerman Associates is pleased to submit 15 copies of the referenced final report on the value engineering (VE) study that took place on 24 - 26 August, 2009. The VE study focused on the project documents being developed by Parsons Brinckerhoff.

During the workshop the team identified and developed several betterments, alternatives, and design suggestions which provide opportunities to improve the value of the project. Of particular interest are those alternatives related to improving access to central business districts and adjacent communities in Covington, KY and Cincinnati, OH; increasing the utilization of the existing Clay Wade Bailey Bridge; reducing impacts to 4(f) and 6(f) resources; and adjusting lane configurations to reduce the width of the new bridge by one lane per deck as detailed in Section Two of this report.

We appreciate this opportunity to work with you and the ODOT, KYTC, and FHWA participants on this important project for the Ohio-Kentucky-Indiana Regional Council of Governments, and the cities of Covington, Kentucky, and Cincinnati, Ohio. Please feel free to contact me should you or any reviewer have questions concerning the information presented.

Sincerely yours,

LEWIS AND ZIMMERMAN ASSOCIATES, INC.
an ARCADIS company

Stephen G. Havens

Stephen G. Havens, PE, CVS
Senior Project Manager

Attachment

TABLE OF CONTENTS

Section One

EXECUTIVE SUMMARY

INTRODUCTION

This value engineering (VE) study report documents the events and results of the VE study conducted by Lewis & Zimmerman Associates, Inc. (LZA) for the Ohio Department of Transportation (ODOT) and the Kentucky Transportation Cabinet (KYTC). The subject of the study was the Brent Spence Bridge Replacement/Rehabilitation Project (ODOT Project HAM-71/75-0.00/0.22, PID 75119 and KYTC Project Item No. 6-17). The project is being planned for ODOT and KYTC by a team led by Parsons Brinckerhoff.

The VE workshop was conducted August 24 - 26, 2009, at the Kentucky Transportation Cabinet District 6 Office in Ft. Mitchell, Kentucky and followed the six-phase VE Job Plan:

- Information Phase
- Function Identification and Analysis Phase
- Creative Phase
- Evaluation Phase
- Development Phase
- Presentation Phase

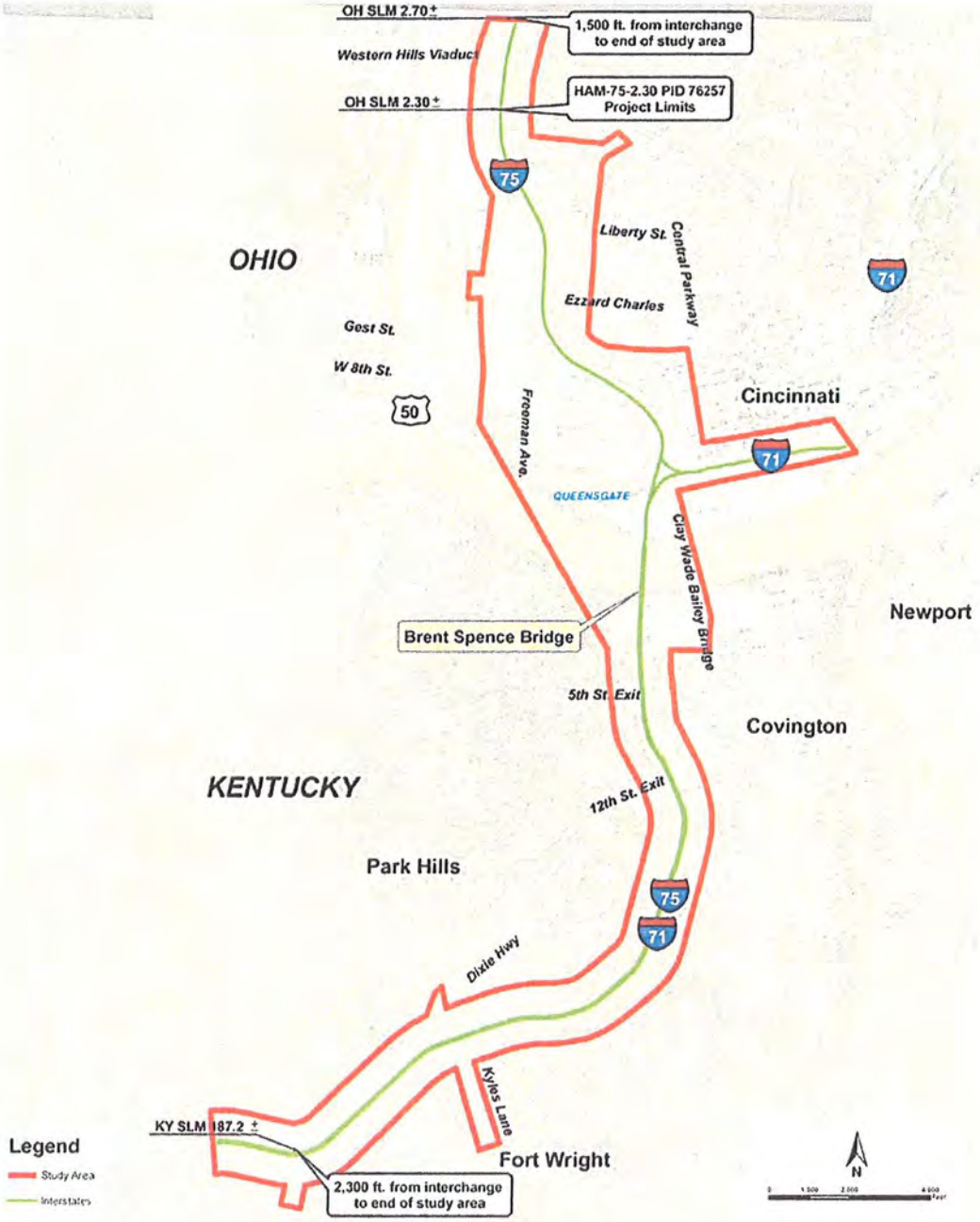
The multidisciplinary team comprised professionals with highway design, geometrics, structural engineering, traffic control, construction, transportation engineering, and geotechnical engineering experience and a working knowledge of VE procedures. The following is a list of the VE team members:

Participant	Specialization	Affiliation
Stefan Spinosa	Highway Design	ODOT District #8 Project Manager
John Eckler	Highway Design	KYTC District #6 Project Manager
Rob Hans	Highway Design	KYTC District #6 Chief Engineer
John Otis	Highway Design	ODOT District #8 Production
Walter Bernau	Construction/MOT	ODOT District #8 Construction
Reynaldo Stargell	MOT	ODOT C.O. Traffic Engineering
Jay Hamilton	Traffic	ODOT District #8 Planning & Programming
J.C. Pyles	Structures	KYTC Structural Design Office
Chris Howard	Structures	ODOT District #8 Production
Jeff Crace	Structures	ODOT C.O. Structural Engineering
Darrin Beckett	Geotechnical	KYTC C.O. Division of Materials
Joe Smithson	Geotechnical	ODOT District #8 Production
Kevin Rust	Construction	KYTC District #6 Construction
Nasby Stroop	Construction	KYTC C.O. Construction
Keith Smith	Environmental	ODOT District #8 Planning and Programming
Bernadette DuPont	Transportation	Kentucky FHWA
Scott Wolf	Transportation	Kentucky FHWA
Siamak Shafaghi	VE Coordinator	KYTC C.O. Production
Jeanne Braxton	VE Coordinator	ODOT C.O. Office of Production
Stephen Havens, CVS	VE Team Leader	Lewis & Zimmerman Associates

PROJECT DESCRIPTION

The project is located along a seven mile segment of I-75 within the Commonwealth of Kentucky and the State of Ohio. The southern limit of the project is 2,300 feet south of the midpoint of the interchange of I-75 and Dixie Highway (US 127/US 42/US 25) in Kentucky (KY SLM 187.2 +/-). The northern limit of the project is 1,500 feet north of the midpoint of the interchange of I-75 and the Western Hills Viaduct in Ohio (OH SLM 2.70 +/-). The eastern and western limits of the project follow the existing alignment of I-75. In Kentucky, the project area is a 1,500-ft.-wide corridor centered on I-75 south of the City of Covington. See Figure 1: Project Area below.

Figure 1: Project Area



The comparative analysis (ODOT Project Development Process Step 5) led to the recommendation of carrying forward two feasible alternatives. The two feasible alternatives consist of Alternative E and a combination of Alternatives C and D (Hybrid Alternative CD). Based on the analysis completed and feedback as part of community input, it was also recommended that certain design elements of Alternative G be incorporated into the two feasible alternatives in Step 6 of the Ohio Department of Transportation's Project Development Process (See Section 7.7 of the Conceptual Alternative Study). Additionally, the two feasible alternatives will be designed to provide three lanes in each direction on I-75.

HYBRID ALTERNATIVE CD

Hybrid Alternative CD uses the existing I-71/I-75 alignment from the southern project limits at the Dixie Highway Interchange north to the Kyle's Lane Interchange. The Dixie Highway and Kyle's Lane interchanges would be modified slightly to accommodate a collector-distributor roadway, which would be constructed along both sides of I-71/I-75 between the two interchanges. North of the Kyle's Lane Interchange, the alignment shifts to the west to accommodate additional I-71/I-75 travel lanes. Between Kyle's Lane and KY 12th Street, six lanes would be provided in each direction for a total of 12 travel lanes. Near KY 12th Street, the alignment separates into three routes for I-71, I-75 and a local collector-distributor roadway.

Access into Covington from the interstate would be accomplished by the local collector-distributor roadway; at KY 12th Street for northbound traffic and at KY 9th Street for southbound traffic. Direct access to I-71 from Covington would be provided at Pike Street with traffic to I-75 northbound using the collector-distributor roadway through downtown Cincinnati and connecting at the Ezzard Charles merge. Access for southbound interstate traffic is located at KY 12th Street. Bullock Street would be extended north from Pike Street to KY 9th, 5th, and 4th streets and Jillian's Way would be extended north from Pike Street to KY 9th, 5th, 4th, and 3rd streets. A U-turn before the KY 9th Street intersection would allow local southbound traffic to turn and travel northbound to KY 3rd, 4th, and 5th streets.

A new double deck bridge would be built just west of the existing Brent Spence Bridge to carry northbound and southbound I-75 (three lanes in each direction), two lanes for southbound I-71 and two lanes for southbound local traffic. The existing Brent Spence Bridge would be rehabilitated to carry two lanes for northbound I-71 and three lanes for northbound local traffic.

Hybrid Alternative CD reconfigures I-75 through the I-71/I-75/US 50 Interchange and eliminates all direct access to and from I-75 from KY 12th Street to just south of Ezzard Charles Drive in the northbound direction. Hybrid Alternative CD also eliminates direct access to I-75 southbound between KY 9th Street and the Western Hills Viaduct. US 50 would be realigned to provide a parallel roadway and access to and from the interstate would be via the collector-distributor roadway.

In Ohio, the northbound collector-distributor roadway would carry local traffic from the existing bridge and provide access ramps to OH 2nd Street, US 50 westbound, and OH 5th Street before reconnecting to I-75 just south of Ezzard Charles Drive. The northbound ramps from OH 6th, 9th Streets and Freeman Avenue to I-75 would be removed requiring traffic from these three points to utilize a new local roadway parallel to the northbound collector-distributor roadway for access to I-75 just before Ezzard Charles Drive. The southbound collector-distributor roadway would maintain access to I-71, downtown city streets as well as connecting to access ramps from OH 9th Street and US 50 eastbound. The collector-distributor roadway would continue south over the new bridge into Covington. Downtown

Cincinnati traffic would cross over I-75 and run parallel between I-75 northbound and the northbound collector-distributor roadway. The three-lane collector-distributor roadway into Cincinnati would carry traffic to OH 7th Street, OH 2nd Street and I-71 northbound. Access to OH 5th Street would be removed.

Between Ezzard Charles Drive and the Western Hills Viaduct, northbound I-75 would have five lanes, southbound I-75 would have two lanes, and the local southbound collector-distributor roadway would have four lanes, for a total of 11 travel lanes. The northbound ramps from OH 6th and 9th streets to I-75 would be removed requiring traffic from these two points to utilize a new local roadway parallel to the northbound collector-distributor roadway for access to northbound I- 75. Ramps from Freeman Avenue, Winchell Avenue just north of Ezzard Charles Drive to the Interstate, and to Western Avenue would be eliminated.

Hybrid Alternative CD also improves Western and Winchell Avenues to facilitate traffic flow and increase capacity. The ramps to Western Avenue and from Winchell Avenue just north of Ezzard Charles Drive would be removed. The Western Hills Viaduct Interchange would be reconfigured to provide a full movement interchange.

See attached sketches in Section Three which show Alternatives C and D.

ALTERNATIVE E

Alternative E uses the existing I-71/I-75 alignment from the southern project limits at the Dixie Highway Interchange north to the Kyle's Lane Interchange. The Dixie Highway and Kyle's Lane interchanges would be modified slightly to accommodate a collector-distributor roadway, which would be constructed along both sides of I-71/I-75 between the two interchanges. North of the Kyle's Lane Interchange, the alignment shifts to the west to accommodate additional I-71/I-75 travel lanes. Between Kyle's Lane and KY 12th Street, six lanes would be provided in each direction for a total of 12 travel lanes. Near KY 12th Street, the northbound alignment separates into two routes; one for interstate traffic and one for a local collector-distributor roadway. Near KY 9th Street, the interstate separates into I-71 and I-75 only routes.

In Alternative E, there are two access points into Covington for both northbound and southbound traffic. In the northbound direction, access would be provided by the local collector-distributor roadway at KY 12th Street and KY 5th Street. In the southbound direction, access would be provided by the local collector-distributor roadway at KY 5th Street, and off of I-71 and I-75 at KY 9th Street. Bullock Street would be extended north from Pike Street to KY 5th and KY 9th streets. Jillian's Way would be extended north from Pike Street to KY 9th, 5th, and 4th streets and allow for access to the existing Brent Spence Bridge.

Access to the interstate system from Covington would be provided by local city streets. In the northbound direction, access to I-75 would be provided at KY 9th Street, access to I-71 would be provided at KY 5th Street. Access to I-75 northbound would also be provided at KY 4th by the local collector-distributor roadway across the lower deck of the existing Brent Spence Bridge and through downtown Cincinnati before connecting just south of the Linn Street Bridge. In the southbound direction, access to I-75/I-71 would be provided at KY 5th Street and KY 12th Street.

A new double deck bridge would be built just west of the existing Brent Spence Bridge to carry northbound and southbound I-71 and I-75 traffic. On the upper deck, I-71 southbound would have

three lanes and I-71 northbound would have two lanes. On the lower deck, I-75 would have three northbound and three southbound lanes. The existing Brent Spence Bridge would be rehabilitated to carry northbound and southbound local traffic with two lanes in each direction.

In Ohio, Alternative E reconfigures I-75 through the I-71/I-75/US 50 Interchange and eliminates some of the existing access points along I-75. Existing ramps to I-71, US 50 and downtown Cincinnati would be reconfigured. The existing direct connections between I-75 to westbound and from eastbound US 50 would be maintained in Alternative E. US 50 would be reconfigured to eliminate left-hand entrances and exits. The OH 5th Street overpass would be eliminated and the Sixth Street Expressway would be reconfigured as a two-way, six-lane elevated roadway with a new signalized intersection for US 50 access and egress. Access between southbound I-71 (Fort Washington Way) and northbound I-75 would be provided near OH 9th Street as a direct connection. Both I-75 southbound and the local southbound collector-distributor roadway would have access to northbound I-71 (Fort Washington Way).

A local collector-distributor roadway would carry local traffic northbound from the existing Brent Spence Bridge and provide access to OH 2nd, 5th, and 9th streets, Winchell Avenue and access from OH 4th and 6th streets before reconnecting to I-75 just south of the Linn Street overpass. The northbound ramp from OH 9th Street to I-75 would be removed requiring traffic from this point to utilize a new local roadway parallel to I-75 and access the interstate at Bank Street. Southbound I-75 traffic would separate from the local collector-distributor roadway near Ezzard Charles Drive. The southbound collector-distributor roadway would carry traffic over I-75 to OH 7th Street, allowing traffic to either; access downtown at 7th Street, travel south to OH 5th and 2nd streets, or travel across the existing Brent Spence Bridge into Covington. Access to the local southbound collector-distributor roadway would be provided at Western Avenue and at OH 4th and 8th streets.

Alternative E also improves Western and Winchell avenues to facilitate traffic flow and increase capacity. The ramps to Western Avenue and from Winchell Avenue just north of Ezzard Charles Drive would be removed. The northbound ramp from Freeman Avenue to I-75 would remain but the southbound ramp to Freeman would be eliminated. Between Ezzard Charles Drive and the Western Hills Viaduct, southbound I-75 would have six lanes; northbound I-75 would have five lanes, and one auxiliary lane to the Western Hills Viaduct. The Western Hills Viaduct Interchange would be reconfigured to provide a full movement interchange.

See attached sketches in Section Three which show Alternative E.

PROJECT SCHEDULE AND CONSTRUCTION COSTS

The following is the schedule for the Brent Spence Bridge Replacement/Rehabilitation Project, which follows construction of the Mill Creek Expressway and Thru the Valley projects.

- Completion of preliminary design and NEPA process – 2011
- Detailed design – 2011
- Right of way acquisition – 2012 - 2014
- Construction begins – 2015
- Midpoint of Construction – June 2017
- Completion of Construction – 2020

The total estimated project costs are construction costs which include a design contingency, a construction inflation factor, right-of-way for roadway and utility relocations, major utility, and total project development costs. The table below summarizes the total estimated project costs.

Total Cost Estimates for Mainline Alternatives in Projected Build Year Dollars

Alternative	Construction Costs (millions)	Construction Costs Inflation (59.5%) (millions)	Real Estate Costs (millions)	Utility Costs (millions)	Real Estate Utility Costs (millions)	Project Development Costs	Total Estimated Costs (millions)
Hybrid Alternative CD	$1,261.7	$750.7	$18.0	$39.4	$1.0	$210.4	$2,281.2
Alternative E	$1,431.6	$851.8	$15.4	$39.4	$1.0	$236.3	$2,575.5

CONCERNS AND OBJECTIVES

Concerns

The following conceptual alternative issues were compiled based upon information provided during the design overview and the Conceptual Alternatives Evaluation Matrix found on pages 173-184 of the Conceptual Alternatives Study (CAS) prepared by Parsons Brinckerhoff, dated April 2009:

Hybrid Alternative CD

- Would not maintain all existing connections – would remove local connections to I-75 by using a collector-distributor system from KY 12th Street to just south of Ezzard Charles Drive
- US 50 would remain geometrically deficient in several locations requiring a design exception
- Four acres of floodplain would be impacted by the proposed alignment
- Approximately two acres of Section 6(f) Parks (Goebel Park) would be impacted by the proposed alignment
- Five Section 4(f) resources would be impacted by the proposed alignment including Goebel Park, Lewisburg Historic District, Longworth Hall, Harriet Beecher Stowe Elementary School, and Queensgate Playground

Alternative E

- The proposed local collector-distributor roadway would be geometrically deficient in several locations requiring a design exception
- 35 businesses would be displaced in Ohio impacting up to 363 employees compared with approximately 30 businesses and 190 to 283 employees impacted by Hybrid Alternative CD

Both Alternatives (Hybrid Alternative CD and Alternative E)

- I-71 would remain geometrically deficient requiring a design exception
- The proposed alignments would require relocation of a radio tower in Goebel Park in Covington, KY
- Three wetland areas totaling 0.59 acres would be impacted in Kentucky
- Eight woodlots with potential Indiana Bat habitat and two woodlots with marginal Indiana Bat Habitat have been identified which would have an impact on construction start dates in these areas
- Harriet Beecher Stowe Elementary School would have potential visual and noise impacts
- The eastern portion of Longworth Hall would be impacted by the proposed alignment
- Notre Dame Academy School tennis courts would be impacted in Kentucky
- The contractor would have limited space for access and logistics
- The proposed alignments would require impacts to a portion of the Duke Energy Sub-station near Longworth Hall
- The proposed alignments may impact the Willow Run Sewer structure during construction

Objectives

The VE team was tasked with the following objectives:

- Identify betterments to improve the quality and function of the facility
- Identify cost reduction ideas

To meet these objectives, the VE team focused on the key elements associated with the project, paying particular attention to the advantages and disadvantages between the Purpose and Need Elements, Engineering Elements, Section 4(f) and 6(f) Resources, and Business Property Acquisitions identified in the Conceptual Alternatives Evaluation Matrix (pages 173-184) of the Conceptual Alternatives Study (CAS) prepared by Parsons Brinckerhoff, dated April 2009.

Additionally, the VE team focused on the CAS recommendation (page 172) that the following beneficial design features of Alternative G be carried forward for further analysis and incorporated into the feasible alternatives CD and E:

- Access to north end of Clay Wade Bailey Bridge from I-75 southbound using a collector-distributor roadway and US 50 eastbound;
- Two access points into Covington;
- Access from a northbound collector-distributor roadway from KY to I-71 northbound in Ohio; and
- An access ramp just north of Ezzard Charles Drive for Freeman Avenue and local traffic to I-75 northbound.

RESULTS OF THE STUDY

The VE team developed 11 VE alternatives and 10 design suggestions. The greatest opportunities for improved value centered on the rerouting of traffic to I-471 during construction; improving access to the central business districts and adjacent communities of both Covington, KY and Cincinnati, OH;

increasing the use of the existing Clay Wade Bailey Bridge; reducing impacts to 4(f) and 6(f) resources; and adjusting lane configurations to reduce the width of the new bridge by one lane per deck.

Rerouting of Traffic to I-471 during Construction

Three VE alternatives provide different lane configurations for adding a fourth lane on I-471 southbound that will support rerouting of traffic during construction of either Hybrid Alternative CD or Alternative E. The alternatives include replacement of the existing outside shoulder with a full depth pavement lane which could be used for future expansion of I-471 to four-lanes (Alt. No. MOT-1A), and two options (Alt. Nos. MOT-1B or MOT-1C) that would provide a temporary fourth lane by using the existing inside shoulder which would be adequate for carrying traffic in its existing condition.

Improve Access to Central Business Districts and Adjacent Communities

In Hybrid Alternative CD, three VE alternatives are recommended to improve access to central business districts and adjacent communities. Providing a shorter route for emergency response from the Fire Station at 5th Street and Central Avenue to the Fort Washington Way Trench similar to Alternative E would shorten the response distance by nearly one mile (Alt. No. P-7). Providing a direct connection from the southbound collector-distributor to 2nd Street in Ohio and adding an additional connection to the US 42/3rd Street Intersection would increase the use of the Clay Wade Bailey Bridge by local traffic. This alternative would improve local access to Covington, KY from Ohio (Alt. No. P-8). Adding a drop lane from the collector-distributor and merging this with the frontage road between 9th Street and Linn Street would provide a more direct access to the Museum Center and Amtrak railroad from Kentucky and Fort Washington Way (Alt. No. S-1).

In Alternative E, replacing the 5th Street northbound ramp to I-71 in Kentucky with an indirect ramp connection from the collector-distributor roadway to I-71 in Ohio would improve access from KY 12th, Pike, 9th, 5th, and 4th Streets to I-71 northbound (Alt. No. P-3).

Reduce Impacts to 4(f) and 6(f) Resources

In all options, significant construction and right-of-way cost avoidances may be realized by widening one-half mile of I-71/I-75 on the east side from 2,000 feet south of KY 12th St. to 4,500 feet south of KY 12th St. This would possibly eliminate the need for excavation and/or a proposed retaining wall on the west side of I-71/I-75 in Kentucky in the "Cut in the Hill" Section (Alt. No. R-1). Additionally, the use of tie-back retaining walls in selected areas from Kyle's Lane to approximately 7,000 feet north of Kyle's Lane and other applicable areas on the west side of I-75 southbound in Kentucky would reduce right-of-way acquisition requirements.

Reduce the Width of the New Bridge by One Lane

Since the proposed new bridge design for Hybrid Alternative CD calls for 10 travel lanes between the two 6-lane decks, adjusting the lane configurations on each deck would save one lane per deck and reduce the overall bridge width by 12 ft. (Alt. No. S-6A).

Since the proposed new bridge design for Alternative E calls for 11 travel lanes between the two 6-lane decks, adjusting the lane configurations on each deck and eliminating the third lane for I-71 southbound would save one lane per deck and reduce the overall bridge width by 12 ft. (Alt. No. S-6B).

IMPLEMENTATION

This VE report is a formalization of the draft materials provided to the project team during the out-briefing discussion which occurred on August 26, 2009. The project team should conduct a formal implementation meeting in which the alternatives and design suggestions are considered and their disposition established in an implementation report. To that end, the Summary of VE Alternatives table should help record the results. An electronic copy of this table is being provided for your convenience.

SUMMARY OF VALUE ENGINEERING ALTERNATIVES

PROJECT: **ODOT HAM-71/75-0.00/0.22, PID 75119, KYTC Project Item No. 6-17**

ALT. NO.	DESCRIPTION	ORIGINAL COST	ALTERNATIVE COST	PRESENT WORTH OF COST SAVINGS: INITIAL COST SAVINGS	PRESENT WORTH OF COST SAVINGS: RECURRING COST SAVINGS	PRESENT WORTH OF COST SAVINGS: TOTAL PW LCC SAVINGS
	MAINTENANCE OF TRAFFIC (MOT)					
MOT-1A	For all options in Kentucky, replace the outside shoulders on I-471 southbound with full depth pavement to support rerouting of traffic during construction.	$0	$2,868,946	($2,868,946)		($2,868,946)
MOT-1B	For all options in Kentucky, use the inside shoulders on I-471 southbound with 12-ft.-wide travel lanes and no inside shoulder to support rerouting of traffic during construction.	$0	$843,260	($843,260)		($843,260)
MOT-1C	For all options in Kentucky, use the inside shoulders on I-471 southbound with 11.5-ft.-wide travel lanes and a 2-ft.-wide inside shoulder to support rerouting of traffic during construction.	$0	$920,106	($920,106)		($920,106)
MOT-2	For all options in Ohio, add alternative Newport Exit Signing from I-71 via US27 to reroute traffic during construction.	DESIGN SUGGESTION				
MOT-4A	For all options, use Ohio Option 1 as a contractor lay-down area for use during construction of the main river crossing.	$0	$3,100,000	($3,100,000)		($3,100,000)
MOT-4B	For all options, use Ohio Option 2 as a contractor lay-down area for use during construction of the main river crossing.	$0	$789,500	($789,500)		($789,500)
MOT-4C	For all options, use Kentucky Option 1 as a contractor lay-down area for use during construction of the main river crossing.	DESIGN SUGGESTION				

SUMMARY OF VALUE ENGINEERING ALTERNATIVES

PROJECT: **ODOT HAM-71/75-0.00/0.22, PID 75119, KYTC Project Item No. 6-17**

ALT. NO.	DESCRIPTION	ORIGINAL COST	ALTERNATIVE COST	PRESENT WORTH OF COST SAVINGS: INITIAL COST SAVINGS	PRESENT WORTH OF COST SAVINGS: RECURRING COST SAVINGS	PRESENT WORTH OF COST SAVINGS: TOTAL PW LCC SAVINGS
	ROADWAY (R)					
R-1	For all options, realign Section 1 near the cut in the hill to the east to reduce right-of-way and excavation requirements.	DESIGN SUGGESTION				
R-2	Specify that recycled concrete pavement is acceptable for use as sub-grade stabilization in Kentucky.	DESIGN SUGGESTION				

SUMMARY OF VALUE ENGINEERING ALTERNATIVES

PROJECT: **ODOT HAM-71/75-0.00/0.22, PID 75119, KYTC Project Item No. 6-17**

ALT. NO.	DESCRIPTION	ORIGINAL COST	ALTERNATIVE COST	PRESENT WORTH OF COST SAVINGS: INITIAL COST SAVINGS	PRESENT WORTH OF COST SAVINGS: RECURRING COST SAVINGS	PRESENT WORTH OF COST SAVINGS: TOTAL PW LCC SAVINGS
	PAVEMENT/RAMPS (P)					
P-3	In Alternative E, replace the 5th Street northbound ramp to I-71 in Kentucky with an indirect ramp connection from the collector-distributor roadway to I-71 in Ohio.	$398,710	$863,892	($465,182)		($465,182)
P-5	Eliminate the KY 9th Street intersection with the collector-distributor roadway from all options.	DESIGN SUGGESTION				
P-7	For the Hybrid Alternative CD, identify a shorter route for emergency responses from the Fire Station at 5th Street and Central Avenue to the Fort Washington Way Trench.	DESIGN SUGGESTION				
P-8	For the Hybrid Alternative CD, provide a direct connection from southbound collector-distributor roadway to 2nd Street in Ohio and add an additional connection to the US 42/3rd Street intersection to improve access and increase the use of the Clay Wade Bailey Bridge.	$0	$1,437,344	($1,437,344)		($1,437,344)
P-10	For the Hybrid Alternative CD, provide access from Winchell Avenue just north of Ezzard Charles Drive to northbound I-75.	$0	$999,433	($999,433)		($999,433)
P-11	For the Hybrid Alternative CD, update the cost estimate to reflect the additional lane on the I-75 mainline.	DESIGN SUGGESTION				
P-13	For Alternative E, shift the collector-distributor roadway to minimize impacts to Goebel Park and avoid relocating the radio station tower.	DESIGN SUGGESTION				

SUMMARY OF VALUE ENGINEERING ALTERNATIVES

PROJECT: **ODOT HAM-71/75-0.00/0.22, PID 75119, KYTC Project Item No. 6-17**

ALT. NO.	DESCRIPTION	ORIGINAL COST	ALTERNATIVE COST	PRESENT WORTH OF COST SAVINGS: INITIAL COST SAVINGS	PRESENT WORTH OF COST SAVINGS: RECURRING COST SAVINGS	PRESENT WORTH OF COST SAVINGS: TOTAL PW LCC SAVINGS
	STRUCTURES (S)					
S-1	For Hybrid Alternative CD, provide an exit from the northbound collector-distributor roadway to Ezzard Charles Drive similar to that shown in the Alternative E design.	DESIGN SUGGESTION				
S-2	With all options, use tie-back walls on the west side of southbound KY I-75 and in other applicable areas in Kentucky to reduce excavation and right-of-way requirements.	DESIGN SUGGESTION				
S-4	With all options, provide a means to mitigate potential structural impacts to Willow Run Sewer during construction.	DESIGN SUGGESTION				
S-6A	For the Hybrid Alternative CD, adjust the lane configurations on each deck on the new bridge to save one lane per deck.	$567,401,472	$513,809,472	$53,592,000		$53,592,000
S-6B	For Alternative E, make the traffic operations directional on each deck on the new bridge to save one lane per deck.	$567,401,472	$513,809,472	$53,592,000		$53,592,000

Section Two

STUDY RESULTS

INTRODUCTION

The results of this value engineering study conducted on the Brent Spence Bridge Replacement/ Rehabilitation Project portray the benefits that can be realized by KYTC, ODOT, the Ohio-Kentucky-Indiana Regional Council of Governments, and the cities of Covington, Kentucky, and Cincinnati, Ohio. During the course of the study, many ideas for potential value enhancement were conceived and evaluated by the team for technical feasibility, applicability to the project, and the ability to meet the owner's project value objectives. Research performed on those ideas considered to have potential to enhance the value of the project resulted in the development of individual alternatives identifying specific changes to the project as a whole, or individual elements that comprise the project. These may be in the form of VE alternatives (accompanied by cost estimates) or design suggestions (without cost estimates). For each alternative developed the following information has been provided:

- A summary of the original design;
- A description of the proposed change to the project;
- Sketches and design calculations, if appropriate;
- A capital cost comparison and life cycle discounted present worth cost comparison of the alternative and original design, if appropriate;
- A descriptive evaluation of the advantages and disadvantages of selecting the alternative; and
- A brief narrative to compare the original design and the proposed change and provide a rationale for implementing the change into the project.

A composite markup of 59.5%, as described in Section Four of the report, was used to generate the cost for the construction items being compared.

Each design suggestion contains the same information as the VE alternatives, except that no cost information is included. Design suggestions are presented to bring attention to areas of the design that, in the opinion of the VE team, should be changed or included for reasons other than cost. Examples of these reasons may include improved traffic flow, ease of maintenance, ease of construction, safer working conditions, and reduced project risk. In addition, some ideas cannot be quantified in terms of cost with the design information provided; these are also presented as design suggestions and are intended to improve the quality of the project.

Each alternative or design suggestion developed is identified with an alternative number (Alt. No.) that can be tracked through the value analysis process and facilitate referencing between the Creative Idea Listing and Evaluation worksheets, the alternatives, and the Summary of Value Engineering Alternatives table. The Alt. No. includes a prefix that refers to one of the following major project elements:

PROJECT ELEMENT	PREFIX
Maintenance of Traffic	MOT
Roadway	R
Pavement	P
Structures	S

Summaries of the alternatives are provided on the Summary of Value Engineering Alternatives tables. The tables are divided into project elements for the reviewer's convenience and are used to divide the results section. The complete documentation of the developed alternatives and design suggestions follows the Summary of Value Engineering Alternatives tables.

KEY ISSUES

Two alternatives, including a Hybrid Alternative CD and Alternative E were selected as feasible alternatives for further development as part of the ODOT Project Development Process (PDP) for Major Projects, PDP Step 6. The following conceptual alternative issues were compiled based upon information provided during the design overview and the Conceptual Alternatives Evaluation Matrix found on pages 173-184 of the Conceptual Alternatives Study (CAS) prepared by Parsons Brinckerhoff, dated April 2009:

Hybrid Alternative CD

- Would not maintain all existing connections – would remove local connections to I-75 by using a collector-distributor system from KY 12th Street to just south of Ezzard Charles Drive
- US 50 would remain geometrically deficient in several locations requiring a design exception
- Four acres of floodplain would be impacted by the proposed alignment
- Approximately two acres of Section 6(f) Parks (Goebel Park) would be impacted by the proposed alignment
- Five Section 4(f) resources would be impacted by the proposed alignment including Goebel Park, Lewisburg Historic District, Longworth Hall, Harriet Beecher Stowe Elementary School, and Queensgate Playground

Alternative E

- The proposed local collector-distributor roadway would be geometrically deficient in several locations requiring a design exception
- 35 businesses would be displaced in Ohio impacting up to 363 employees compared with approximately 30 businesses and 190-283 employees impacted by Hybrid Alternative CD

Both Alternatives (Hybrid Alternative CD and Alternative E)

- I-71 would remain geometrically deficient requiring a design exception
- The proposed alignments would require relocation of a radio tower in Goebel Park in Covington, KY
- Three wetland areas totaling 0.59 acres would be impacted in Kentucky

- Eight woodlots with potential Indiana Bat habitat and two woodlots with marginal Indiana Bat Habitat have been identified which would have an impact on construction start dates in these areas
- Harriet Beecher Stowe Elementary School would have potential visual and noise impacts
- The eastern portion of Longworth Hall would be impacted by the proposed alignment
- Notre Dame Academy School tennis courts would be impacted in Kentucky
- The contractor would have limited space for access and logistics
- The proposed alignments would require impacts to a portion of the Duke Energy Sub-station near Longworth Hall
- The proposed alignments may impact the Willow Run Sewer structure during construction

STUDY OBJECTIVES

The VE team was tasked with the following objectives:

- Identify betterments to improve the quality and function of the facility
- Identify cost reduction ideas

To meet these objectives, the VE team focused on the key elements of the project, paying particular attention to the advantages and disadvantages between the Purpose and Need Elements, Engineering Elements, Section 4(f) and 6(f) Resources, and Business Property Acquisitions identified in the Conceptual Alternatives Evaluation Matrix (pages 173-184) of the CAS.

Additionally, the VE team focused on the CAS recommendation (page 172) that the following beneficial design features of Alternative G be carried forward for further analysis and incorporated into the feasible alternatives CD and E:

- Access to the north end of Clay Wade Bailey Bridge from I-75 southbound using a collector-distributor roadway and US 50 eastbound;
- Two access points into Covington;
- Access from a northbound collector-distributor from KY to I-71 northbound in Ohio; and
- An access ramp just north of Ezzard Charles Drive for Freeman Avenue and local traffic to I-75 northbound.

RESULTS OF THE STUDY

Research of the ideas identified as having potential for enhancing the value of the project resulted in the development of 11 VE alternatives and 10 design suggestions for consideration by the project team. The greatest opportunities for improved value centered on the rerouting of traffic to I-471 during construction; improving access to central business districts and adjacent communities of both Covington, KY and Cincinnati, OH; increasing the use of the existing Clay Wade Bailey Bridge; reducing impacts to 4(f) and 6(f) resources; and adjusting lane configurations to reduce the width of the new bridge by one lane per deck.

Rerouting of Traffic to I-471 during Construction

Three VE alternatives provide different lane configurations for adding a fourth lane on I-471 southbound that would support rerouting of traffic during construction of either Hybrid Alternative CD or Alternative E. The alternatives include replacement of the existing outside shoulder with a full depth pavement lane

which could be used for future expansion of I-471 to four-lanes (Alt. No. MOT-1A), and two options (Alt. Nos. MOT-1B or MOT-1C) that would provide a temporary fourth lane by using the existing inside shoulder which would be adequate for carrying traffic in its existing condition.

Improve Access to Central Business Districts and Adjacent Communities

In the Hybrid Alternative CD, three VE alternatives are recommended to improve access to central business districts and adjacent communities. Providing a shorter route for emergency response from the Fire Station at 5th Street and Central Avenue to the Fort Washington Way Trench similar to Alternative E would shorten the response distance by nearly one mile (Alt. No. P-7). Providing a direct connection from the southbound collector-distributor to 2nd Street in Ohio and adding an additional connection to the US 42/3rd Street Intersection would increase the use of the Clay Wade Bailey Bridge by local traffic. This alternative would improve local access to Covington, KY from Ohio (Alt. No. P-8). Adding a drop lane from the collector-distributor and merging this with the frontage road between 9th Street and Linn Street would provide a more direct access to the Museum Center and Amtrak railroad from Kentucky and Fort Washington Way (Alt. No. S-1).

In Alternative E, replacing the 5th Street northbound ramp to I-71 in Kentucky with an indirect ramp connection from the collector-distributor roadway to I-71 in Ohio would improve access from KY 12th, Pike, 9th, 5th, and 4th Streets to I-71 northbound (Alt. No. P-3).

Reduce Impacts to 4(f) and 6(f) Resources

In all options, significant construction and right-of-way cost avoidance may be realized by widening one-half mile of I-71/I-75 on the east side from 2,000 ft. south of KY 12th St. to 4,500 ft. south of KY 12th Street. This would possibly eliminate the need for excavation and/or a proposed retaining wall on the west side of I-71/I-75 in Kentucky in the "Cut in the Hill" Section (Alt. No. R-1). Additionally, the use of tie-back retaining walls in selected areas from Kyle's Lane to approximately 7,000 feet north of Kyle's lane and other applicable areas on the west side of I-75 southbound in Kentucky would reduce right-of-way acquisition requirements.

Reduce the Width of the New Bridge by One Lane

Since the proposed new bridge design for Hybrid Alternative CD calls for 10 travel lanes between the two 6-lane decks, adjusting the lane configurations on each deck would save one lane per deck and reduce the overall bridge width by 12 ft. (Alt. No. S-6A).

Since the proposed new bridge design for Alternative E calls for 11 travel lanes between the two 6-lane decks, adjusting the lane configurations on each deck and eliminating the third lane for I-71 southbound would save one lane per deck and reduce the overall bridge width by 12 ft. (Alt. No. S-6B).

Summary

Each of the aforementioned alternatives should be given careful consideration for the potential cost savings and/or schedule improvement that they offer compared to the tradeoffs which may include additional rerouting of traffic during construction.

EVALUATION OF ALTERNATIVES AND DESIGN SUGGESTIONS

When reviewing the study results, the project team should consider each part of an alternative or design suggestion on its own merit. There may be a tendency to disregard an alternative because of a concern about one part of it. Each area within an alternative or design suggestion that is acceptable should be considered for use in the final design, even if the entire alternative or design suggestion is not implemented. Variations of these alternatives and design suggestions by the owner or designer are encouraged.

All alternatives and design suggestions were developed independently of each other to provide a broad range of options to consider for implementation. Therefore, some of them are "mutually exclusive," so acceptance of one may preclude the acceptance of another. In addition, some of the alternatives may be interrelated, so acceptance of one or more may not yield the total of the cost savings shown for each alternative. Design suggestions could also be interrelated thus precluding a part of one or more suggestions from being implemented if another design suggestion is also implemented.

The project team should evaluate all alternatives carefully in order to select the combination of ideas with the greatest beneficial impact on the project. Once this has been accomplished, the total cost savings resulting from the VE study can be calculated based on implementing a revised, all-inclusive design solution.

SUMMARY OF VALUE ENGINEERING ALTERNATIVES

PROJECT: **ODOT HAM-71/75-0.00/0.22, PID 75119, KYTC Project Item No. 6-17**

ALT. NO.	DESCRIPTION	ORIGINAL COST	ALTERNATIVE COST	PRESENT WORTH OF COST SAVINGS: INITIAL COST SAVINGS	PRESENT WORTH OF COST SAVINGS: RECURRING COST SAVINGS	PRESENT WORTH OF COST SAVINGS: TOTAL PW LCC SAVINGS
	MAINTENANCE OF TRAFFIC (MOT)					
MOT-1A	For all options in Kentucky, replace the outside shoulders on I-471 southbound with full depth pavement to support rerouting of traffic during construction.	$0	$2,868,946	($2,868,946)		($2,868,946)
MOT-1B	For all options in Kentucky, use the inside shoulders on I-471 southbound with 12-ft.-wide travel lanes and no inside shoulder to support rerouting of traffic during construction.	$0	$843,260	($843,260)		($843,260)
MOT-1C	For all options in Kentucky, use the inside shoulders on I-471 southbound with 11.5-ft.-wide travel lanes and a 2-ft.-wide inside shoulder to support rerouting of traffic during construction.	$0	$920,106	($920,106)		($920,106)
MOT-2	For all options in Ohio, add alternative Newport Exit Signing from I-71 via US27 to reroute traffic during construction.	DESIGN SUGGESTION				
MOT-4A	For all options, use Ohio Option 1 as a contractor lay-down area for use during construction of the main river crossing.	$0	$3,100,000	($3,100,000)		($3,100,000)
MOT-4B	For all options, use Ohio Option 2 as a contractor lay-down area for use during construction of the main river crossing.	$0	$789,500	($789,500)		($789,500)
MOT-4C	For all options, use Kentucky Option 1 as a contractor lay-down area for use during construction of the main river crossing.	DESIGN SUGGESTION				

VALUE ENGINEERING ALTERNATIVE

PROJECT: **HAM-71/75-0.00/0.22, PID 75119**
Ohio Department of Transportation
PROJECT ITEM NO. 6-17
Kentucky Transportation Cabinet

ALTERNATIVE NO.:
MOT-1A

DESCRIPTION: **FOR ALL OPTIONS IN KENTUCKY, REPLACE THE OUTSIDE SHOULDER ON I-471 SOUTHBOUND WITH FULL DEPTH PAVEMENT TO SUPPORT REROUTING OF TRAFFIC DURING CONSTRUCTION**

SHEET NO.: 1 of 5

ORIGINAL DESIGN:

The original design includes the rerouting of traffic to I-471 southbound during construction with no mention of replacing the existing outside shoulders with full-depth pavement.

ALTERNATIVE:

Replace the outside shoulders on I-471 Southbound with full-depth pavement to support rerouting of traffic during construction.

ADVANTAGES:

- Prevents shoulder failure during construction thereby preventing significant traffic delays
- Provides full-depth shoulders for any future construction requirements or detours

DISADVANTAGES:

- Added pavement adds cost to the current project for temporary lanes during construction

DISCUSSION:

I-471 crosses over the river running south into I-275 and then to I-75. I-275 has extra capacity available. Only I-471 needs shoulder work. Ramp work will be required at I-71/I-471, I-471/I-275, and I-275/I-75 in Kentucky.

Replacement of the outside shoulders on I-471 Southbound with full-depth pavement will prevent the failure of shoulders during construction as well as provide additional capacity for future construction requirements or detours.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	$ 0	—	$ 0
ALTERNATIVE	$ 2,868,946	—	$ 2,868,946
SAVINGS (Original minus Alternative)	$ (2,868,946)	—	$ (2,868,946)

COUNTY OF	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
Campbell		2a	52

·471-4(17)2

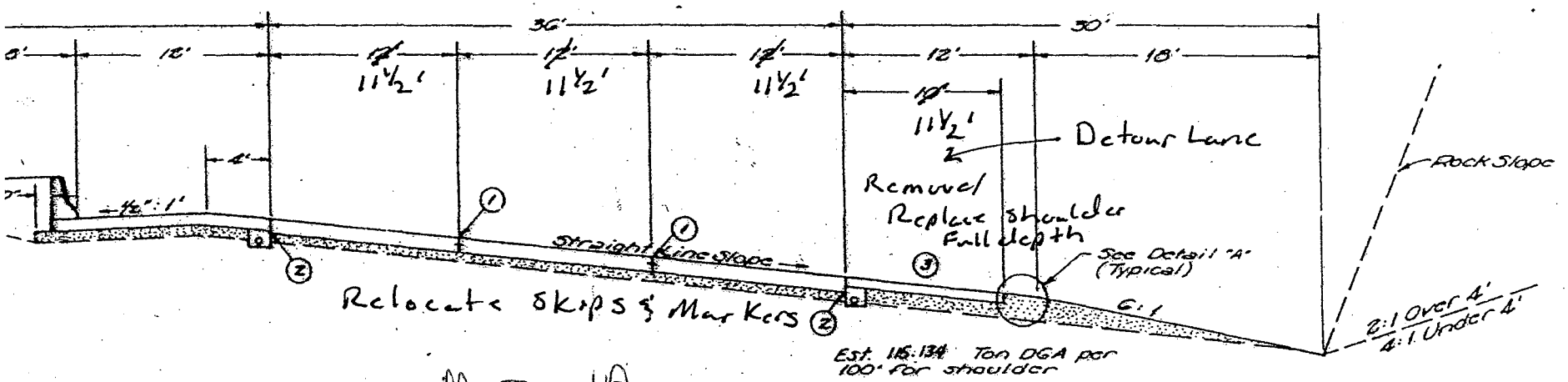
E

PICAL SECTIONS

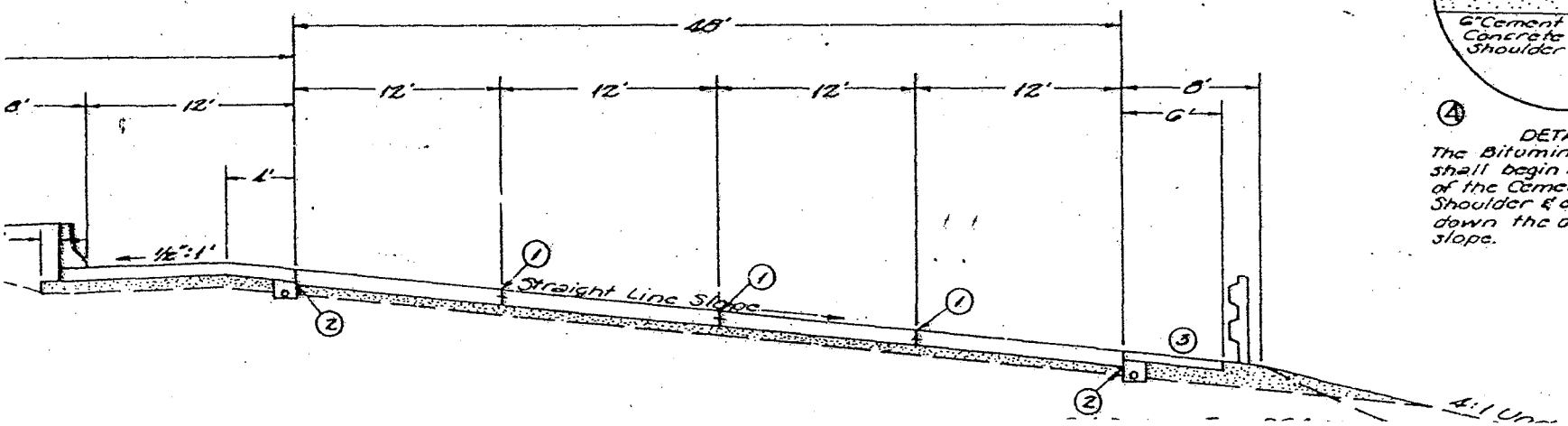
L

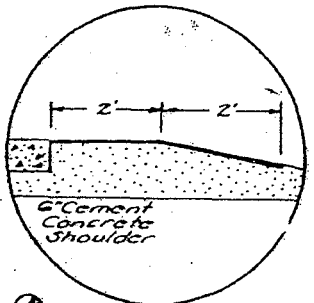
Looking South

ALT. No. MOT-1A
Sheet No. 2 of 5



MOT - 1A
Outside Shoulder
ALTERNATIVE DESIGN





④ DETAIL "A"
The Bituminous Seal Coat shall begin at the edge of the Cement Concrete Shoulder & extend 2' down the ditch or fill slope.

PROJECT: **HAM-71/75-0.00/.022, PID 75119**
Ohio Department of Transportation
PROJECT ITEM NO. 6-17
Kentucky Transportation Cabinet

ALT. NO.:

MOT-1A

SHEET NO.: 3 of 5

Use of outside shoulder on I-471 for travel lane

Use 10 ft. outside shoulder on southbound I-471 for an 11½ ft. travel lane, and reduce the other three southbound travel lanes from 12 ft. down to 11½ ft. This leaves no room for a shoulder on the outside.

- Cost to remove outside shoulders. These shoulders are not full depth and would have to be removed.
- Cost to replace full depth outside shoulders
- Remove white edge line and two lines of skips
- Place three skip lines, edge lines and three lines of pavement markers

PROJECT: **HAM-71/75-0.00/0.22, PID 75119**
Ohio Department of Transportation
PROJECT ITEM NO. 6-17
Kentucky Transportation Cabinet

ALTERNATIVE NO.: MOT-1A

SHEET NO.: 4 of 5

Pavement Removal & Full Depth Pavement Replacement

5 miles x 5280 ft/mile x 10 ft. (width) = 264,000 sf x (sy / 9 sf)

= 29,333 sy

Edge Lines (Remove & Replace)

5 miles x 5280 ft/mile = 26,400 ft.

Skip Lines (Remove & Replace)

26,400 ft x 25% x 3 lines = 19,800 ft.

Pavement Markers (Remove & Replace)

26,400 ft. x 1 per 80 ft. x 3 lines = 990 markers

COST WORKSHEET

PROJECT: **HAM-71/75-0.00/0.22, PID 75119** ALTERNATIVE NO.: **MOT-1A**

State of Ohio, Department of Transportation

PROJECT ITEM NO. 6-17

Kentucky Transportation Cabinet SHEET NO.: **5 of 5**

PROJECT ITEM		ORIGINAL ESTIMATE			ALTERNATIVE ESTIMATE		
ITEM	UNITS	NO. OF UNITS	COST/ UNIT	TOTAL	NO. OF UNITS	COST/ UNIT	TOTAL
Pavement Removal	SY				29,333	22.96	673,486
Full Depth Pavement	SY				29,333	35.36	1,037,215
Edge Line Removal	LF				26,400	0.47	12,408
Edge Line Replacement	LF				26,400	0.31	8,184
Skip Line Removal	LF				19,800	0.47	9,306
Skip Line Replacement	LF				19,800	0.31	6,138
Pavement Markers Removal	EA				990	17.50	17,325
Pavement Markers Replacement	EA				990	35.00	34,650
Subtotal							1,798,712
Markup (%) at 59.50%							1,070,234
TOTAL							2,868,946

VALUE ENGINEERING ALTERNATIVE

PROJECT: **HAM-71/75-0.00/0.22, PID 75119**
Ohio Department of Transportation
PROJECT ITEM NO. 6-17
Kentucky Transportation Cabinet

ALTERNATIVE NO.: **MOT-1B**

DESCRIPTION: **FOR ALL OPTIONS IN KENTUCKY, USE THE INSIDE SHOULDER ON I-471 SOUTHBOUND TO SUPPORT REROUTING OF TRAFFIC DURING CONSTRUCTION**

SHEET NO.: **1 of 5**

ORIGINAL DESIGN:

The original design includes the rerouting of traffic to I-471 southbound during construction.

ALTERNATIVE:

Use the inside shoulder in lieu of the outside shoulder on I-471 southbound to support rerouting of traffic during construction.

ADVANTAGES:

- No full-depth pavement replacement required
- Maintains 12-ft.-wide lanes during construction

DISADVANTAGES:

- Requires travel near drainage structures
- No inside shoulder provided during construction

DISCUSSION:

I-471 crosses over the river running south into I-275 and then to I-75. I-275 has extra capacity. Only I-471 needs shoulder work. Ramp work will be required at I-71/I-471, I-471/I-275, and I-275/I-75 in Kentucky.

Therefore, use an inside shoulder/lane shift as a detour during construction to prevent full-depth pavement replacement.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	$ 0		$ 0
ALTERNATIVE	$ 863,260		$ 863,260
SAVINGS (Original minus Alternative)	$ (863,260)		$ (863,260)

COUNTY OF	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
Campbell		2a	52

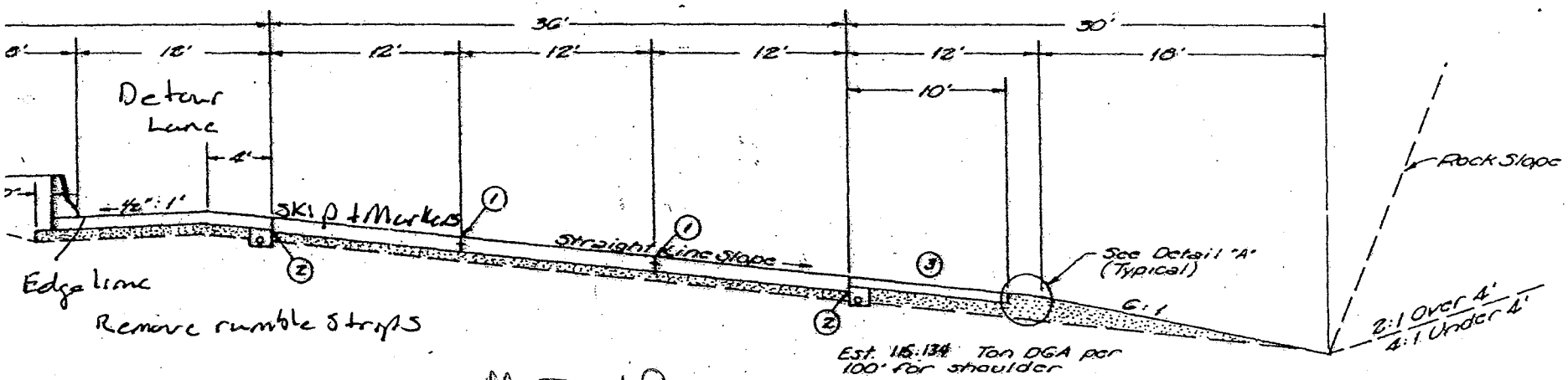
471-4(17)2

E

PICAL SECTIONS

L

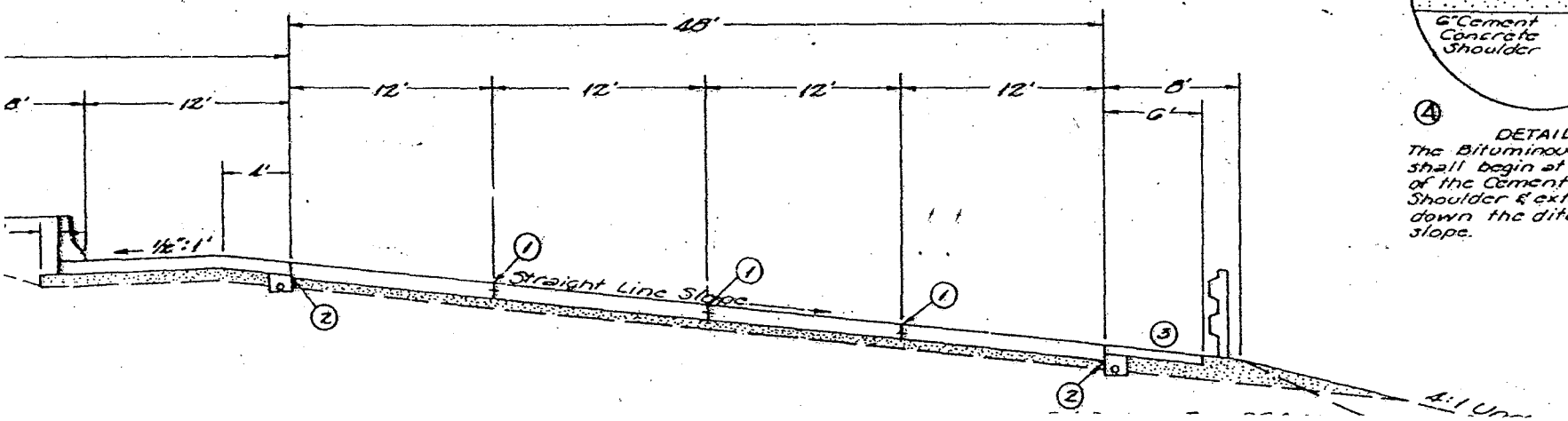
Looking South

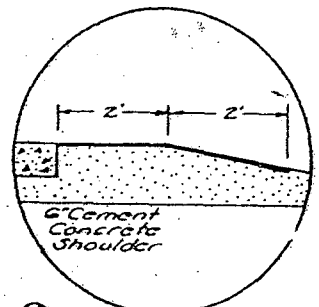


MOT-1B

Inside Shoulder Only

ALTERNATIVE DESIGN





④ DETAIL "A"

The Bituminous Seal Coat shall begin at the edge of the Cement Concrete Shoulder & extend 2' down the ditch or fill slope.

CALCULATIONS

PROJECT: **HAM-71/75-0.00/.022, PID 75119**
Ohio Department of Transportation
PROJECT ITEM NO. 6-17
Kentucky Transportation Cabinet

ALT. NO.:

MOT-1B

SHEET NO.: 3 **of 5**

Use of inside shoulder on I-471 for travel lane

Use 12 ft. inside shoulder on southbound I-471 for a 12 ft. travel lane. This option provides no shoulder for this lane.

- Cost to remove rumble strips
- Remove yellow edge line
- Paint a skip line, edge line and place one line of pavement markers

CALCULATIONS

PROJECT: **HAM-71/75-0.00/0.22, PID 75119**
Ohio Department of Transportation
PROJECT ITEM NO. 6-17
Kentucky Transportation Cabinet

ALTERNATIVE NO.: MOT-1B

SHEET NO.: 4 of 5

Rumble Strip (Remove & Patch)

5 Miles * 5280 ft/mile * 1/45 ft * 24 sf/rumble

= 14080 sf

Edge Line (Remove & Replace)

5 Miles * 5280 ft/mile = 26,400 LF

Skip Line (Replace)

5 miles * 5280 ft/mile * 25% = 6600 LF

Pavement Marker (Remove & Replace)

5 Miles * 5280 ft/mile * 1/80ft = 330 Markers

COST WORKSHEET

PROJECT: **HAM-71/75-0.00/0.22, PID 75119** ALTERNATIVE NO.:

State of Ohio, Department of Transportation

PROJECT ITEM NO. 6-17 **MOT-1B**

Kentucky Transportation Cabinet SHEET NO.: **5 of 5**

PROJECT ITEM		ORIGINAL ESTIMATE			ALTERNATIVE ESTIMATE		
ITEM	UNITS	NO. OF UNITS	COST/ UNIT	TOTAL	NO. OF UNITS	COST/ UNIT	TOTAL
Edge Line Removal	LF				26,400	0.47	12,408
Edge Line Replacement	LF				26,400	0.31	8,184
Skip Line Removal	LF				26,400	0.47	12,408
Skip Line Replacement	LF				6,600	0.31	2,046
Pavement Markers Removal	EA				330	17.50	5,775
Pavement Markers Replacement	EA				330	35.00	11,550
Partial Depth JPC Repair	SF				14,080	34.72	488,858
Subtotal							541,229
Markup (%) at 59.50%							322,031
TOTAL							863,260

VALUE ENGINEERING ALTERNATIVE

PROJECT: **HAM-71/75-0.00/0.22, PID 75119**
Ohio Department of Transportation
PROJECT ITEM NO. 6-17
Kentucky Transportation Cabinet

ALTERNATIVE NO.: **MOT-1C**

DESCRIPTION: **FOR ALL OPTIONS IN KENTUCKY, USE THE INSIDE SHOULDER ON I-471 SOUTHBOUND TO SUPPORT REROUTING OF TRAFFIC DURING CONSTRUCTION WITH 11.5-FT.-WIDE TRAVEL LANES AND A 2-FT.-WIDE INSIDE SHOULDER**

SHEET NO.: **1 of 5**

ORIGINAL DESIGN: (See attached sketch)

The original design includes the rerouting of traffic to I-471 southbound during construction.

ALTERNATIVE: (See attached sketch)

Use the inside shoulder in lieu of the outside shoulder on I-471 southbound to support rerouting of traffic during construction. Use 11.5-ft.-wide lanes during construction.

ADVANTAGES:

- No full-depth pavement replacement required
- Maintains a 2-ft.-wide inside shoulder

DISADVANTAGES:

- Narrower travel lanes are necessary to accommodate the 2-ft.-wide inside shoulder

DISCUSSION:

I-471 crosses over the river running south into I-275 then to I-75. I-275 can carry extra capacity. Only I-471 needs shoulder work. Ramp work will be required at I-471/I-71, I-471/I-275, and I-275/I-75 in Kentucky.

Therefore, use an inside shoulder/lane shift as a detour during construction to prevent full-depth pavement replacement.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	$ 0	—	$ 0
ALTERNATIVE	$ 920,106	—	$ 920,106
SAVINGS (Original minus Alternative)	$ (920,106)	—	$ (920,106)

I-471-4(17)2

COUNTY OF	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
Campbell		2a	52

E

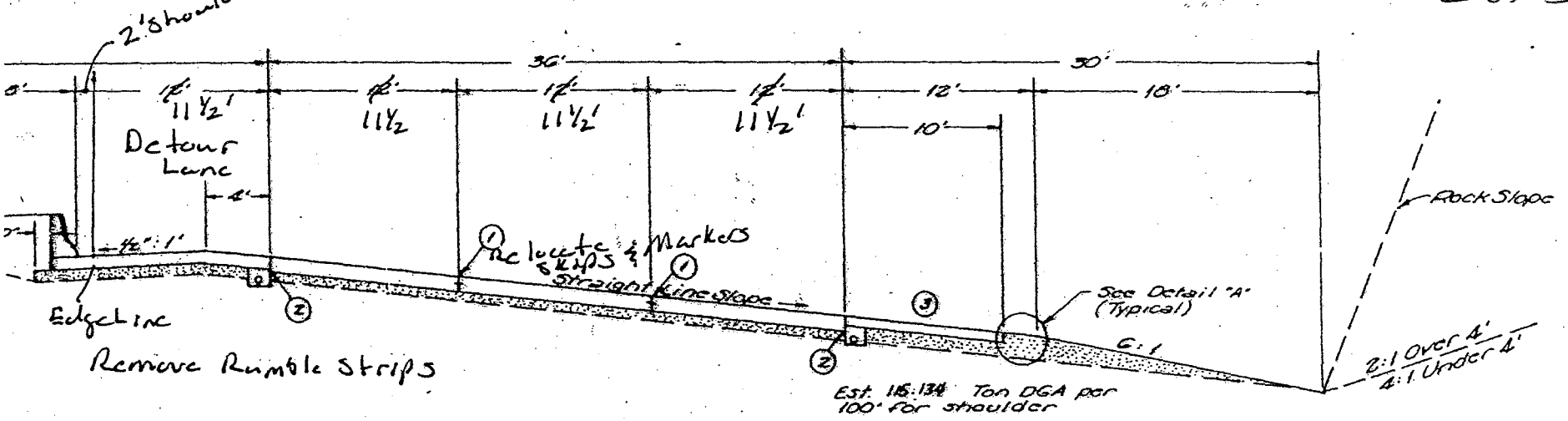
PICAL SECTIONS

L

Looking South

ALT. No. MOT-1C

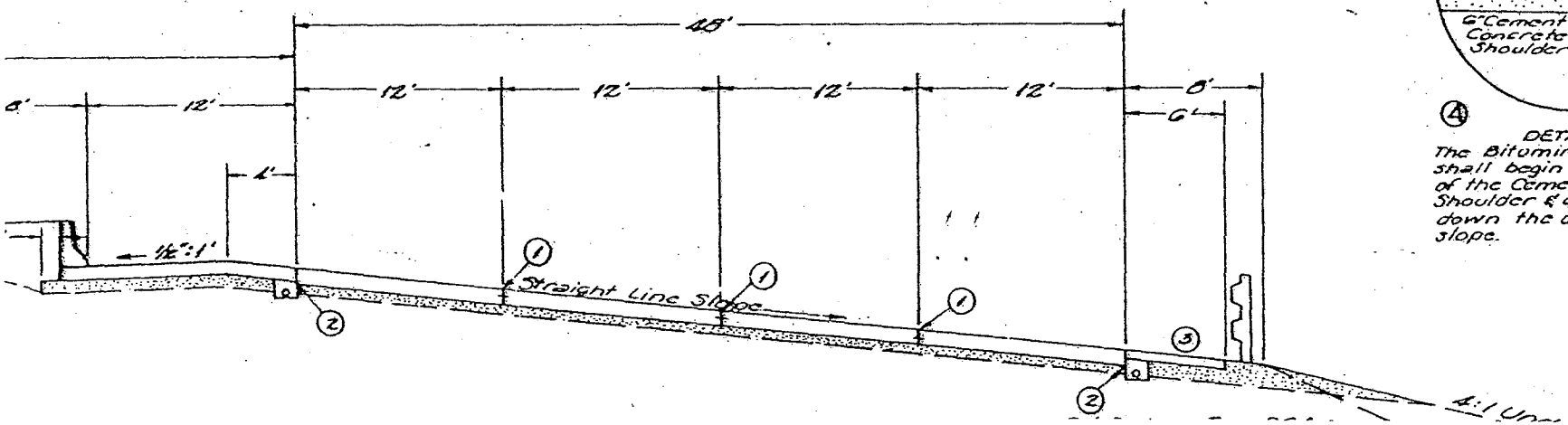
Sheet No. 2 of 5

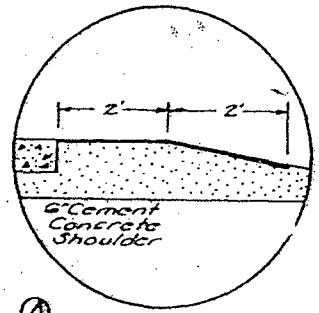


MOT-1C

Inside Shoulder with narrow lanes

ALTERNATIVE DESIGN





④ DETAIL "A"

The Bituminous Seal Coat shall begin at the edge of the Cement Concrete Shoulder & extend 2' down the ditch or fill slope.

CALCULATIONS

PROJECT: **HAM-71/75-0.00/.022, PID 75119**
Ohio Department of Transportation
PROJECT ITEM NO. 6-17
Kentucky Transportation Cabinet

ALT. NO.:

MOT-1C

SHEET NO.: 3 **of 5**

Use of inside shoulder on I-471 for travel lane with narrower lane

Use 12 ft. inside shoulder on southbound I-471 for an 11½ ft. travel lane and reduce the other three southbound travel lanes from 12 ft. to 11½ ft. This leaves 2 ft. for a shoulder on the inside.

- Cost to remove rumble strips
- Remove yellow edge line and two lines of skips
- Paint three skip lines, edge lines, and place three lines of pavement markers

CALCULATIONS

PROJECT: **HAM-71/75-0.00/0.22, PID 75119**
Ohio Department of Transportation
PROJECT ITEM NO. 6-17
Kentucky Transportation Cabinet

ALTERNATIVE NO.: MOT-1C

SHEET NO.: 4 of 5

Rumble Strip (Removal & Patching)

5 miles * 5280 ft/mile * 1/45 ft * 24 sf/rumble
= 14,080 SF

Edge Line (Remove & Replace)

5 Miles * 5280 ft/mile = 26,400 LF

Skip Line (Remove & Replace)

5 Miles * 5280 ft/mile * 25% * 3 Lines = 19,800 LF

Pavement Marker (Remove & Replace)

5 Miles * 5280 ft/mile * 1/80 ft * 3 Lines = 990 markers

COST WORKSHEET

PROJECT: **HAM-71/75-0.00/0.22, PID 75119** ALTERNATIVE NO.:

State of Ohio, Department of Transportation

PROJECT ITEM NO. 6-17 **MOT-1C**

Kentucky Transportation Cabinet SHEET NO.: **5 of 5**

PROJECT ITEM		ORIGINAL ESTIMATE			ALTERNATIVE ESTIMATE		
ITEM	UNITS	NO. OF UNITS	COST/ UNIT	TOTAL	NO. OF UNITS	COST/ UNIT	TOTAL
Rumble Strip Removal	SF				14,080	34.72	488,858
Edge Line Removal	LF				26,400	0.47	12,408
Edge Line Replacement	LF				26,400	0.31	8,184
Skip Line Removal	LF				19,800	0.47	9,306
Skip Line Replacement	LF				19,800	0.31	6,138
Pavement Markers Removal	EA				990	17.50	17,325
Pavement Markers Replacement	EA				990	35.00	34,650
Subtotal							576,869
Markup (%) at 59.50%							343,237
TOTAL							920,106

VALUE ENGINEERING ALTERNATIVE

PROJECT: **HAM-71/75-0.00/0.22, PID 75119**
Ohio Department of Transportation
PROJECT ITEM NO. 6-17
Kentucky Transportation Cabinet

ALTERNATIVE NO.: **MOT-2**

DESCRIPTION: **FOR ALL OPTIONS IN OHIO, ADD ALTERNATIVE NEWPORT EXIT SIGNING FROM I-71 VIA US 27 TO REROUTE TRAFFIC DURING CONSTRUCTION**

SHEET NO.: **1 of 2**

ORIGINAL DESIGN:

The original design includes a proposed Maintenance of Traffic (MOT) Scheme for all alternatives which removes 1-71 southbound (SB) traffic (with the potential of also removing 1-71 northbound traffic) from downtown Covington/Cincinnati Brent Spence Bridge via a detour using I-471 and I-275 in Northern Kentucky. The proposed detour will require upgrades to I-471 and I-275 to accommodate the increased traffic.

ALTERNATIVE: (See attached sketch)

Provide alternative signing on I-71 SB in Ohio for traffic bound for Newport, KY and the Newport Entertainment District (NED) to use the Third Street exit in Downtown Cincinnati and access Newport via the Taylor Southgate Bridge (US 27). If I-71 northbound traffic is maintained along the existing corridor, Newport bound traffic on I-71 northbound and I-71 southbound could be signed to use the Second Street Exit as well.

ADVANTAGES:

- Reduces congestion on the I-471/I-71 southbound combined MOT route and I-471/KY 8 interchange by removing Newport bound traffic, especially during peak hour and event traffic scenarios
- Uses available capacity on Taylor Southgate Bridge
- Alternative signing could remain as a permanent installation for I-71 southbound

DISADVANTAGES:

- Additional Newport bound traffic using the Third Street exit in downtown Cincinnati may cause operational issues and increased congestion on the downtown street network
- The alternative Newport/NED signing idea was not very well received by the City of Cincinnati during prior meetings regarding the I-471/KY 8 interchange

DISCUSSION:

The low cost of providing additional signing could have a dramatic impact to traffic flow and safety to the combined I-471/I-71 southbound MOT route by removing Newport bound traffic. This is especially true when considering the backups/congestion at the I-471/KY 8 interchange during peak hour and event traffic scenarios. Additionally, I-71 southbound signing could remain as a permanent installation.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN			
ALTERNATIVE	DESIGN SUGGESTION		
SAVINGS (Original minus Alternative)			

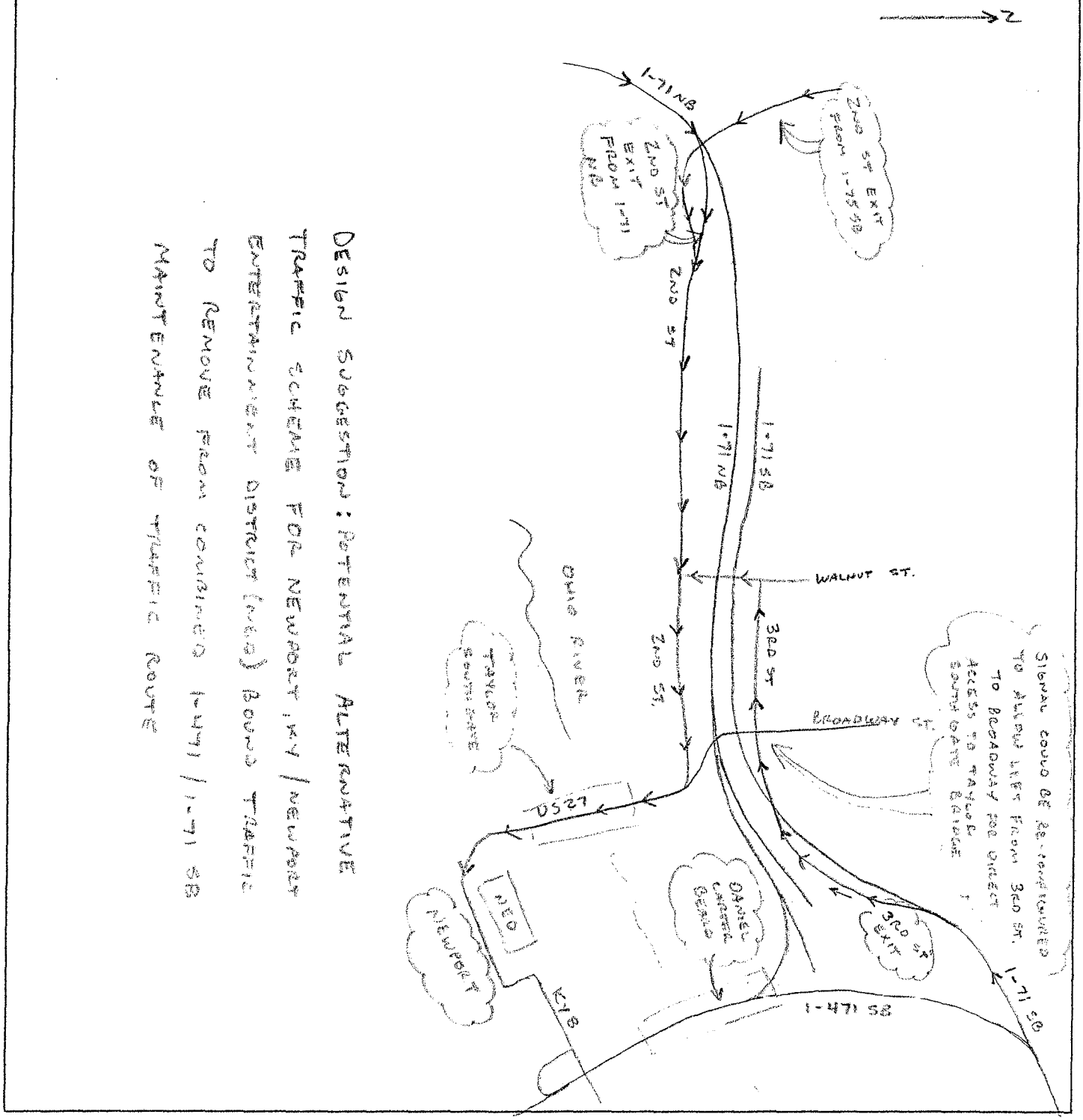
SKETCH

PROJECT: **HAM-71/75-0.00/0.22, PID 75119**
Ohio Department of Transportation
PROJECT ITEM NO. 6-17
Kentucky Transportation Cabinet

ALTERNATIVE NO.: Alt-2

ORIGINAL DESIGN ☐ ALTERNATIVE DESIGN ☑ BOTH ☐

SHEET NO.: 2 of 2



DESIGN SUGGESTION: POTENTIAL ALTERNATIVE TRAFFIC SCHEME FOR NEWPORT, KY / NEWPORT ENTERTAINMENT DISTRICT (NED) BOUND TRAFFIC TO REMOVE FROM CONGESTED I-471 / I-71 SB MAINTENANCE OF TRAFFIC ROUTE

VALUE ENGINEERING ALTERNATIVE

PROJECT: **HAM-71/75-0.00/0.22, PID 75119**
Ohio Department of Transportation
PROJECT ITEM NO. 6-17
Kentucky Transportation Cabinet

ALTERNATIVE NO.: **MOT-4A**

DESCRIPTION: **FOR ALL OPTIONS, USE OHIO OPTION 1 AS A CONTRACTOR LAYDOWN AREA FOR USE DURING CONSTRUCTION OF THE MAIN RIVER CROSSING**

SHEET NO.: **1 of 3**

ORIGINAL DESIGN:

The original designs make no mention of contractor lay-down areas for the bridge construction.

ALTERNATIVE: (See attached sketch)

Use Ohio Option 1 and designate the hilltop between I-71/75/Mehring Way and the railroad to the east as a potential contractor lay-down area. The contractor would use Mehring Way to access the site.

ADVANTAGES:

- Provides a laydown area near the construction site
- Provides a large area
- Provides a potential green space at completion of project

DISADVANTAGES:

- Requires right-of-way acquisition
- May interfere with traffic along Mehring Way when materials are being moved
- May have to use numerous surface streets to access the lay-down area

DISCUSSION:

The contractor will need a lay-down area when constructing the new I-71/75 bridge over the Ohio River. The hilltop between I-71/I-75/Mehring Way and the railroad was identified as an area close to the site having minimal impact to traffic. This area also has the potential of being reclaimed as green space at the completion of the project.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	$ 0	—	$ 0
ALTERNATIVE	$ 3,100,000	—	$ 3,100,000
SAVINGS (Original minus Alternative)	$ (3,100,000)	—	$ (3,100,000)

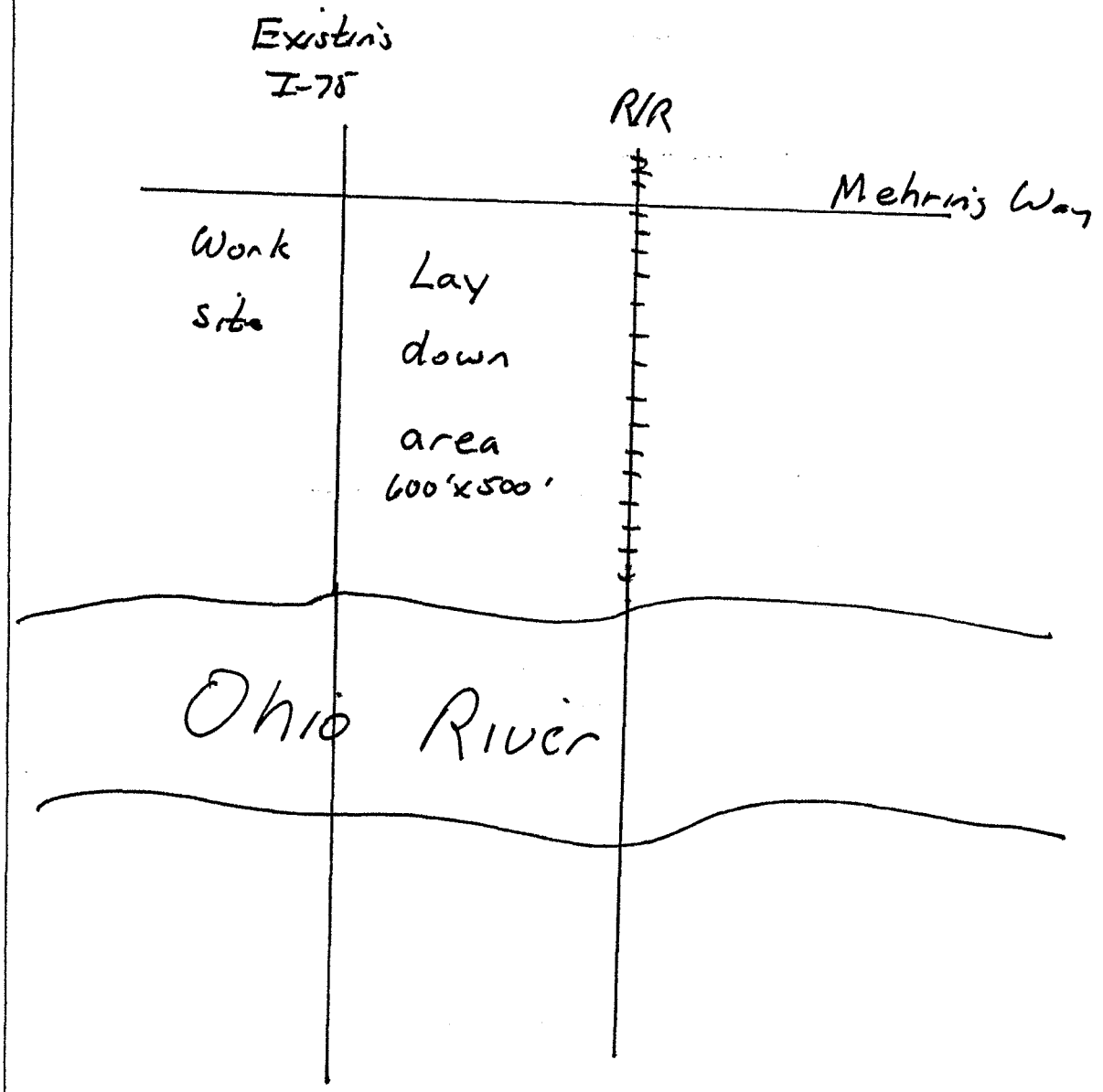
SKETCH

PROJECT: **HAM-71/75-0.00/0.22, PID 75119**
Ohio Department of Transportation
PROJECT ITEM NO. 6-17
Kentucky Transportation Cabinet

ALTERNATIVE NO.: 4A

ORIGINAL DESIGN ☐ ALTERNATIVE DESIGN ☒ BOTH ☐

SHEET NO.: 2 of 3



COST WORKSHEET

PROJECT: **HAM-71/75-0.00/0.22, PID 75119**
State of Ohio, Department of Transportation
PROJECT ITEM NO. 6-17
Kentucky Transportation Cabinet

ALTERNATIVE NO.:

MOT-4A

SHEET NO.: **3 of 3**

PROJECT ITEM		ORIGINAL ESTIMATE			ALTERNATIVE ESTIMATE		
ITEM	UNITS	NO. OF UNITS	COST/ UNIT	TOTAL	NO. OF UNITS	COST/ UNIT	TOTAL
Property Take	Acres				6.9	450,000.00	3,100,000
Subtotal							3,100,000
Markup (%) at	**59.50%**						included
TOTAL							3,100,000

VALUE ENGINEERING ALTERNATIVE

PROJECT: **HAM-71/75-0.00/0.22, PID 75119**
Ohio Department of Transportation
PROJECT ITEM NO. 6-17
Kentucky Transportation Cabinet

ALTERNATIVE NO.:
MOT-4B

DESCRIPTION: **FOR ALL OPTIONS, USE OHIO OPTION 2 AS A CONTRACTOR LAY-DOWN AREA FOR USE DURING CONSTRUCTION OF THE MAIN RIVER CROSSING**

SHEET NO.: **1 of 3**

ORIGINAL DESIGN:

The original designs make no mention of contractor lay-down areas for the bridge construction.

ALTERNATIVE:

Use Ohio Option 2 and designate the east quadrant of the Duke Energy parking lot as a contractor lay-down area. The existing lot is accessible from Mehring Way.

ADVANTAGES:

- Less expensive right-of-way cost
- The new parking area can remain undisturbed
- Near the construction site
- Minimal surface streets to use to access the lay-down area

DISADVANTAGES:

- Requires temporary right-of-way acquisition
- Area to the west of the Duke Energy Substation would require pavement and fencing
- Smaller than other areas proposed

DISCUSSION:

The contractor will need a lay-down area when constructing the new I-71/I-75 bridge over the Ohio River. The east quadrant of the Duke Energy parking lot is smaller than other areas but will have a lower right-of-way cost and will only be needed during construction. Access to the work site is optimal.

If this site is selected, consideration should be given to closing Mehring Way during bridge construction.

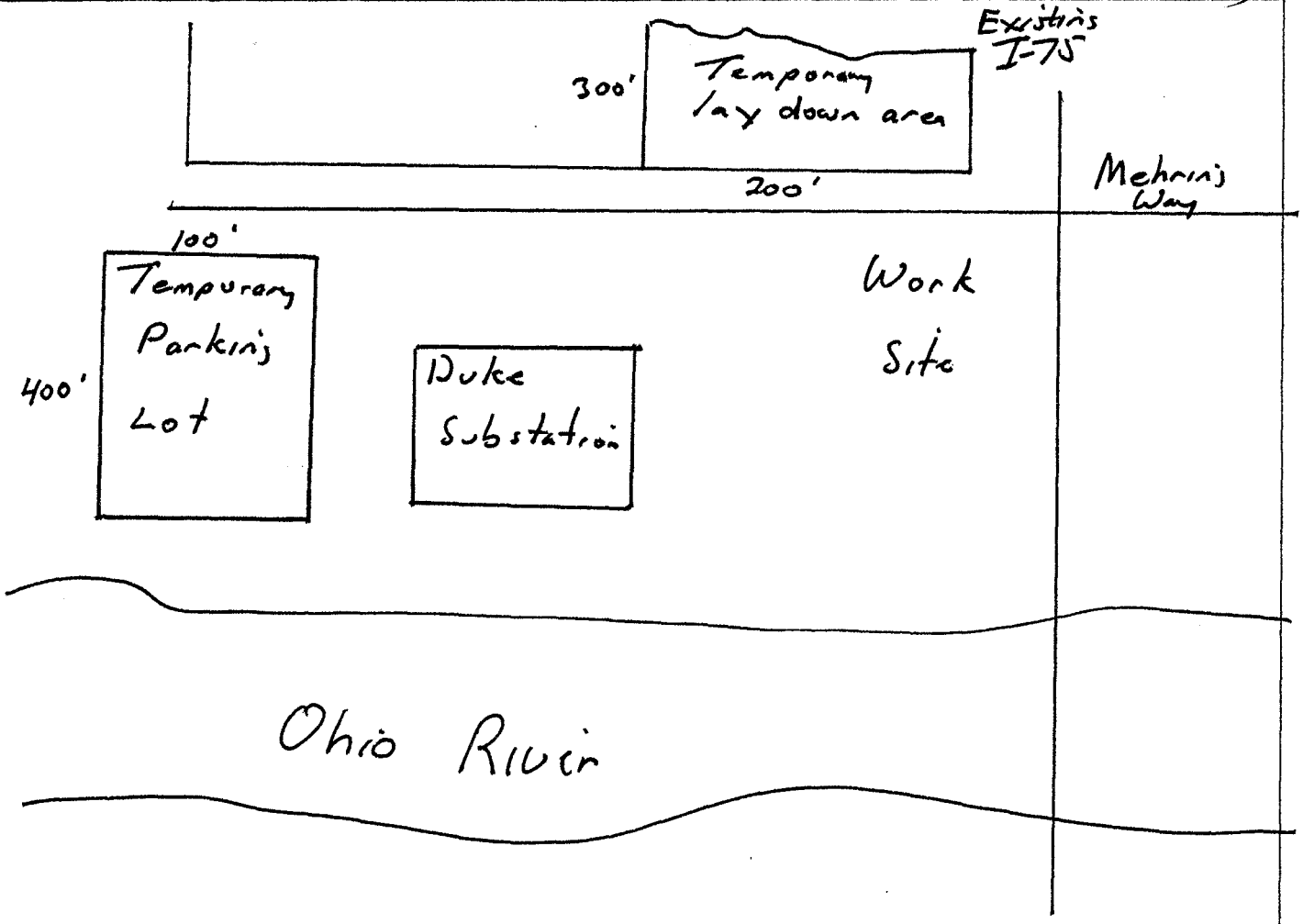
COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	$ 0	$	$ 0
ALTERNATIVE	$ 789,500	$	$ 789,500
SAVINGS (Original minus Alternative)	$ (789,500)	$	$ (789,500)

SKETCH

PROJECT: **HAM-71/75-0.00/0.22, PID 75119**
Ohio Department of Transportation
PROJECT ITEM NO. 6-17
Kentucky Transportation Cabinet

ALTERNATIVE NO.: 4B

ORIGINAL DESIGN ☐ ALTERNATIVE DESIGN ☒ BOTH ☐ SHEET NO.: 2 of 3



COST WORKSHEET

PROJECT: **HAM-71/75-0.00/0.22, PID 75119**
State of Ohio, Department of Transportation
PROJECT ITEM NO. 6-17
Kentucky Transportation Cabinet

ALTERNATIVE NO.:

MOT-4B

SHEET NO.: **3 of 3**

PROJECT ITEM		ORIGINAL ESTIMATE			ALTERNATIVE ESTIMATE		
ITEM	UNITS	NO. OF UNITS	COST/ UNIT	TOTAL	NO. OF UNITS	COST/ UNIT	TOTAL
Temporary Take	Acres				1.4	450,000.00	630,000
Parking Area & Fence	LS				1	100,000.00	100,000
Subtotal							730,000
Markup (%) at	**59.50%**						59,500
TOTAL							789,500

VALUE ENGINEERING ALTERNATIVE

PROJECT:	**HAM-71/75-0.00/0.22, PID 75119** *Ohio Department of Transportation* **PROJECT ITEM NO. 6-17** *Kentucky Transportation Cabinet*	ALTERNATIVE NO.:	**MOT-4C**
DESCRIPTION:	**FOR ALL OPTIONS, USE KENTUCKY OPTION 1 AS A CONTRACTOR LAY-DOWN AREA FOR USE DURING CONSTRUCTION OF THE MAIN RIVER CROSSING**	SHEET NO.:	**1 of 2**

ORIGINAL DESIGN:

The original designs make no mention of contractor lay-down areas for the bridge construction.

ALTERNATIVE:

Designate the area bordered by Crescent Avenue to the west, 3rd Street to the north, I-75 to the east, and 4th Street to the south in Kentucky as a contractor lay-down area.

ADVANTAGES:

- Uses existing right-of-way
- Close to the construction site
- Good access to the lay-down area from the interstate

DISADVANTAGES:

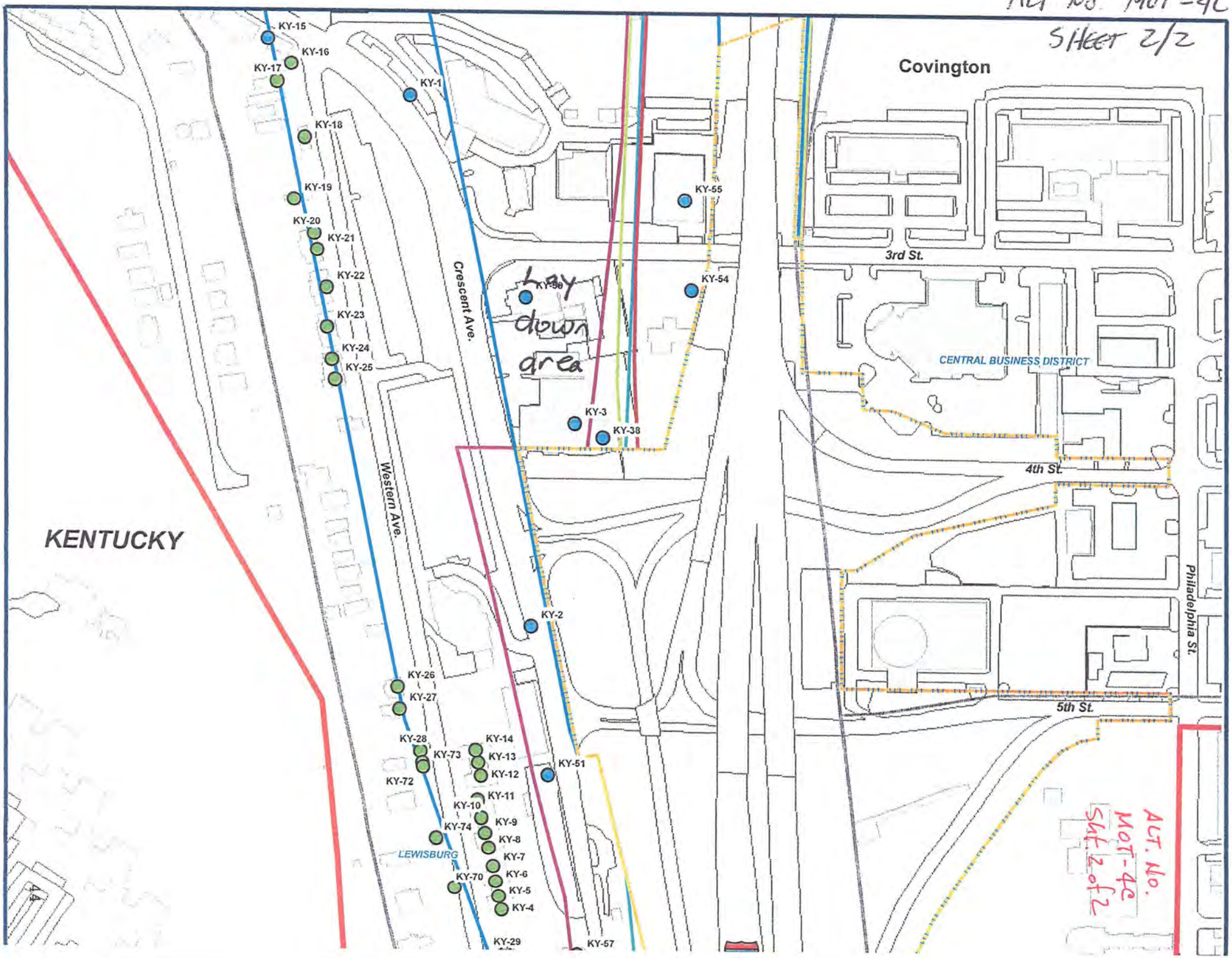
- Smaller than other areas proposed

DISCUSSION:

The contractor will need a lay-down area when constructing the new I-71/I-75 bridge over the Ohio River. This area is an existing right-of-way owned by KYTC. It is close to the south approach of the new bridge with a short haul distance from the lay-down area to the new bridge.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN			
ALTERNATIVE	DESIGN SUGGESTION		
SAVINGS (Original minus Alternative)			

ALT No. MOT-4C
SHEET 2/2



SUMMARY OF VALUE ENGINEERING ALTERNATIVES

PROJECT: **ODOT HAM-71/75-0.00/0.22, PID 75119, KYTC Project Item No. 6-17**

ALT. NO.	DESCRIPTION	ORIGINAL COST	ALTERNATIVE COST	PRESENT WORTH OF COST SAVINGS: INITIAL COST SAVINGS	PRESENT WORTH OF COST SAVINGS: RECURRING COST SAVINGS	PRESENT WORTH OF COST SAVINGS: TOTAL PW LCC SAVINGS
	PAVEMENT/RAMPS (P)					
P-3	In Alternative E, replace the 5th Street northbound ramp to I-71 in Kentucky with an indirect ramp connection from the collector-distributor roadway to I-71 in Ohio.	$398,710	$863,892	($465,182)		($465,182)
P-5	Eliminate the KY 9th Street intersection with the collector-distributor roadway from all options.	DESIGN SUGGESTION				
P-7	For the Hybrid Alternative CD, identify a shorter route for emergency responses from the Fire Station at 5th Street and Central Avenue to the Fort Washington Way Trench.	DESIGN SUGGESTION				
P-8	For the Hybrid Alternative CD, provide a direct connection from southbound collector-distributor roadway to 2nd Street in Ohio and add an additional connection to the US 42/3rd Street intersection to improve access and increase the use of the Clay Wade Bailey Bridge.	$0	$1,437,344	($1,437,344)		($1,437,344)
P-10	For the Hybrid Alternative CD, provide access from Winchell Avenue just north of Ezzard Charles Drive to northbound I-75.	$0	$999,433	($999,433)		($999,433)
P-11	For the Hybrid Alternative CD, update the cost estimate to reflect the additional lane on the I-75 mainline.	DESIGN SUGGESTION				
P-13	For Alternative E, shift the collector-distributor roadway to minimize impacts to Goebel Park and avoid relocating the radio station tower.	DESIGN SUGGESTION				

VALUE ENGINEERING ALTERNATIVE

PROJECT: **HAM-71/75-0.00/0.22, PID 75119**
Ohio Department of Transportation
PROJECT ITEM NO. 6-17
Kentucky Transportation Cabinet

ALTERNATIVE NO.: **P-3**

DESCRIPTION: **IN ALTERNATIVE E, REPLACE THE 5TH STREET NORTHBOUND RAMP TO I-71 IN KENTUCKY WITH AN INDIRECT RAMP CONNECTION FROM THE CONNECTOR-DISTRIBUTOR ROADWAY TO I-71 IN OHIO**

SHEET NO.: **1 of 4**

ORIGINAL DESIGN: (See attached sketch)

In Alternative E, a loop ramp provides a direct connection from KY 5th Street to I-71 northbound.

ALTERNATIVE: (See attached sketch)

Remove the loop ramp at KY 5th Street and replace it with a ramp connection from the northbound collector-distributor roadway to I-71 northbound in Ohio.

ADVANTAGES:

- Provides access for all of Covington including 12th, Pike, 9th, 5th, and 4th Streets
- Excess right-of-way area could be used to mitigate the right-of-way take in Goebel Park

DISADVANTAGES:

- Requires additional structural costs

DISCUSSION:

This alternative removes direct access from KY 5th Street but replaces this access with access from the collector-distributor roadway to I-71 northbound. By moving this access point to the connector distributor system, it will allow access from KY 12th, Pike, 9th, 5th, and 4th Streets to I-71 northbound. A secondary benefit would allow excess right-of-way to be given to the city of Covington for an expanded park area.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	$ 398,710	—	$ 398,710
ALTERNATIVE	$ 863,892	—	$ 863,892
SAVINGS (Original minus Alternative)	$ (465,182)	—	$ (465,182)

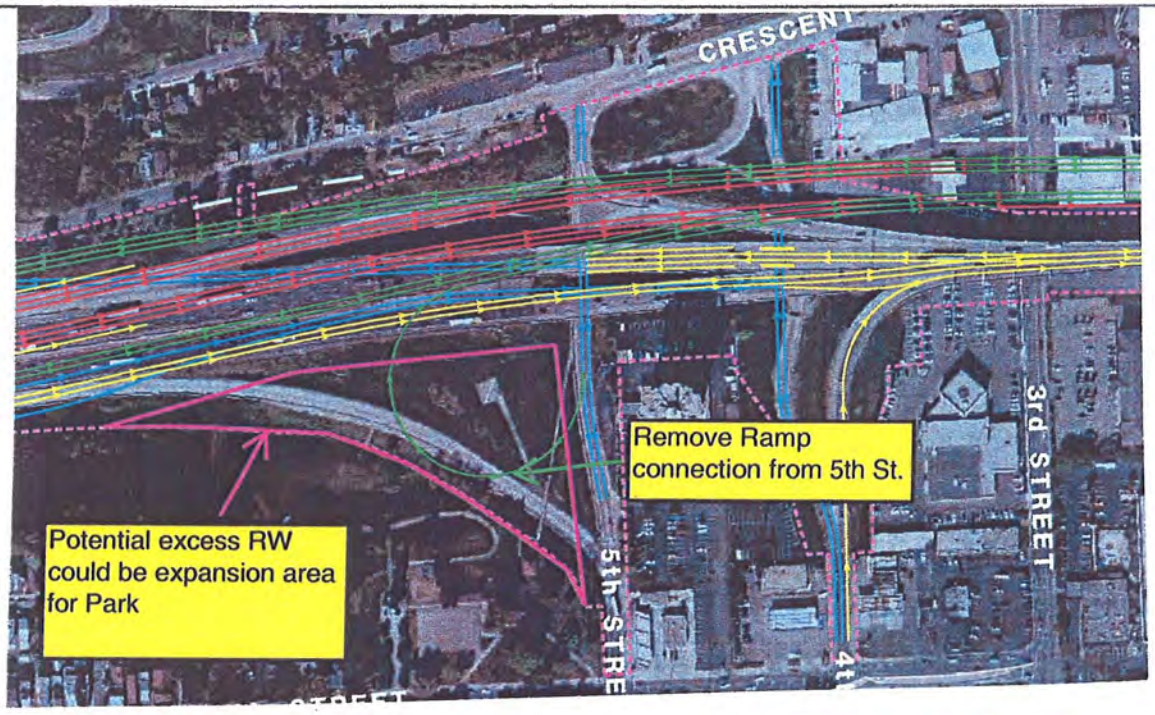
SKETCH

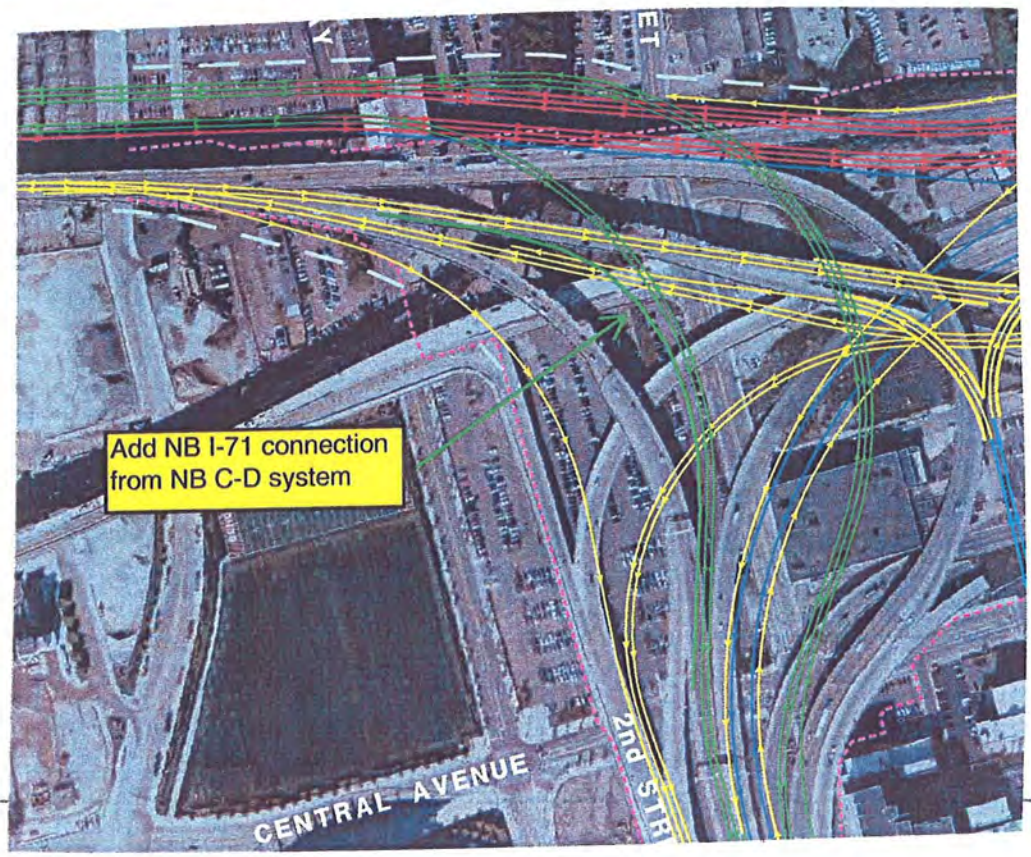
PROJECT: **HAM-71/75-0.00/0.22, PID 75119**
Ohio Department of Transportation
PROJECT ITEM NO. 6-17
Kentucky Transportation Cabinet

ALTERNATIVE NO.: P-3

ORIGINAL DESIGN ☐ ALTERNATIVE DESIGN ☐ BOTH ☒

SHEET NO.: 2 of 4





CALCULATIONS

PROJECT: **HAM-71/75-0.00/0.22, PID 75119**
Ohio Department of Transportation
PROJECT ITEM NO. 6-17
Kentucky Transportation Cabinet

ALTERNATIVE NO.: P-3

SHEET NO.: 3 of 4

Remove Loop Ramp

Assume 1000' total length 325' structure

675' x 26/9 = 1950 sy pavement area

325' x 26/9 = 939 sy structure area.

New Connection from NB C-D to I-71 NB

Assume 1500' length of new + widened structure.

1500' x 26 x/9 = 4333 sy structure cost.

Use 14' travel way 4' left sh, 8' right sh

26' total width Ramp.

COST WORKSHEET

PROJECT: **HAM-71/75-0.00/0.22, PID 75119** ALTERNATIVE NO.:

State of Ohio, Department of Transportation

PROJECT ITEM NO. 6-17 **P-3**

Kentucky Transportation Cabinet SHEET NO.: **4 of 4**

PROJECT ITEM		ORIGINAL ESTIMATE			ALTERNATIVE ESTIMATE		
ITEM	UNITS	NO. OF UNITS	COST/ UNIT	TOTAL	NO. OF UNITS	COST/ UNIT	TOTAL
Ramp Pavement	SY	1,950	68.00	132,600			
Ramp Structure	SY	939	125.00	117,375	4,333	125.00	541,625
Subtotal				249,975			541,625
Markup (%) at	**59.50%**			148,735			322,267
TOTAL				398,710			863,892

VALUE ENGINEERING ALTERNATIVE

PROJECT:	**HAM-71/75-0.00/0.22, PID 75119** *Ohio Department of Transportation* **PROJECT ITEM NO. 6-17** *Kentucky Transportation Cabinet*	ALTERNATIVE NO.:	**P-5**
DESCRIPTION:	**ELIMINATE THE KENTUCKY 9TH STREET INTERSECTION WITH THE COLLECTOR-DISTRIBUTOR ROADWAY FROM ALL OPTIONS**	SHEET NO.:	**1 of 2**

ORIGINAL DESIGN:

Currently, Hybrid Alternative CD, and Alternative E show the collector-distributor roadway intersecting with KY 9th Street on both sides of I-71/I-75.

ALTERNATIVE: (See attached sketch)

Eliminate the KY 9th Street intersection with the collector-distributor roadway from all options.

ADVANTAGES:

- Neighborhood retains its appeal for the residents
- Improves level of service and operation of the collector distributor roadway
- Reduces access along KY 9th Street

DISADVANTAGES:

- Eliminates an indirect access point for the City of Covington
- 9th Street would likely have a dead end on both sides of I-71/I-75

DISCUSSION:

In the past, the residents of the area around 9th Street in Covington did not desire to have this connectivity due to the potential for a significant increase in traffic through the residential neighborhood. If this connection is eliminated, the collector-distributor roadway operation would be improved.

There is a possibility that the profile grade of the collector-distributor roadway could be raised allowing 9th Street to be routed underneath and remain open. This should be investigated.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN			
ALTERNATIVE	DESIGN SUGGESTION		
SAVINGS (Original minus Alternative)			

ALT NO. P-5, SHEET 2/2

ELIMINATE 9th ST. INDIRECT ACCESS TO I-75 NORTHBOUND AND SOUTHBOUND TO PRESERVE RESIDENTIAL FEEL OF 9th ST.

PIKE STREET

9th STREET

PIKE STREET

12th STREET

75 71

LEGEND

Existing Right of Way

Potential Impact Limits

Base: 2004 Aerial Photograph

0 200 400 Feet

N

SHEET (3 OF 7)

U.S. Department of Transportation
Federal Highway Administration

ALTERNATIVE D
POTENTIAL R/W IMPACTS

EXHIBIT

Prepared by
PB PARSONS BRINCKERHOFF

VALUE ENGINEERING ALTERNATIVE

PROJECT:	**HAM-71/75-0.00/0.22, PID 75119** *Ohio Department of Transportation* **PROJECT ITEM NO. 6-17** *Kentucky Transportation Cabinet*	ALTERNATIVE NO.:	**P-7**
DESCRIPTION:	**IN THE HYBRID ALTERNATIVE CD, IDENTIFY A SHORTER ROUTE FOR EMERGENCY RESPONSES FROM THE FIRE STATION AT 5TH STREET AND CENTRAL AVENUE TO THE FORT WASHINGTON WAY TRENCH**	SHEET NO.:	**1 of 1**

ORIGINAL DESIGN:

Currently, access to the Fort Washington Way Trench is from the Linn Street/US 50 Interchange.

ALTERNATIVE:

Provide access to the Fort Washington Way Trench via 6th Street as proposed in Alternative E.

ADVANTAGES:

- Provides a quicker response route to incidents
- A two-way connection is provided from Central Avenue/6th Street west
- Eliminates US 50 eastbound to 5th Street infrastructure

DISADVANTAGES:

- Additional capacity may be needed on Central Avenue
- Additional capacity may be required at the Central Avenue/6th Avenue intersection
- The city street grid may not be able to accommodate the traffic pattern changes

DISCUSSION:

Currently, from 5th Street and Central Avenue in downtown Cincinnati, an emergency response unit would need to travel north on Central Avenue to west on 6th Street; exit at Linn Street, turn left on Linn Street, then turn left onto 6th Street eastbound to the Fort Washington Way Trench. If a solution similar to Alternative E is provided, the response route would be north on Central Avenue to west on 6th Street to the south ramp at Fort Washington Way. The distance saved would be approximately 4,800 ft.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN			
ALTERNATIVE	DESIGN SUGGESTION		
SAVINGS (Original minus Alternative)			

VALUE ENGINEERING ALTERNATIVE

PROJECT: **HAM-71/75-0.00/0.22, PID 75119**
Ohio Department of Transportation
PROJECT ITEM NO. 6-17
Kentucky Transportation Cabinet

ALTERNATIVE NO.: **P-8**

DESCRIPTION: **FOR THE ALTERNATE CD HYBRID, PROVIDE A DIRECT CONNECTION FROM THE SOUTHBOUND COLLECTOR - DISTRIBUTOR ROADWAY TO 2ND STREET IN OHIO AND ADD AN ADDITIONAL CONNECTION TO US 42/3RD STREET**

ORIGINAL DESIGN: (Sketch attached)

The original Alternate CD Hybrid includes a free flow exit ramp from the proposed southbound collector-distributor roadway to 2nd Street in Cincinnati. Alternate CD Hybrid does not include a connection to US 42/3rd Street which provides access to the Clay Wade Bailey Bridge.

ALTERNATIVE: (Sketch attached)

Construct a ramp from the 2nd Street free-flow exit ramp which will terminate at the US 42/3rd Street Intersection. The ramp will branch off of the 2nd Street ramp near the existing Artimis Building, and continue for approximately 600 ft., terminating at the US 42/3rd Street Intersection.

ADVANTAGES:

- Provides access to the Clay Wade Bailey Bridge
- Reduces congestion on the proposed Ohio River Bridge and existing Brent Spence Bridge by allowing traffic to cross the river using the Clay Wade Bailey Bridge
- Improves functionality of the City of Cincinnati street grid
- May have subsequent cost savings in the amount of collector-distributor required per the Conceptual Alternative Study

DISADVANTAGES:

- The proposed ramp will add construction cost to the project
- The US 42/3rd Street intersection may need to be reconstructed to support the increased traffic volume
- The intersection on the Kentucky side of the Clay Wade Bailey Bridge may need to be reconstructed to support the increased traffic volume

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	$ 0	—	$ 0
ALTERNATIVE	$ $1,437,344	—	$ $1,437,344
SAVINGS	$ (1,437,344)	—	$ (1,437,344)

VALUE ENGINEERING ALTERNATIVE

PROJECT: **HAM-71/75-0.00/0.22, PID 75119**
Ohio Department of Transportation
PROJECT ITEM NO. 6-17
Kentucky Transportation Cabinet

ALTERNATIVE NO.: **P-8**

DESCRIPTION: **FOR THE ALTERNATE CD HYBRID, PROVIDE A DIRECT CONNECTION FROM THE SOUTHBOUND COLLECTOR - DISTRIBUTOR ROADWAY TO 2ND STREET IN OHIO AND ADD AN ADDITIONAL CONNECTION TO US 42/3RD STREET**

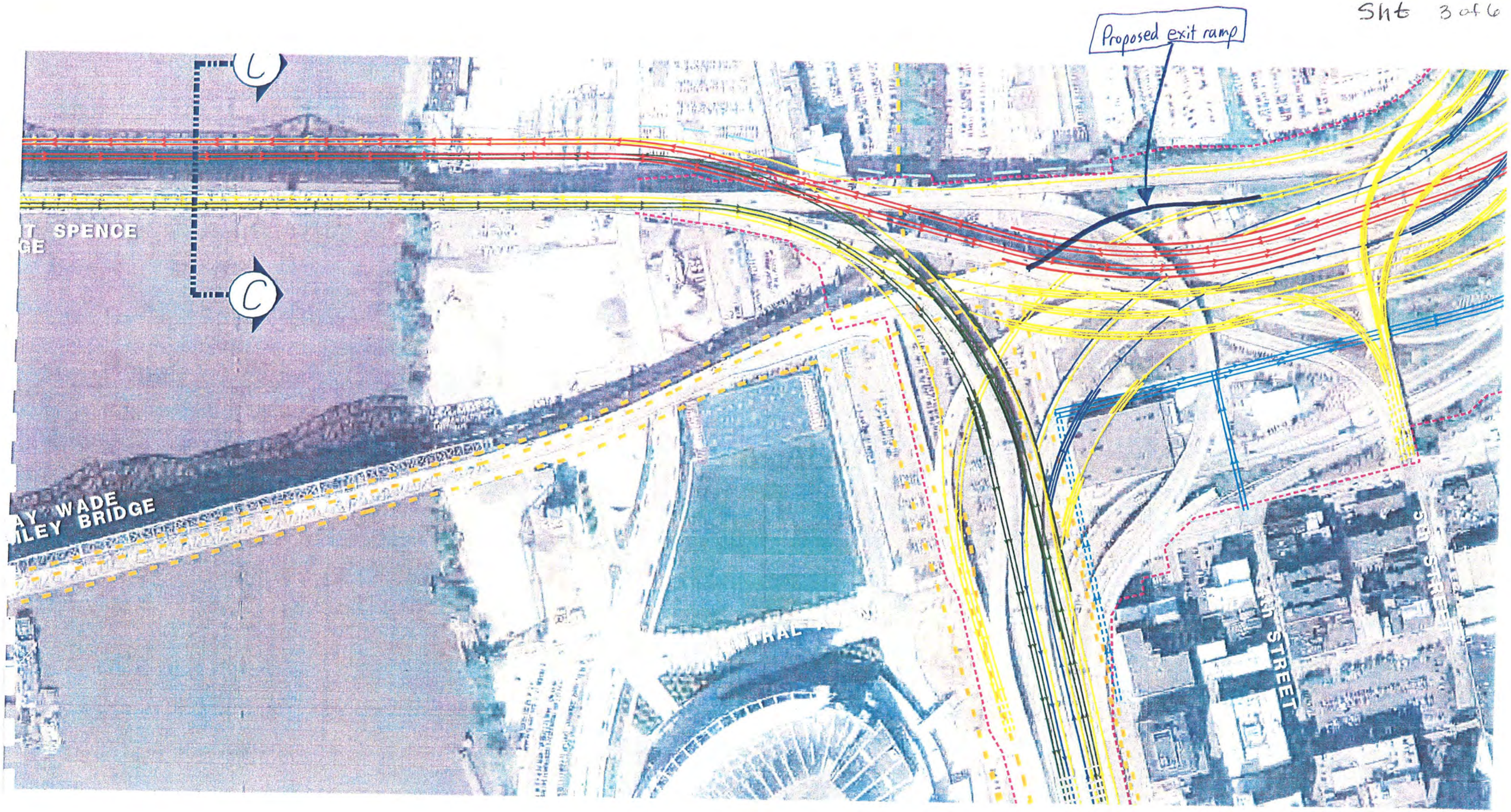
SHEET NO.: **2 of 6**

DISCUSSION:

The main reason for the addition of this ramp is to provide direct access from the southbound collector-distributor to the Clay Wade Bailey Bridge and take advantage of available capacity. Providing an alternative route across the Ohio River could reduce congestion on the existing Brent Spence Bridge as well as the proposed Ohio River Bridge. This ramp can also improve the functionality of the City of Cincinnati street grid.

The design year southbound ADT across the Clay Wade Bailey Bridge is 11,190 vehicles without the additional direct access ramp. The bridge is not currently operating at its full traffic capacity. The VE Team recommends performing a traffic study to determine the impact of this proposed increase in utilization of the Clay Wade Bailey Bridge.

ALT. No RE
Sht 3 of 6



CALCULATIONS

PROJECT: **HAM-71/75-0.00/0.22, PID 75119**
Ohio Department of Transportation
PROJECT ITEM NO. 6-17
Kentucky Transportation Cabinet

ALTERNATIVE NO.: P-8

SHEET NO.: 4 of 6

Pavement

- Length of proposed ramp ≈ 600' (Scaled from schematic sheet)
- Lane width of proposed ramp = 16' (Per ODOT Land & Volume 1)
- Shoulder width of proposed ramp = 6' outside + 3' inside = 9' (Per ODOT Land & Volume 1)

Pavement area = 600' × (16' + 9')
= 15,000 □'
≈ 1667 sq. yd.

Cost of ramp pavement per the consultant's estimate = $68/sq. yd.

So cost of pavement = 1667 sq. yd. × $68/sq. yd.
≈ **$113,000**

Embankment

- Difference in elevation from start of ramp to intersection = 35'
- Approximate embankment Avg. width = 110' (counting 2:1 foreslopes)
- Length = 600'

Avg. height = (35' + 0')/2 = 17.5'

so (17.5')(110')(600') = 1,155,000 × .27 = 43,000 cu. yd.

Cost per consultant's estimate = $6/cu. yd. So 43,000 × $6
= **$258,000**

Guardrail, Type S

Length = 600' × 2 (both sides) = 1200'

Cost per consultant's estimate = $14/ft → (1200')($14/ft) = **$17,000**

CALCULATIONS

PROJECT: **HAM-71/75-0.00/0.22, PID 75119**
Ohio Department of Transportation
PROJECT ITEM NO. 6-17
Kentucky Transportation Cabinet

ALTERNATIVE NO.: P-8

SHEET NO.: 5 of 6

Widened structure to accomodate the new ramp

width = 12'
length = 285'

so area = (285')(12')
= 3420 □'

mainline speed ≈ 50 mph
ramp speed ≈ 40 mph

cost per consultant's estimate = $150/sq. ft.

so $150 x 3420 □'
= $513,000

COST WORKSHEET

PROJECT: **HAM-71/75-0.00/0.22, PID 75119** ALTERNATIVE NO.:

State of Ohio, Department of Transportation

PROJECT ITEM NO. 6-17 **P-8**

Kentucky Transportation Cabinet SHEET NO.: **6 of 6**

PROJECT ITEM		ORIGINAL ESTIMATE			ALTERNATIVE ESTIMATE		
ITEM	UNITS	NO. OF UNITS	COST/ UNIT	TOTAL	NO. OF UNITS	COST/ UNIT	TOTAL
Ramp Pavement (Includes 13-inch reinforced concrete pavement, 6-inch aggregate base, and subgrade comp.)	SY				1,667	68.00	113,356
Embankment	CY				43,000	6.00	258,000
Guardrail, Type 5	FT				1,200	14.00	16,800
Widened Structure	SF				3,420	150.00	513,000
Subtotal							901,156
Markup (%) at 59.50%							536,188
TOTAL							1,437,344

VALUE ENGINEERING ALTERNATIVE

PROJECT: **HAM-71/75-0.00/0.22, PID 75119**
Ohio Department of Transportation
PROJECT ITEM NO. 6-17
Kentucky Transportation Cabinet

ALTERNATIVE NO.: **P-10**

DESCRIPTION: **FOR THE HYBRID ALTERNATIVE CD, PROVIDE ACCESS FROM WINCHELL AVENUE JUST NORTH OF EZZARD CHARLES DRIVE TO NORTHBOUND I-75**

SHEET NO.: **1 of 3**

ORIGINAL DESIGN:

The Hybrid Alternative CD design does not provide access from Winchell Avenue north of Ezzard Charles Drive to northbound I-75.

ALTERNATIVE:

Provide access from the Winchell Avenue north of Ezzard Charles Drive to northbound I-75.

ADVANTAGES:

- Provides quicker access to northbound I-75 directly from Winchell Avenue without having to travel 7,000 ft to the north of the Western Hills Viaduct

DISADVANTAGES:

- Requires design and construction of an additional access ramp
- May require structural work at Liberty Street

DISCUSSION:

Adding a ramp to northbound I-75 from Winchell Avenue north of Ezzard Charles Drive will reduce the amount of traffic on Winchell Avenue and allow quicker access for local traffic to northbound I-75. The current daily hourly vehicles for this movement is 750 at the peak hour. An additional cost of approximately one million dollars must be weighed against the need and benefit achieved by adding this ramp.

This alternative will require a study of potential structural work which may be required at Liberty Street.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	$ 0	—	$ 0
ALTERNATIVE	$ 999,433	—	$ 999,433
SAVINGS (Original minus Alternative)	$ (999,433)	—	$ (999,433)

CALCULATIONS

PROJECT: **HAM-71/75-0.00/0.22, PID 75119**
Ohio Department of Transportation
PROJECT ITEM NO. 6-17
Kentucky Transportation Cabinet

ALTERNATIVE NO.: P-10

ORIGINAL DESIGN ☐ ALTERNATIVE DESIGN ☒ BOTH ☐ SHEET NO.: 2 of 3

Given:

1) Existing traffic currently using entrance ramp for NB IR 75, north of Ezzard Charles Dr. per. 9/10/08 certified traffic (ODOT, Office of Tech. Services)
   AH E AM DHV = 510
   AH E PM DHV = 750

2) Ramp width per ODOT L&D = 25 ft.

3) Cost estimates per ODOT C I Estimator

4) Required ramp length = 1400 ft.

Assumption:

1) Structure at Liberty can be widened to accomodate additional lane.

2) Additional lane can be built between IR 75 and Winchelle

3) Any required retaining walls or noise walls will not change.

4) 16 ft. elevation from Winchelle to IR 75

Calculation:

1) Additional structure width required over Liberty Street
   12 ft wide × 200 ft long × 125.00 $/ft² (Item 506) = $30,000.00

2) New ramp from just north of Ezzard Charles to north of Liberty
   $1{,}400 \text{ ft} \times 25 \text{ ft} \times \frac{1 \text{ yd}}{9 \text{ ft}^2} \times 68 \text{ \$/yd}^2 \text{ (Item 122)} = \$264{,}444.00$

3) Additional needed fill
   $1400 \text{ ft} \times 25 \text{ ft} \times \frac{16 \text{ ft}}{2} \times \frac{\text{yd}^3}{27 \text{ ft}^3} \times 6.0 \text{ \$/yd}^3 \text{ (Item 345)} = 62,222$

Total Estimate $ 626,666

COST WORKSHEET

PROJECT: **HAM-71/75-0.00/0.22, PID 75119**
State of Ohio, Department of Transportation
PROJECT ITEM NO. 6-17
Kentucky Transportation Cabinet

ALTERNATIVE NO.:

P-10

SHEET NO.: **3 of 3**

PROJECT ITEM		ORIGINAL ESTIMATE			ALTERNATIVE ESTIMATE		
ITEM	UNITS	NO. OF UNITS	COST/ UNIT	TOTAL	NO. OF UNITS	COST/ UNIT	TOTAL
New Ramp	SY				3,888	68.00	264,384
Embankment	CY				10,370	6.00	62,220
New Structure (added 12-ft lane)	SF				2,400	125.00	300,000
Subtotal							626,604
Markup (%) at 59.50%							372,829
TOTAL							999,433

VALUE ENGINEERING ALTERNATIVE

PROJECT: **HAM-71/75-0.00/0.22, PID 75119**
Ohio Department of Transportation
PROJECT ITEM NO. 6-17
Kentucky Transportation Cabinet

ALTERNATIVE NO.: **P-11**

DESCRIPTION: **FOR THE HYBRID ALTERNATIVE CD, UPDATE THE COST ESTIMATE TO REFLECT AN ADDITIONAL LANE ON THE I-75 MAINLINE**

SHEET NO.: **1 of 2**

ORIGINAL DESIGN:

In the Conceptual Alternative Study (CAS), Alternatives C and D were evaluated with two lanes northbound and two lanes southbound on I-75.

ALTERNATIVE:

Update the cost estimate in the Hybrid Alternative CD to include three lanes northbound and three lanes southbound on I-75 to match Alternative E.

ADVANTAGES:

- Matches the number of lanes provided with Alternative E

DISADVANTAGES:

- None identified

DISCUSSION:

As a result of recommendations confirmed in the CAS, Alternatives C and D will be combined into a hybrid alternative. The new Hybrid Alternative CD will be further designed and evaluated with three lanes for I-75 in each direction. This update is required to show the change in the base cost for Hybrid Alternative CD.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN			
ALTERNATIVE	DESIGN SUGGESTION		
SAVINGS (Original minus Alternative)			

COST WORKSHEET

PROJECT: **HAM-71/75-0.00/0.22, PID 75119**
State of Ohio, Department of Transportation
PROJECT ITEM NO. 6-17
Kentucky Transportation Cabinet

ALTERNATIVE NO.:

P-11

SHEET NO.: **2 of 2**

PROJECT ITEM		ORIGINAL ESTIMATE			ALTERNATIVE ESTIMATE		
ITEM	UNITS	NO. OF UNITS	COST/ UNIT	TOTAL	NO. OF UNITS	COST/ UNIT	TOTAL
Mainline Travel Lanes	SY				18,292	68.00	1,243,856
Tier 1 Bridge Area	CY				67,531	125.00	8,441,375
Tier 2 Bridge Area	SF				58,555	150.00	8,783,250
Tier 3 Bridge Area	SF				56,232	175.00	9,840,600
Main River (Difference Between Alt. CD and Alt. E)	LS	1	289,036,800	289,036,800	1	355,737,600	355,737,600
Subtotal				289,036,800			384,046,681
Markup (%) at 59.50%				171,976,896			228,507,775
TOTAL				461,013,696			612,554,456

VALUE ENGINEERING ALTERNATIVE

PROJECT:	**HAM-71/75-0.00/0.22, PID 75119** *Ohio Department of Transportation* **PROJECT ITEM NO. 6-17** *Kentucky Transportation Cabinet*	ALTERNATIVE NO.:	**P-13**
DESCRIPTION:	**FOR ALTERNATIVE E, SHIFT THE COLLECTOR-DISTRIBUTOR ROADWAY TO MINIMIZE IMPACTS TO GOEBEL PARK AND AVOID RELOCATING THE RADIO STATION TOWER**	SHEET NO.:	**1 of 2**

ORIGINAL DESIGN: (See attached sketch)

In the original design for Alternative E, the current local street/collector-distributor roadway just north of 9th Street in Kentucky requires the relocation of the radio station tower and encroachment into Goebel Park.

ALTERNATIVE: (See attached sketch)

Shift the local street/collector-distributor roadway to the north in a stacked configuration with the collector-distributor roadway above the local street to avoid impact to the radio tower and Goebel Park.

ADVANTAGES:

- Avoids radio tower relocation
- Minimizes impact to Goebel Park

DISADVANTAGES:

- The intersection of the new local street with 9th Street under an overhead structure may limit sight distance

DISCUSSION:

Shifting the local street/collector distributor roadway to the west to miss the radio tower will avoid a costly and difficult relocation of an AM radio station antenna. The shift may also have a benefit of reducing impacts to Goebel Park, which is a Section 6f resource.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN			
ALTERNATIVE	DESIGN SUGGESTION		
SAVINGS (Original minus Alternative)			

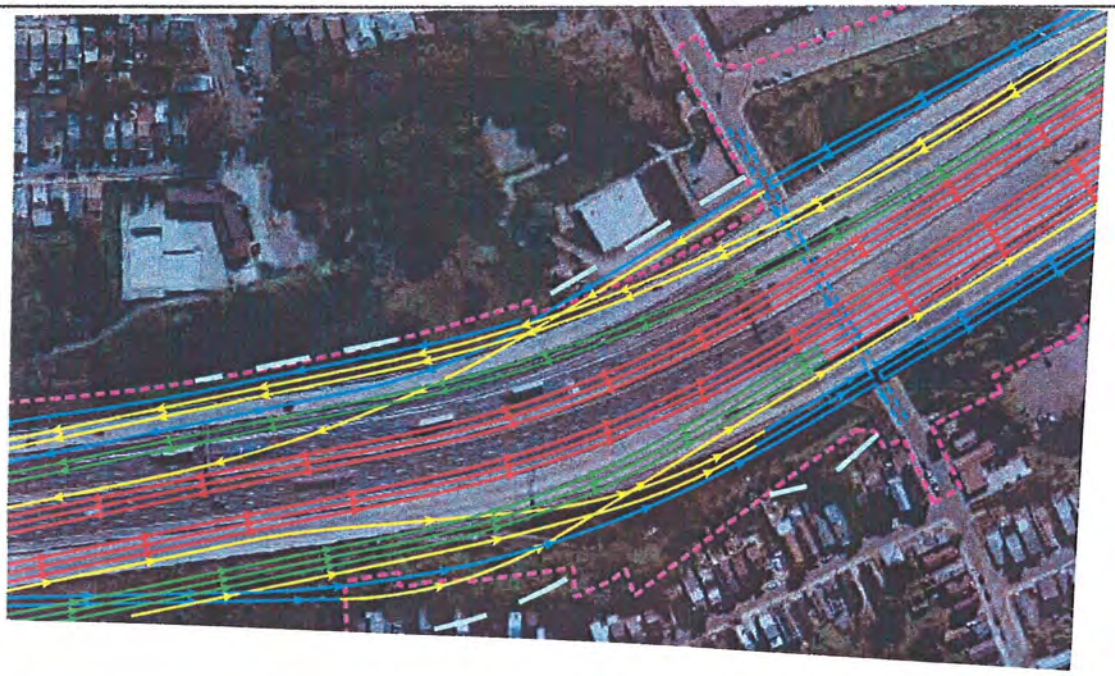
SKETCH

PROJECT: **HAM-71/75-0.00/0.22, PID 75119**
Ohio Department of Transportation
PROJECT ITEM NO. 6-17
Kentucky Transportation Cabinet

ALTERNATIVE NO.: P-13

ORIGINAL DESIGN ☐ ALTERNATIVE DESIGN ☐ BOTH ☒

SHEET NO.: 2 of 2



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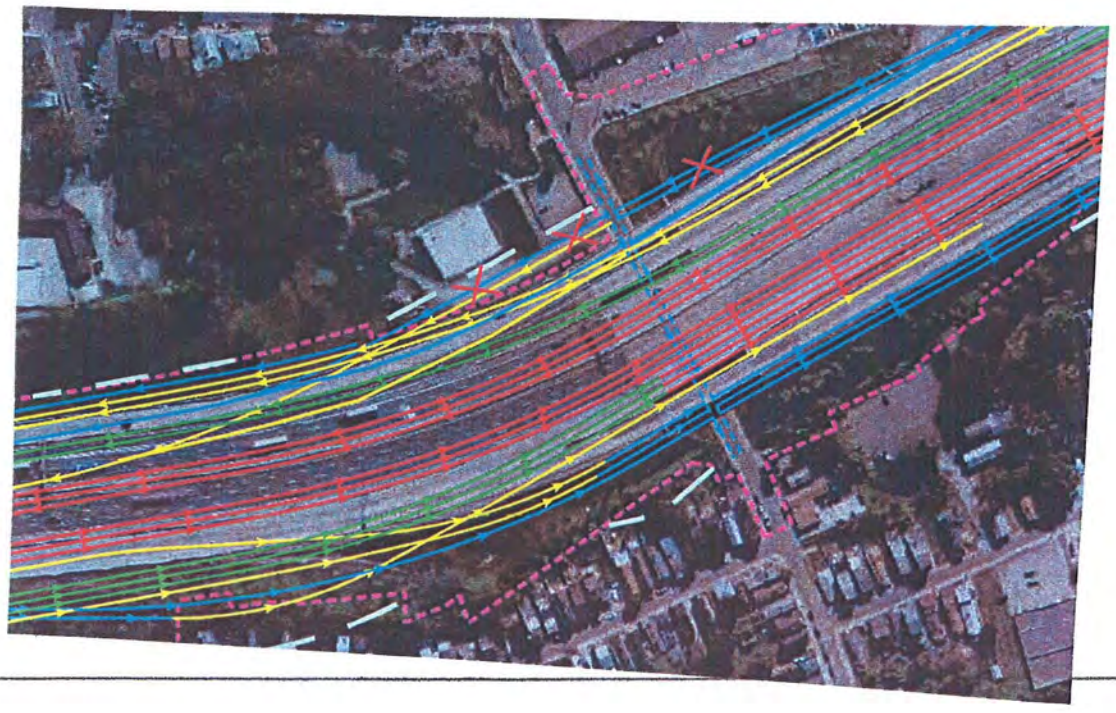

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SUMMARY OF VALUE ENGINEERING ALTERNATIVES

PROJECT: **ODOT HAM-71/75-0.00/0.22, PID 75119, KYTC Project Item No. 6-17**

ALT. NO.	DESCRIPTION	ORIGINAL COST	ALTERNATIVE COST	PRESENT WORTH OF COST SAVINGS: INITIAL COST SAVINGS	PRESENT WORTH OF COST SAVINGS: RECURRING COST SAVINGS	PRESENT WORTH OF COST SAVINGS: TOTAL PW LCC SAVINGS
	STRUCTURES (S)					
S-1	For Hybrid Alternative CD, provide an exit from the northbound collector-distributor roadway to Ezzard Charles Drive similar to that shown in the Alternative E design.	DESIGN SUGGESTION				
S-2	With all options, use tie-back walls on the west side of southbound KY I-75 and in other applicable areas in Kentucky to reduce excavation and right-of-way requirements.	DESIGN SUGGESTION				
S-4	With all options, provide a means to mitigate potential structural impacts to Willow Run Sewer during construction.	DESIGN SUGGESTION				
S-6A	For the Hybrid Alternative CD, adjust the lane configurations on each deck on the new bridge to save one lane per deck.	$567,401,472	$513,809,472	$53,592,000		$53,592,000
S-6B	For Alternative E, make the traffic operations directional on each deck on the new bridge to save one lane per deck.	$567,401,472	$513,809,472	$53,592,000		$53,592,000

VALUE ENGINEERING ALTERNATIVE

PROJECT: **HAM-71/75-0.00/0.22, PID 75119**
Ohio Department of Transportation
PROJECT ITEM NO. 6-17
Kentucky Transportation Cabinet

ALTERNATIVE NO.: **S-1**

DESCRIPTION: **PROVIDE AN EXIT FROM THE NORTHBOUND COLLECTOR-DISTRIBUTOR ROADWAY TO EZZARD CHARLES AND INCLUDE IN THE HYBRID ALTERNATIVE CD DESIGN SIMILAR TO THAT SHOWN IN THE ALTERNATIVE E DESIGN**

SHEET NO.: **1 of 3**

ORIGINAL DESIGN:

In the Hybrid Alternative CD design, the collector-distributor roadway carries Northern Kentucky traffic across the Brent Spence Bridge to Ohio exits to 2nd Street east and 6th Street/US 50 west, and then merges with northbound I-75 below Ezzard Charles Drive. There is no direct access to the Museum Center except to take 6th Street west to Freeman Avenue, travel north on Freeman Avenue to Winchell Avenue, and then cross Ezzard Charles Drive to the Museum Entrance.

ALTERNATIVE:

Add a drop lane from the collector-distributor roadway and merge this with the frontage road between 9th Street and Linn Street. This frontage road merges with Freeman Avenue and crosses Ezzard Charles Drive.

ADVANTAGES:

- More direct access to the Museum Center and Amtrak railroad from Kentucky and Fort Washington Way
- A portion of traffic currently exiting at 5th Street and 6th Street will now use the new exit to access the Museum Center and reduce congestion

DISADVANTAGES:

- This alternative would create a braided merge between the collector-distributor road and oncoming traffic from 6th Street and 9th Street
- A design exception may be required for the length of the collector-distributor roadway deceleration lane which requires 400 feet minimum

DISCUSSION:

A certified travel analysis is recommended to determine the potential benefit of the proposed new exit. No additional right-of-way or retaining walls will be required other than what is already proposed for the Hybrid Alternative CD Frontage Road (i.e., Queens Gate Park). Utility and cultural impacts would remain unchanged also.

The design year average daily traffic (ADT) for the new collector-distributor roadway is 42,770 based upon Alternative C traffic data. The design year ADT for Winchell Avenue from 9th Street to Freeman Avenue is 10,520. An unknown percentage of collector-distributor traffic will be added to Winchell Avenue.

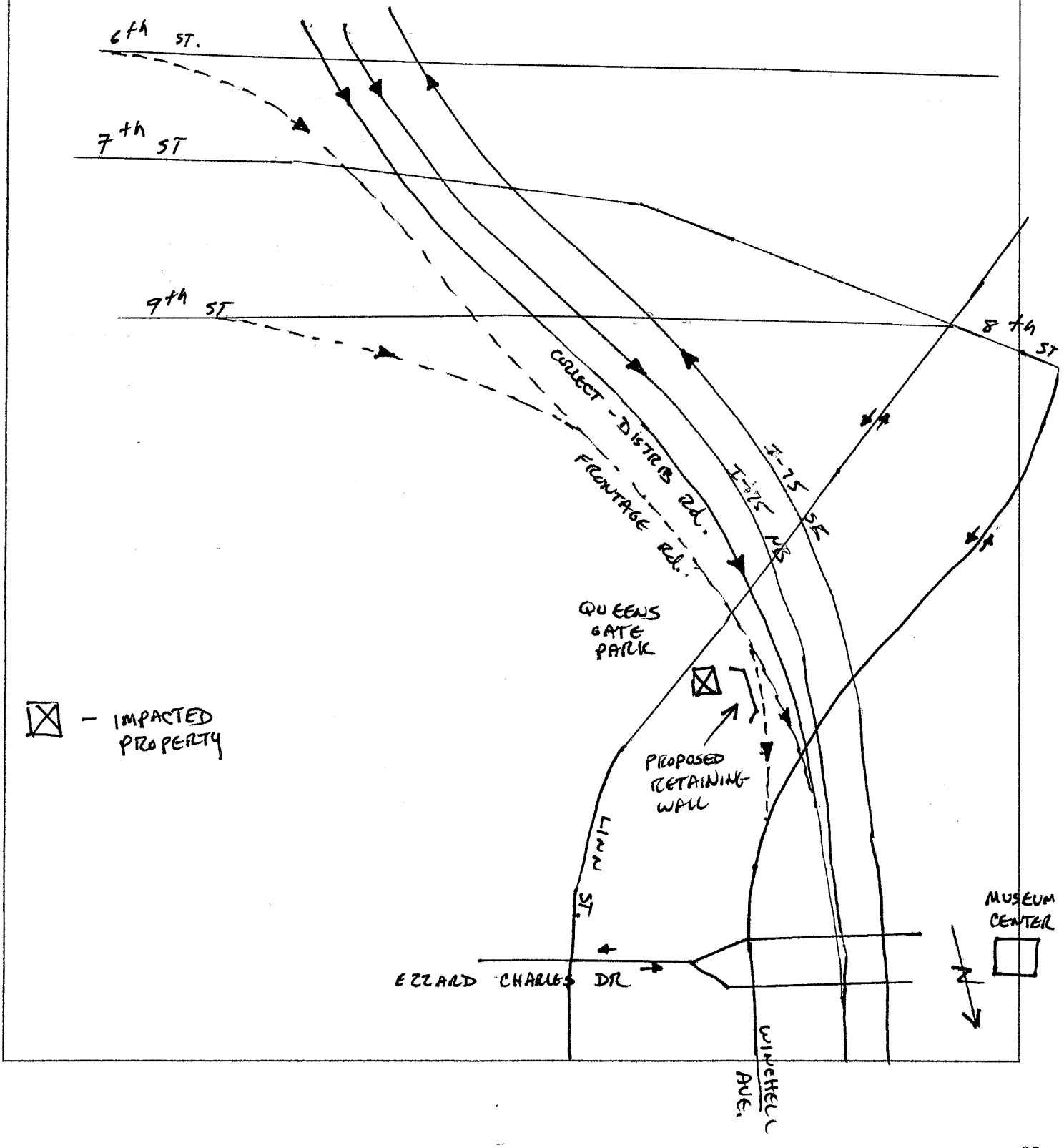
COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN			
ALTERNATIVE	DESIGN SUGGESTION		
SAVINGS (Original minus Alternative)			

SKETCH

PROJECT: **HAM-71/75-0.00/0.22, PID 75119**
Ohio Department of Transportation
PROJECT ITEM NO. 6-17
Kentucky Transportation Cabinet

ALTERNATIVE NO.: S-1

ORIGINAL DESIGN ☒ ALTERNATIVE DESIGN ☐ BOTH ☐ SHEET NO.: 2 of 3

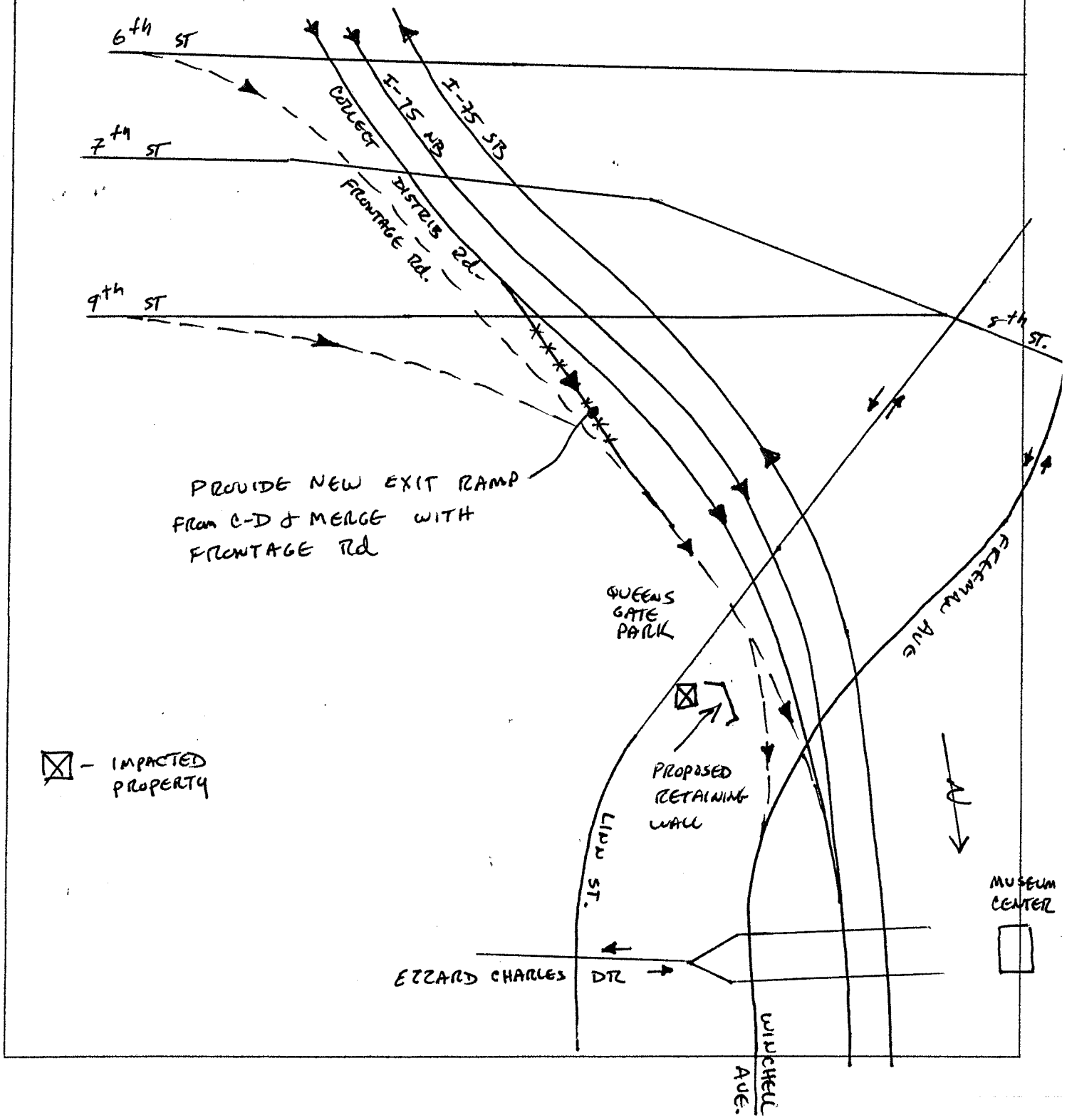


SKETCH

PROJECT: **HAM-71/75-0.00/0.22, PID 75119**
Ohio Department of Transportation
PROJECT ITEM NO. 6-17
Kentucky Transportation Cabinet

ALTERNATIVE NO.: S-1

ORIGINAL DESIGN ☐ ALTERNATIVE DESIGN ☒ BOTH ☐ SHEET NO.: 3 of 3



VALUE ENGINEERING ALTERNATIVE

PROJECT: **HAM-71/75-0.00/0.22, PID 75119**
Ohio Department of Transportation
PROJECT ITEM NO. 6-17
Kentucky Transportation Cabinet

ALTERNATIVE NO.: **S-2**

DESCRIPTION: **WITH ALL OPTIONS, USE TIE-BACK RETAINING WALLS ON THE WEST SIDE OF I-75 SOUTHBOUND AND IN OTHER APPLICABLE AREAS TO REDUCE RIGHT-OF-WAY ACQUISTION REQUIREMENTS**

SHEET NO.: **1 of 2**

ORIGINAL DESIGN:

The original design identifies "Potential Impact" areas outside of the existing right-of-way on the west side of I-75 southbound in Kentucky.

ALTERNATIVE: (See attached sketch)

Use tie-back retaining walls in selected areas from Kyle's Lane to approximately 7,000 ft. north of Kyle's Lane and in other applicable areas on the west side of southbound I-75 in Kentucky to reduce right-of-way acquisition requirements.

ADVANTAGES:

- Reduces right-of-way acquisition
- Improves stability of cut slopes
- Reduces excavation
- Reduces long term maintenance costs
- Reduces potential for damage to adjacent properties

DISADVANTAGES:

- Increases construction costs for tieback walls
- Increases design effort
- May require subterranean easement

DISCUSSION:

Tieback retaining walls could be used in areas where there is potential for impact outside of existing right-of-way areas. Based upon the "Potential Right-of-Way Impacts" identified in Alternatives CD and E, this would apply to approximately 2,500 linear ft.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN			
ALTERNATIVE	DESIGN SUGGESTION		
SAVINGS (Original minus Alternative)			

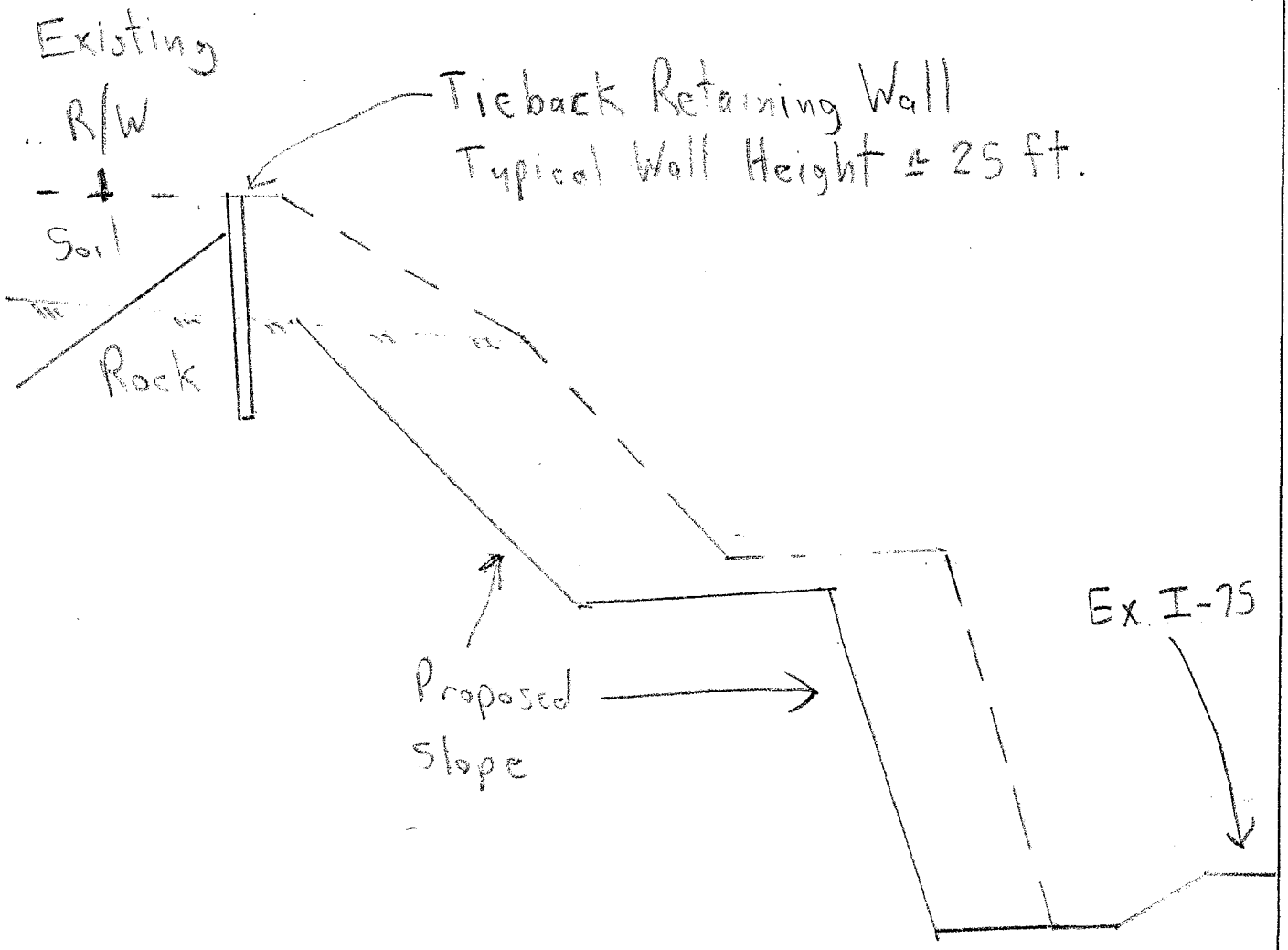
SKETCH

PROJECT: **HAM-71/75-0.00/0.22, PID 75119**
Ohio Department of Transportation
PROJECT ITEM NO. 6-17
Kentucky Transportation Cabinet

ALTERNATIVE NO.: 5-2

ORIGINAL DESIGN ☐ ALTERNATIVE DESIGN ☒ BOTH ☐

SHEET NO.: 2 of 2



Conceptual Only

Not to Scale

VALUE ENGINEERING ALTERNATIVE

PROJECT: **HAM-71/75-0.00/0.22, PID 75119**
Ohio Department of Transportation
PROJECT ITEM NO. 6-17
Kentucky Transportation Cabinet

ALTERNATIVE NO.: **S-4**

DESCRIPTION: **WITH ALL OPTIONS, PROVIDE A MEANS TO MITIGATE POTENTIAL STRUCTURAL IMPACTS TO THE 12-FT. BY 14-FT. WILLOW RUN COMBINED SEWER DURING CONSTRUCTION**

SHEET NO.: **1 of 1**

ORIGINAL DESIGN:

Hybrid Alternative CD shows a mechanically stabilized embankment (MSE) wall located directly above the Willow Run Combined Sewer between 9th Street and 5th Street in Covington, KY. Alternative E has a lesser impact but still has a wall located over the sewer.

ALTERNATIVE:

Considering the age of the Willow Run Combined Sewer, its present condition and poor soil conditions, the project should minimize loading over the sewer to avoid damage and/or replacement of the facility at a cost to the project. Avoid construction over the sewer as much as feasible and consider alternative means to minimize impacts to the facility sewer lining.

ADVANTAGES:

- Eliminates the need to rehabilitate or replace the sewer
- Reduced impact will reduce delays caused by potentially unknown utility issues

DISADVANTAGES:

- May be more costly than conventional construction
- May create vertical and/or horizontal alignment and design issues

DISCUSSION:

The existing Willow Run Combined Sewer is a brick lined structure in poor condition. The soils in the project area are soft and are anticipated to undergo significant settlement due to the new highway loading. The settlement would be potentially damaging to the sewer.

The design team should avoid construction over the sewer as much as feasible and consider the use of a lightweight fill or structural means to protect the sewer lining where impact is unavoidable.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN			
ALTERNATIVE	DESIGN SUGGESTION		
SAVINGS (Original minus Alternative)			

VALUE ENGINEERING ALTERNATIVE

PROJECT: **HAM-71/75-0.00/0.22, PID 75119**
Ohio Department of Transportation
PROJECT ITEM NO. 6-17
Kentucky Transportation Cabinet

ALTERNATIVE NO.: **S-6A**

DESCRIPTION: **FOR THE HYBRID ALTERNATE CD, MAKE THE TRAFFIC OPERATIONS DIRECTIONAL ON EACH DECK ON THE NEW BRIDGE TO SAVE ONE LANE PER DECK**

SHEET NO.: **1 of 5**

ORIGINAL DESIGN: (See attached sketch)

The original design calls for a new 127-ft.-wide, two-level bridge including six lanes for I-75 (three lanes for northbound and three lanes for southbound) on the upper deck and four lanes (two lanes for southbound local traffic and two lanes for southbound I-71 traffic on the lower deck).

ALTERNATIVE: (See attached sketch)

Reduce the deck width by 12-feet by providing a new 115-ft.-wide, two-level bridge including five lanes (three lanes for southbound I-75 and two lanes for southbound I-71) on the upper deck and five lanes (two lanes for southbound local traffic and three lanes for northbound I-71).

ADVANTAGES:

- Matches deck width to lane requirements
- Reduces new bridge overall width
- Reduces encroachment into the historic area to the west of the structure

DISADVANTAGES:

- Limits future expansion on the lower deck by converting shoulders to lanes
- Adds complexity to the geometry at the north end of the bridge

DISCUSSION:

The new two-level bridge may be reconfigured to five lanes per deck to reduce the overall width thus limiting future expansion by converting shoulders to lanes.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	$ 567, 401,472	—	$ 567, 401,472
ALTERNATIVE	$ 513,809,472	—	$ 513,809,472
SAVINGS (Original minus Alternative)	$ 53,592,000	—	$ 53,592,000

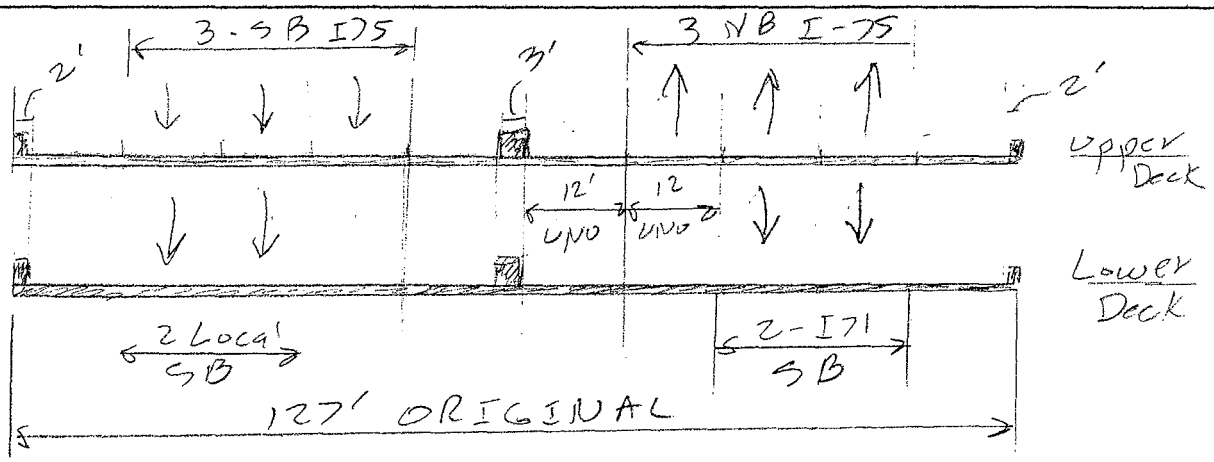
SKETCH

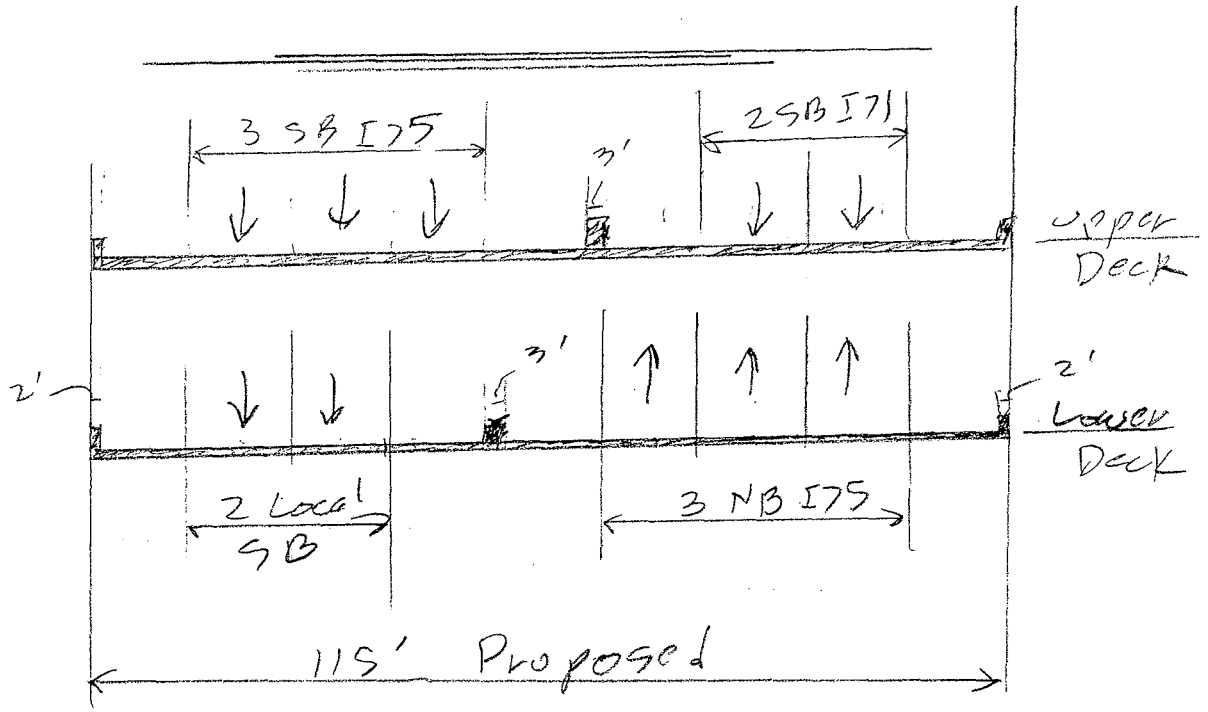
PROJECT: **HAM-71/75-0.00/0.22, PID 75119**
Ohio Department of Transportation
PROJECT ITEM NO. 6-17
Kentucky Transportation Cabinet

ALTERNATIVE NO.: S-6A

ORIGINAL DESIGN ☐ ALTERNATIVE DESIGN ☐ BOTH ☒

SHEET NO.: 2 of 5





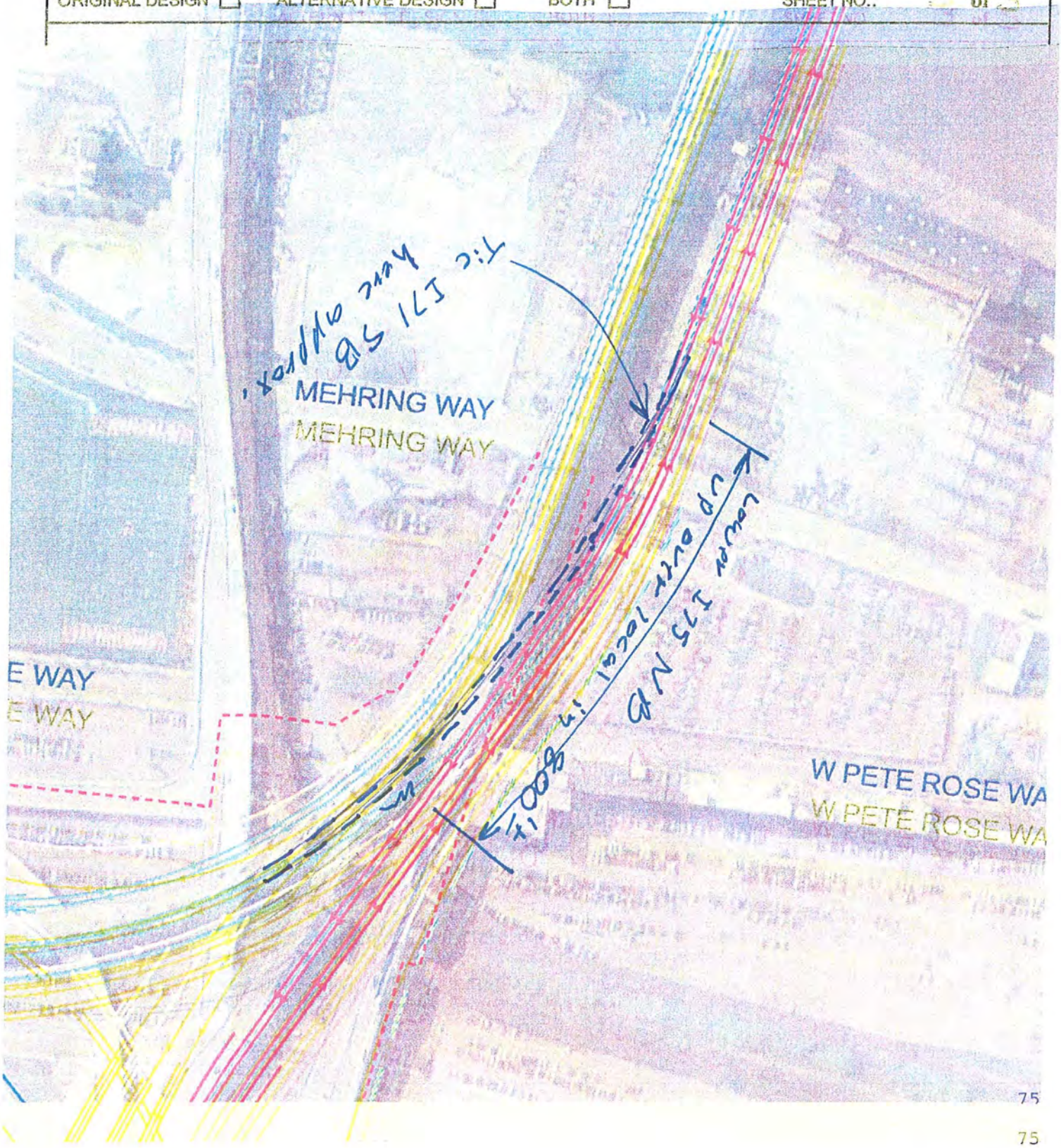
Original & Proposed Lane config. on Bridge

SKETCH

SKETCH

ALTERNATIVE NO. 5-6A

PROJECT:	HAM-71/75-0.00/0.22, PID 75119 *Ohio Department of Transportation* *Kentucky Transportation Cabinet* PROJECT ITEM NO. 6-17			ALTERNATIVE NO.: 5-6A
ORIGINAL DESIGN ☐	ALTERNATIVE DESIGN ☒	BOTH ☐		SHEET NO.: 3 of 5
ORIGINAL DESIGN ☐	ALTERNATIVE DESIGN ☐	BOTH ☐		SHEET NO.: 3 of 5



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CALCULATIONS

PROJECT: **HAM-71/75-0.00/0.22, PID 75119**
Ohio Department of Transportation
PROJECT ITEM NO. 6-17
Kentucky Transportation Cabinet

ALTERNATIVE NO.: S-6A

SHEET NO.: 4 of 5

reduce deck by 12' each level

Length from alt 'E' estimate

444,672 sf Alt E / 127' proposed deck widths

= 3501 L.f. in 2 levels

= 1750 L.f. per level

∴ SF reduction = 12' width x 1750' length x 2 decks

= 42,000 s.f.

COST WORKSHEET

PROJECT: **HAM-71/75-0.00/0.22, PID 75119**
State of Ohio, Department of Transportation
PROJECT ITEM NO. 6-17
Kentucky Transportation Cabinet

ALTERNATIVE NO.:

S-6A

SHEET NO.: **5 of 5**

PROJECT ITEM		ORIGINAL ESTIMATE			ALTERNATIVE ESTIMATE		
ITEM	UNITS	NO. OF UNITS	COST/ UNIT	TOTAL	NO. OF UNITS	COST/ UNIT	TOTAL
0514 R-MC-STRC Bridge - Main	SF	444,672	800.00	355,737,600	402,672	800.00	322,137,600
Subtotal				355,737,600			322,137,600
Markup (%) at 59.50%				211,663,872			191,671,872
TOTAL				567,401,472			513,809,472

VALUE ENGINEERING ALTERNATIVE

PROJECT: **HAM-71/75-0.00/0.22, PID 75119**
Ohio Department of Transportation
PROJECT ITEM NO. 6-17
Kentucky Transportation Cabinet

ALTERNATIVE NO.: **S-6B**

DESCRIPTION: **FOR THE HYBRID ALTERNATE CD, MAKE THE TRAFFIC OPERATIONS DIRECTIONAL ON EACH DECK ON THE NEW BRIDGE TO SAVE ONE LANE PER DECK**

SHEET NO.: **1 of 4**

ORIGINAL DESIGN: (See attached sketch)

The original design calls for a new 127-ft.-wide, two-level bridge including six lanes for I-71 (two lanes for northbound I-71 and three lanes for southbound I-71 with one unused lane) on the upper deck and six lanes (three lanes for northbound I-75 and three lanes for southbound I-75) on the lower deck.

ALTERNATIVE: (See attached sketch)

Reduce the deck width by 12 ft. by providing a new 115-ft.-wide, two-level bridge including five lanes (three lanes for southbound I-75 and two lanes for southbound I-71) on the upper deck and five lanes (three lanes for northbound I-75 and two lanes for northbound I-71) on the lower deck.

ADVANTAGES:

- Matches deck width to lane requirements
- Reduces new bridge overall width
- Reduces encroachment into the historic area to the west of the structure
- Uses more existing bridge capacity

DISADVANTAGES:

- Limits future expansion on the lower deck by converting shoulders to lanes
- Eliminates one lane for I-71 southbound

DISCUSSION:

The new two-level bridge may be reconfigured to five lanes per deck to reduce the overall width thus limiting future expansion by converting shoulders to lanes.

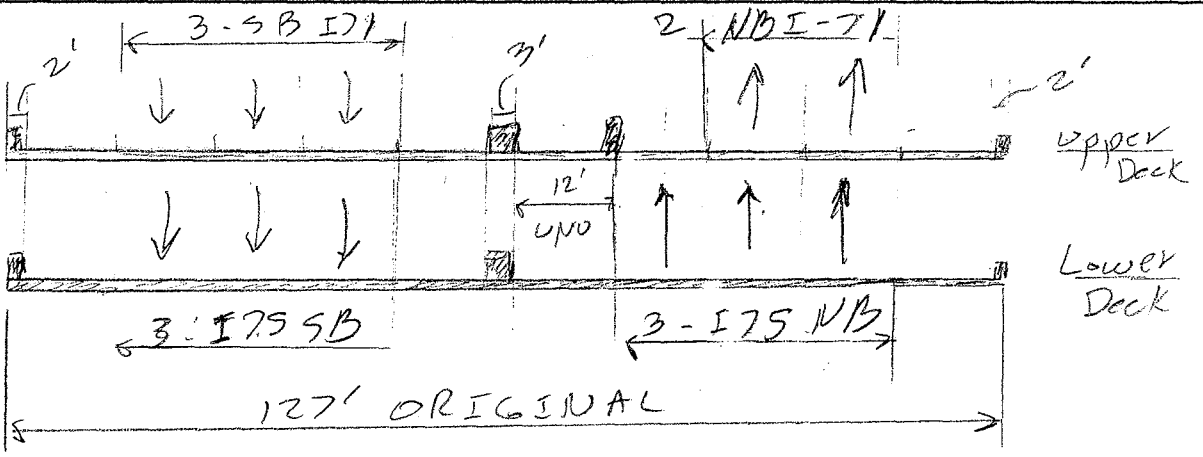
COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	$ 567, 401,472	—	$ 567, 401,472
ALTERNATIVE	$ 513,809,472	—	$ 513,809,472
SAVINGS (Original minus Alternative)	$ 53,592,000	—	$ 53,592,000

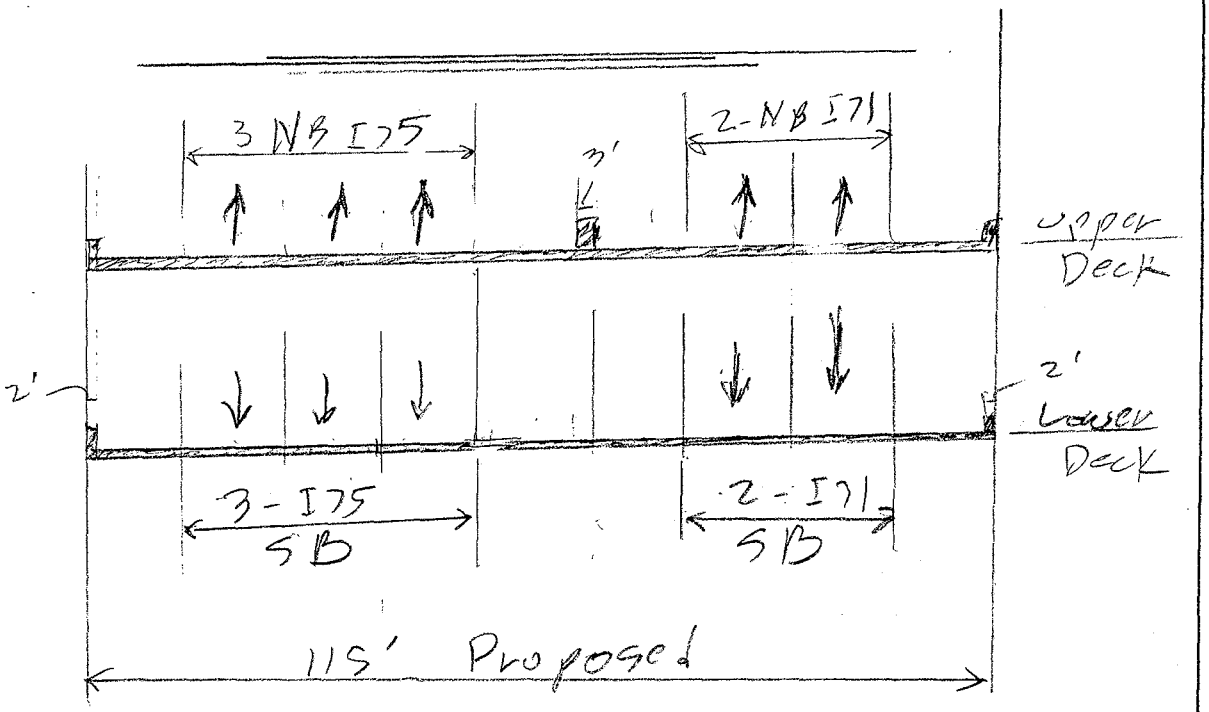
SKETCH

PROJECT: **HAM-71/75-0.00/0.22, PID 75119**
Ohio Department of Transportation
PROJECT ITEM NO. 6-17
Kentucky Transportation Cabinet

ALTERNATIVE NO.: 5-6B

ORIGINAL DESIGN ☐ ALTERNATIVE DESIGN ☐ BOTH ☒ SHEET NO.: 2 of 4





Original & Proposed Lane config. on Bridge

CALCULATIONS

PROJECT: **HAM-71/75-0.00/0.22, PID 75119**
Ohio Department of Transportation
PROJECT ITEM NO. 6-17
Kentucky Transportation Cabinet

ALTERNATIVE NO.: S-6B

SHEET NO.: 3 of 4

reduce deck by 12' each level

Length from alt 'E' estimate

444,672 sf Alt E / 127' proposed deck widths

= 3501 L.f. in 2 levels

= 1750 L.f. per level

∴ SF reduction = 12' width x 1750' length x 2 decks

= 42,000 s.f.

COST WORKSHEET

PROJECT: **HAM-71/75-0.00/0.22, PID 75119**
State of Ohio, Department of Transportation
PROJECT ITEM NO. 6-17
Kentucky Transportation Cabinet

ALTERNATIVE NO.:

S-6B

SHEET NO.: **4 of 4**

PROJECT ITEM		ORIGINAL ESTIMATE			ALTERNATIVE ESTIMATE		
ITEM	UNITS	NO. OF UNITS	COST/ UNIT	TOTAL	NO. OF UNITS	COST/ UNIT	TOTAL
0514 R-MC-STRC Bridge - Main	SF	444,672	800.00	355,737,600	402,672	800.00	322,137,600
Subtotal				355,737,600			322,137,600
Markup (%) at 59.50%				211,663,872			191,671,872
TOTAL				567,401,472			513,809,472

SUMMARY OF VALUE ENGINEERING ALTERNATIVES

PROJECT: **ODOT HAM-71/75-0.00/0.22, PID 75119, KYTC Project Item No. 6-17**

ALT. NO.	DESCRIPTION	ORIGINAL COST	ALTERNATIVE COST	PRESENT WORTH OF COST SAVINGS: INITIAL COST SAVINGS	PRESENT WORTH OF COST SAVINGS: RECURRING COST SAVINGS	PRESENT WORTH OF COST SAVINGS: TOTAL PW LCC SAVINGS
	ROADWAY (R)					
R-1	For all options, realign Section 1 near the cut in the hill to the east to reduce right-of-way and excavation requirements.	DESIGN SUGGESTION				
R-2	Specify that recycled concrete pavement is acceptable for use as sub-grade stabilization in Kentucky.	DESIGN SUGGESTION				

VALUE ENGINEERING ALTERNATIVE

PROJECT: **HAM-71/75-0.00/0.22, PID 75119**
Ohio Department of Transportation
PROJECT ITEM NO. 6-17
Kentucky Transportation Cabinet

ALTERNATIVE NO.: **R-1**

DESCRIPTION: **FOR ALL OPTIONS, REALIGN SECTION 1 TO THE EAST TO REDUCE RIGHT-OF-WAY AND EXCAVATION REQUIREMENTS**

SHEET NO.: **1 of 3**

ORIGINAL DESIGN: (see attached sketch)

In the original design, all widening of I-75 is shown to the west side of the existing centerline in the Kentucky "Cut in the Hill" section.

ALTERNATIVE: (see attached sketch)

Construct some of the I-75 widening to the east side of existing centerline; specifically 2,000 ft. south of 12th Street to 4,500 ft south of 12th Street. Also, explore where I-75 gets close to Highland Avenue. However, it is less desirable here due to slope stability issues.

ADVANTAGES:

- Eliminates expensive walls on west side in "Hill" section
- Better use of existing right-of-way
- Less disruption to existing storm facilities

DISADVANTAGES:

- Maintenance of traffic becomes more complicated because Stage 1 work is now on both sides of the interstate
- Highland Avenue section has slope stability and flooding issues
- Geometry may be less desirable with the new hospital, now a restriction at the northern end
- May interfere with the proposed light rail corridor

DISCUSSION:

This item should be investigated to determine if significant cost avoidance can be realized by eliminating excavation and/or the retaining wall on the west side of I-71/I-75 in Kentucky in the "Cut in the Hill" section. Approximately one-half mile could be widened on the east side which would save construction and right-of way costs. The same principle may apply where I-71/I-75's alignment gets close to Highland Avenue. However, in this location, the costs may be offset because tieback walls would likely be necessary and there are drainage concerns. The centerline of I-71/I-75 could only be shifted here about 40 ft. The centerline could be shifted 200 ft. in "Hill" section. Additionally, in the "Cut in the Hill" section, the centerline could be shifted to preserve the proposed light rail corridor.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN			
ALTERNATIVE	DESIGN SUGGESTION		
SAVINGS (Original minus Alternative)			

ALT. NO. R-1 sheet 2,

PIKE STREET

9th STREET

PIKE STREET

12th STREET

75 71

WIDEN TO EAST SIDE OF CENTERLINE INSTEAD OF WEST SIDE IN THIS AREA (2000' TO 4500' SOUTH OF 12th ST.)

LEGEND

Existing Right of Way

Potential Impact Limits

Base: 2004 Aerial Photograph

0 200 400 Feet

N

U.S. Department of Transportation
Federal Highway Administration

ALTERNATIVE E
POTENTIAL R/W IMPACTS

SHEET (3 OF 7)

EXHIBIT

84

Prepared by
PARSONS BRINCKERHOFF

ALT. NO. R-1, SHT 3/3

DIXIE HIGHWAY

KYLES LANE

75 71

HIGHLAND

POSSIBLY WIDEN TO EAST SIDE OF CENTERLINE INSTEAD OF WEST SIDE IN THIS AREA

LEGEND

Existing Right of Way

Potential Impact Limits

Base: 2004 Aerial Photograph

0 200 400 Feet

N

U.S. Department of Transportation
Federal Highway Administration

SHEET (2 OF 7)

EXHIBIT

ALTERNATIVE E
POTENTIAL R/W IMPACTS

Prepared by
PARSONS BRINCKERHOFF

VALUE ENGINEERING ALTERNATIVE

PROJECT:	**HAM-71/75-0.00/0.22, PID 75119** *Ohio Department of Transportation* **PROJECT ITEM NO. 6-17** *Kentucky Transportation Cabinet*	ALTERNATIVE NO.:	**R-2**
DESCRIPTION:	**SPECIFY THAT RECYCLED CONCRETE PAVEMENT IS ACCEPTABLE FOR USE AS SUB-GRADE STABILIZATION IN KENTUCKY**	SHEET NO.:	**1 of 1**

ORIGINAL DESIGN:

Presently, KYTC Standard Specifications do not permit the use of recycled concrete pavement as subgrade stabilization. The ODOT Specifications permit the use of recycled concrete as granular fill provided the contractor processes the material correctly.

ALTERNATIVE:

Provide a Special Provision for the Kentucky portion of the project allowing the reuse of the concrete pavement as granular fill in subgrade stabilization applications and consider this in the pavement design.

ADVANTAGES:

- Reduces waste generation
- Known availability of material

DISADVANTAGES:

- Large area needed for processing
- Removal of reinforcing steel from the concrete is time consuming
- Potential long-term maintenance issue (drainage clogging)
- Material quality to meet specifications may be difficult
- Limited number of contractors may be available that can process material to a gradation specification

DISCUSSION:

Providing the contractor an option to reuse the concrete pavement permits the contractor to decide the economic advantages of reusing the concrete pavement. However, forcing the contractor to reuse the concrete pavement may result in an increased cost due to processing and material storage issues.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN			
ALTERNATIVE	DESIGN SUGGESTION		
SAVINGS (Original minus Alternative)			

PROJECT DESCRIPTION

NEED AND PURPOSE

The Brent Spence Bridge Replacement/Rehabilitation Project is needed to improve the operational characteristics within the I-71/I-75 corridor for both local and through traffic. In the Greater Cincinnati, Ohio/Northern Kentucky region, the I-71/I-75 corridor suffers from congestion and safety-related issues as a result of inadequate capacity to accommodate current traffic demand. The purpose of this project is to:

- Improve traffic flow and level of service (LOS),
- Improve safety
- Correct geometric deficiencies, and
- Maintain connections to key regional and national transportation corridors.

Traffic Flow and Level of Service
Traffic analyses completed for the *Existing and Future Conditions Report* (February 2006) determined that approximately 160,000 vehicles per day use the Brent Spence Bridge and traffic volumes are projected to increase to approximately 200,000 vehicles per day in 2035. A major cause of congestion is the inability of the interstate facility to handle current and future travel demand. In 2005, traffic data and the current and design year 2035 level of service on I-75 were analyzed. For current traffic, during the AM peak hour, 48 percent of the freeway segments analyzed operated at LOS D or worse. During the PM peak hour, 63 percent of the I-75 freeway segments analyzed were at LOS D or worse. For design year 2035, during the AM peak hour, 64 percent of the freeway segments were at LOS D or worse and during the PM peak hour, 95 percent of the freeway segments were at LOS D or worse.

Congestion problems are area wide and not limited to spot locations. These failures are occurring in both Ohio and Kentucky. The level of congestion on I-75 is the primary reason for commuter delays and longer travel times that are currently being experienced within the corridor.

Safety
Crash rates for the I-71/I-75 corridor exceed the Kentucky and Ohio statewide averages. Within Kenton County, Kentucky, crash rates along I-71/I-75 average 1.30 accidents per million vehicle miles traveled, which is 1.67 times higher than the statewide average. The average crash rate for the Ohio section of I-71 in the study area is 3.22 accidents per million vehicle miles traveled, which is 1.7 times higher than the statewide average. Within the overall study area, I-75 has a crash rate of 2.91 accidents per million vehicle miles, which is approximately 1.5 times higher than the statewide average rate.

The ODOT Highway Safety Program (HSP) identifies and ranks all crash locations on the state system based on crash rate, frequency, density, severity, and other analytical factors. The 2005-2007 HSP list includes two highway segments within the study area which are ranked in the top 100, most notably, the section of I-71 from mile post 0.60 to mile post 1.10 is ranked seventh.

Geometric Deficiencies
The geometric design features of I-71 and I-75 within the study area do not meet current standards for an interstate highway facility. Design deficiencies include:

- Substandard vertical alignments with limited stopping distances,
- Acceleration and deceleration lanes that are not of sufficient length for anticipated traffic volumes and movements,
- Narrow shoulders that present safety hazards, make maintenance of traffic difficult; and contribute to traffic delays when crashes, vehicle breakdowns, or scheduled roadwork require lane restrictions.

National, Regional, and Local System Linkage
The I-71/I-75 corridor in the Greater Cincinnati/Northern Kentucky area is a significant transportation corridor, not only for local access and mobility needs, but also for regional, statewide, and national access and mobility needs. This corridor is recognized in county and regional transportation plans, as are the recommendations for needed improvements. In addition, I-71 and I-75 are key links in the national transportation system in terms of people movement, freight movement, and national defense. Transportation plans and recommendations at all levels recognize that these facilities now operate at or below capacity and therefore, need to be upgraded to modern standards to maintain these important transportation links.

PROJECT LOCATION

The project study area is located along a seven mile segment of I-75 within the Commonwealth of Kentucky and the State of Ohio. The southern limit of the project is 2,300 feet south of the midpoint of the interchange of I-75 and Dixie Highway (US 127/US 42/US 25) in Kentucky (Exit 188). The northern limit of the project is 1,500 feet north of the midpoint of the interchange of I-75 and the Western Hills Viaduct in Ohio (Exit 2B). The eastern and western limits of the study area follow the existing alignment of I-75. In Kentucky, the study area is a 1500-ft.-wide corridor centered on I-75 south of the City of Covington. See Figure 1: Project Area on the following page.

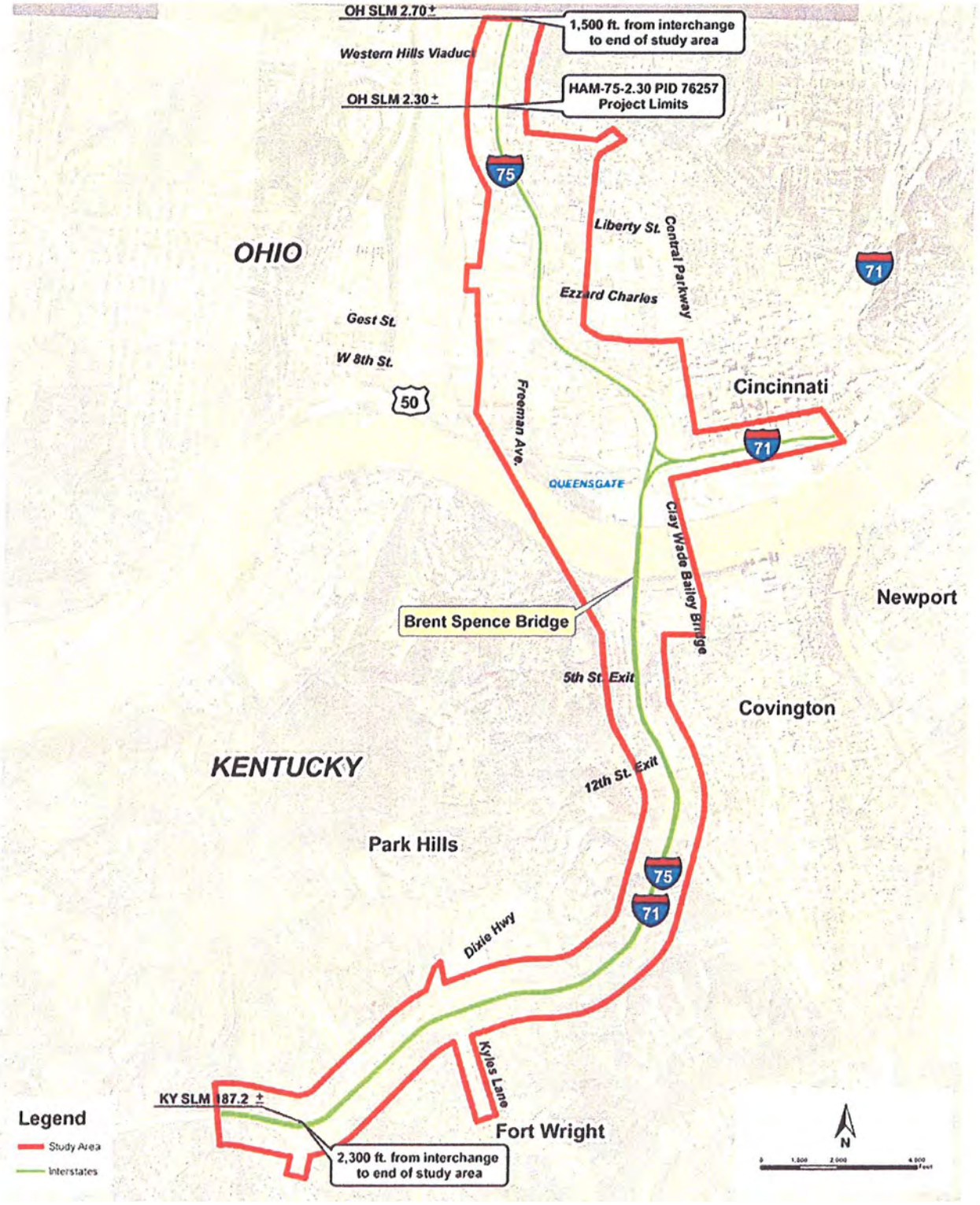
EXISTING CONDITIONS

I-75 connects the Greater Cincinnati/Northern Kentucky region with Detroit, Michigan to the north and Miami, Florida to the south. It also connects with I-74 and US 50 to the east and west. I-75 and the railroads that run parallel to it through this region are among the nation's busiest. This transportation system is the backbone of commerce and travel through the region. According to Federal Highway Administration (FHWA) estimates, I-75 is one of the busiest trucking routes in North America with truck traffic approaching six billion miles annually. In addition, more than 250 freight trains per day pass through or have destinations within the I-75 corridor. The interstate portions of this transportation system are nearly 50 years old and significant safety and capacity problems exist.

The built environment surrounding I-75 and the Brent Spence Bridge is characterized by highly disturbed, dense urban development with historic districts and properties nearby. I-75 in Cincinnati is a typical downtown freeway with closely spaced ramps and poor roadway geometry. Within the past few years several reconstruction and rehabilitation projects were performed in the area.

The National Bridge Inventory lists the Brent Spence Bridge as functionally obsolete due to the capacity, sight distance, and safety concerns associated with its current configuration. These concerns have led to this project being considered a top priority by KYTC, ODOT, the Ohio-Kentucky-Indiana Regional Council of Governments, and the cities of Covington, Kentucky, and Cincinnati, Ohio.

Figure 1: Project Area



FEASIBLE ALTERNATIVES

The comparative analysis led to the recommendation of carrying forward two feasible alternatives. The two feasible alternatives consist of Alternative E and a combination of Alternatives C and D (Hybrid Alternative CD). Based on the analyses completed and feedback as part of community input, it was also recommended that certain design elements of Alternative G be incorporated into the two feasible alternatives in Step 6 of the ODOT's Project Development Process. Additionally, the two feasible alternatives would be designed to provide three lanes in each direction on I-75.

Alternative G was eliminated from further consideration due to the high costs, and residential and business displacements associated with this alternative. However, the following beneficial design features of Alternative G would be carried forward for further analysis and incorporated into Alternative E and Hybrid Alternative CD:

- Access to the north end of Clay Wade Bailey Bridge from I-75 southbound using a collector-distributor roadway and US 50 eastbound;
- Two access points into Covington;
- Access from a northbound collector-distributor roadway from KY to I-71 northbound in Ohio; and
- An access ramp just north of Ezzard Charles Drive for Freeman Avenue and local traffic to I-75 northbound.

HYBRID ALTERNATIVE CD

Hybrid Alternative CD south of KY 12th Street has six lanes northbound and six lanes southbound. A local collector-distributor roadway is provided from KY 12th Street to the Ohio River. A new double deck bridge would be built just west of the existing Brent Spence Bridge for I-75 (three lanes in each direction), two lanes for southbound I-71 and two lanes for southbound local traffic. The existing Brent Spence Bridge would be rehabilitated to carry two lanes for northbound I-71 and three lanes for northbound local traffic. Hybrid Alternative CD reconfigures I-75 through the I-71/I-75/US 50 Interchange and eliminates all access to and from I-75 from KY 12th Street to just south of Ezzard Charles Drive in the northbound direction. Between Ezzard Charles Drive and the Western Hills Viaduct, northbound I-75 would have five lanes, southbound I-75 would have two lanes, and the local southbound collector-distributor roadway would have four lanes, for a total of 11 travel lanes. Western and Winchell Avenues would be improved to carry local traffic.

Access to downtown Cincinnati would be made through a series of collector-distributor roadways that would require a decision point outside of the downtown area. In the northbound direction just north of the existing Brent Spence Bridge, the collector-distributor roadway lane configuration is combined on a single structure between the Ohio (OH) 2nd Street diverge and the OH 5th Street diverge. Using a single structure in this area simplifies the vertical geometric design, and reduces costs. A negative aspect to combining the lane configuration onto a single structure is that it would introduce a weave movement north of OH 5th Street from traffic coming from I-71 southbound traveling towards the Western Hills Viaduct. Upon analyzing the weave movement, no degradation of level of service was noted.

In the southbound direction, the collector-distributor roadway remains west of I-75. Traffic entering from Western Avenue would have access to I-71 northbound and US 50 eastbound by using a weave condition. The ramp access to OH 5th Street would remain.

Hybrid Alternative CD requires approximately 22.2 acres of additional right-of-way. This is the second least amount of land impacted by the conceptual alternatives. Hybrid Alternative CD would displace 16 residential units and 35 businesses. Approximately 300 employees would be affected by this alternative. Hybrid Alternative CD, as with Alternative E would impact Longworth Hall which includes 21 businesses. Hybrid Alternative CD would impact three wetland areas, 10 woodlots and one potential threatened and endangered species habitat area, four community resources, three historic resources, and five Section 4(f) properties. Hybrid Alternative CD would be compatible with existing land use plans and would not have a negative impact on community cohesion. Hybrid Alternative CD would be constructed within the existing interstate corridor and not bisect neighborhoods in Kentucky or Ohio. Alternative CD would support the Queensgate redevelopment plans and help Cincinnati facilitate its economic renewal goals.

Since the alignment of Hybrid Alternative CD would be located just west of the existing Brent Spence Bridge, it would impact a portion of the Duke Energy West End substation and require the relocation of 52 individual utility facilities. Hybrid Alternative CD would directly impact four Section 4(f) resources: Goebel Park, the Lewisburg Historic District, Longworth Hall, and the Queensgate playground and ballfields. Hybrid Alternative CD could have noise and visual impacts on one Section 4(f) resource, the Harriet Beecher Stowe Elementary School (Fox 19 Television Station).

Alternative C would encroach upon the Lewisburg Historic District along its eastern border and directly impact 0.83 acres of the historic district. It would displace 10 residences adjacent to the west side of I-71/I-75, one of which is a non-contributing property to the historic district. Alternative C would directly impact 0.25 acres of Longworth Hall resource including the building and historic boundary.

ALTERNATIVE E

Alternative E south of KY 12th Street has six lanes northbound and six lanes southbound. It provides two access points into Covington for both northbound and southbound traffic. A local collector-distributor roadway would be provided from KY 12th Street to the Ohio River. A new double deck bridge would be built just west of the existing Brent Spence Bridge to carry northbound and southbound I-71 and I-75 traffic. On the upper deck, I-71 southbound would have three lanes and I-71 northbound would have two lanes. On the lower deck, I-75 would have three northbound and three southbound lanes. The existing Brent Spence Bridge would be rehabilitated to carry northbound and southbound local traffic with two lanes in each direction as this number of lanes provides an acceptable level of service.

In Ohio, Alternative E reconfigures I-75 through the I-71/I-75/US 50 Interchange and eliminates some of the existing access points along I-75. The existing direct connections between I-75 to westbound US 50 and from eastbound US 50 would be maintained in Alternative E. Between Ezzard Charles Drive and Western Hills Viaduct, southbound I-75 would have six lanes, northbound I-75 would have five lanes, and there would be one auxiliary lane to the Western Hills Viaduct. Western and Winchell avenues would be improved to carry local traffic.

The alignment of Alternative E is similar to Hybrid Alternatives CD in that it provides a new bridge alignment just west of the existing Brent Spence Bridge. Alternative E provides two direct access points to Covington in both the northbound and southbound directions. In the northbound direction,

access would be provided by the local collector-distributor roadway at KY 12th Street and KY 5th Street. In the southbound direction, access would be provided by the local collector-distributor roadway at KY 5th Street, and off of I-71 and I-75 at KY 9th Street. Access to the interstate system from Covington would be provided by local city streets. In the northbound direction, access to I-75 would be provided at KY 9th Street, access to I-71 would be provided at KY 5th Street. Access to I-75 northbound would also be provided at KY 4th and 5th Streets through the local collector-distributor roadway across the lower deck of the existing Brent Spence Bridge. In the southbound direction, access to I-71/I-75 would be provided at KY 5th Street and KY 12th Street. All access to downtown Cincinnati from I-75 would be provided by a collector-distributor roadway that would require a decision point outside of the downtown area, KY 12th Street for northbound traffic and just south of Ezzard Charles Drive for southbound traffic. Access to I-75 northbound would be provided at OH 4th and 6th streets through the local collector-distributor roadway and at OH 9th Street through Winchell Avenue. Southbound I-75 access would be provided at Western Avenue, OH 8th Street, and OH 4th Street through the local collector-distributor roadway across the upper deck of the existing Brent Spence Bridge.

When compared to Hybrid Alternative CD, Alternative E is expected to have similar environmental impacts. Alternative E would impact three wetland areas, 10 woodlots and one potential threatened and endangered species habitat area. Alternative E would impact three community resources, two historic resources, one historic district, and four Section 4(f) properties. This is slightly fewer impacts than other conceptual alternatives. Alternative E would displace 19 residential units and 39 businesses, which is the fewest number of people displaced among alternatives. Alternative E, as with Hybrid Alternative CD, would impact Longworth Hall which includes 21 businesses. In addition, the 19 residential units estimated to be displaced to build Alternative E is expected to result in the fewest number of people displaced.

Alternative E would be compatible with existing land use plans and would not have a negative impact on community cohesion. Alternative E would be constructed within the existing interstate corridor and not bisect neighborhoods in Kentucky or Ohio. Alternative E would support the Queensgate redevelopment plans and help Cincinnati facilitate its economic renewal goals. Since the alignment of Alternative E would be located just west of the existing Brent Spence Bridge, it would impact a portion of the Duke Energy West End substation and require the relocation of 52 individual utility facilities. Alternative E would directly impact three Section 4(f) resources Goebel Park, the Lewisburg Historic District, and Longworth Hall. It could also have noise and visual impacts on one Section 4(f) resource, the Harriet Beecher Stowe Elementary School (Fox 19 Television Station).

Alternative E would encroach upon the Lewisburg Historic District along its eastern border and impact 0.98 acres of the historic district. It would displace 11 residences adjacent to the west side of I-71/I-75, one of which is a non-contributing property to the historic district. Alternative E would impact 0.54 acres of Longworth Hall resource including the building and historic boundary. The eastern end of the building would be demolished. It is expected that individual Section 4(f) evaluations would be prepared for the Lewisburg Historic District and Longworth Hall due to the adverse effects of Alternative E.

PROJECT SCHEDULE AND CONSTRUCTION COSTS

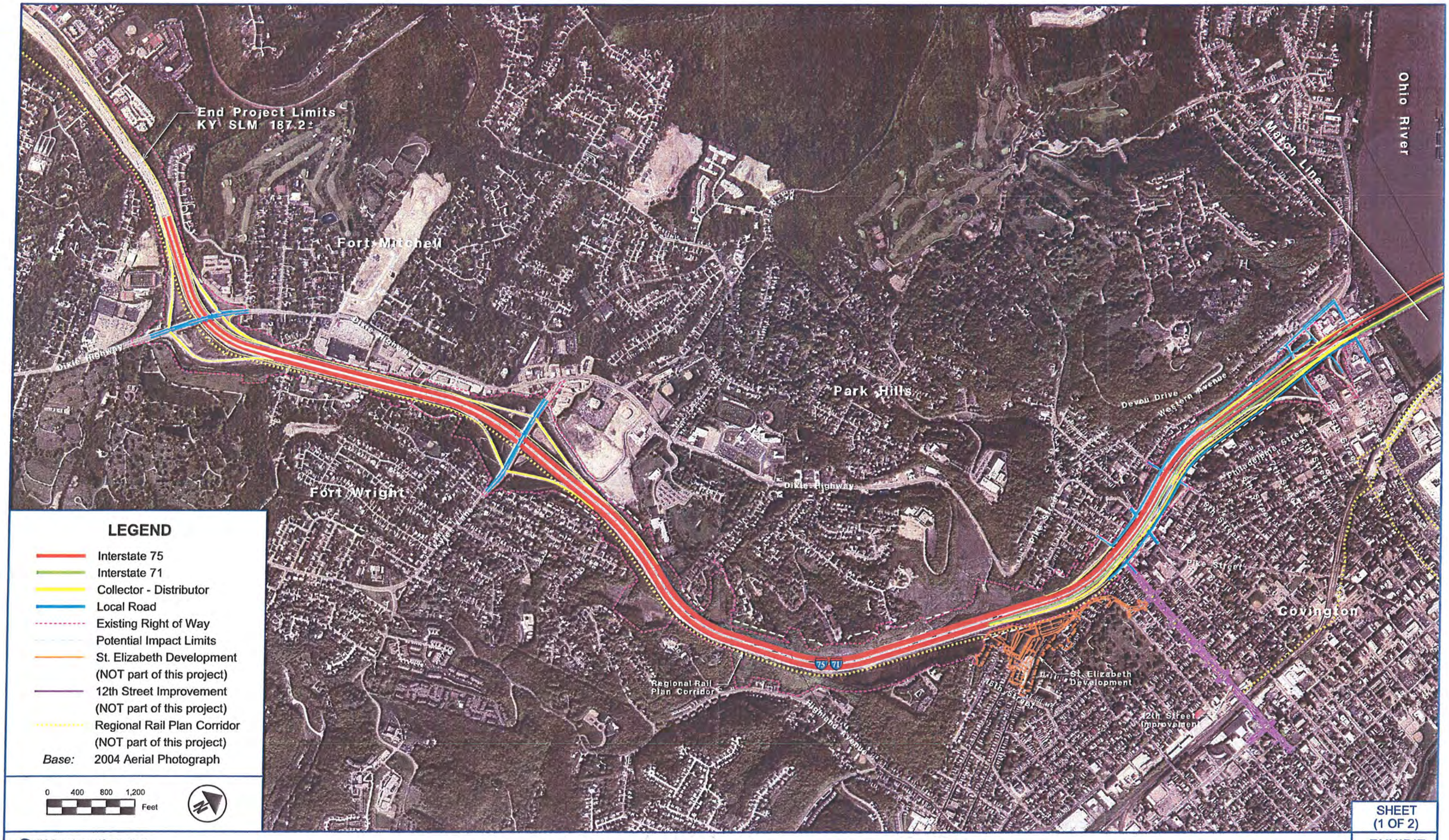
The following is the schedule for the Brent Spence Bridge Replacement/Rehabilitation Project, which follows construction of the Mill Creek Expressway and Thru the Valley projects.

- Completion of preliminary design and NEPA process – 2011
- Detailed design — 2011
- Right-of-way acquisition – 2012 - 2014
- Construction begins – 2015
- Midpoint of Construction – June 2017
- Completion of Construction – 2020

The total estimated project costs are construction costs which include a design contingency, a construction inflation factor, right-of-way for roadway and utility relocations, major utility, and total project development costs. The table below summarizes the total estimated project costs.

Total Cost Estimates for Mainline Alternatives in Projected Build Year Dollars

Alternative	Construction Costs (millions)	Construction Costs Inflation (59.5%) (millions)	Real Estate Costs (millions)	Utility Costs (millions)	Real Estate Utility Costs (millions)	Project Development Costs	Total Estimated Costs (millions)
Hybrid Alternative CD	$1,261.7	$750.7	$18.0	$39.4	$1.0	$210.4	$2,281.2
Alternative E	$1,431.6	$851.8	$15.4	$39.4	$1.0	$236.3	$2,575.5



LEGEND

- Interstate 75
- Interstate 71
- Collector - Distributor
- Local Road
- Existing Right of Way
- Potential Impact Limits
- St. Elizabeth Development (NOT part of this project)
- 12th Street Improvement (NOT part of this project)
- Regional Rail Plan Corridor (NOT part of this project)

Base: 2004 Aerial Photograph

0 400 800 1,200 Feet

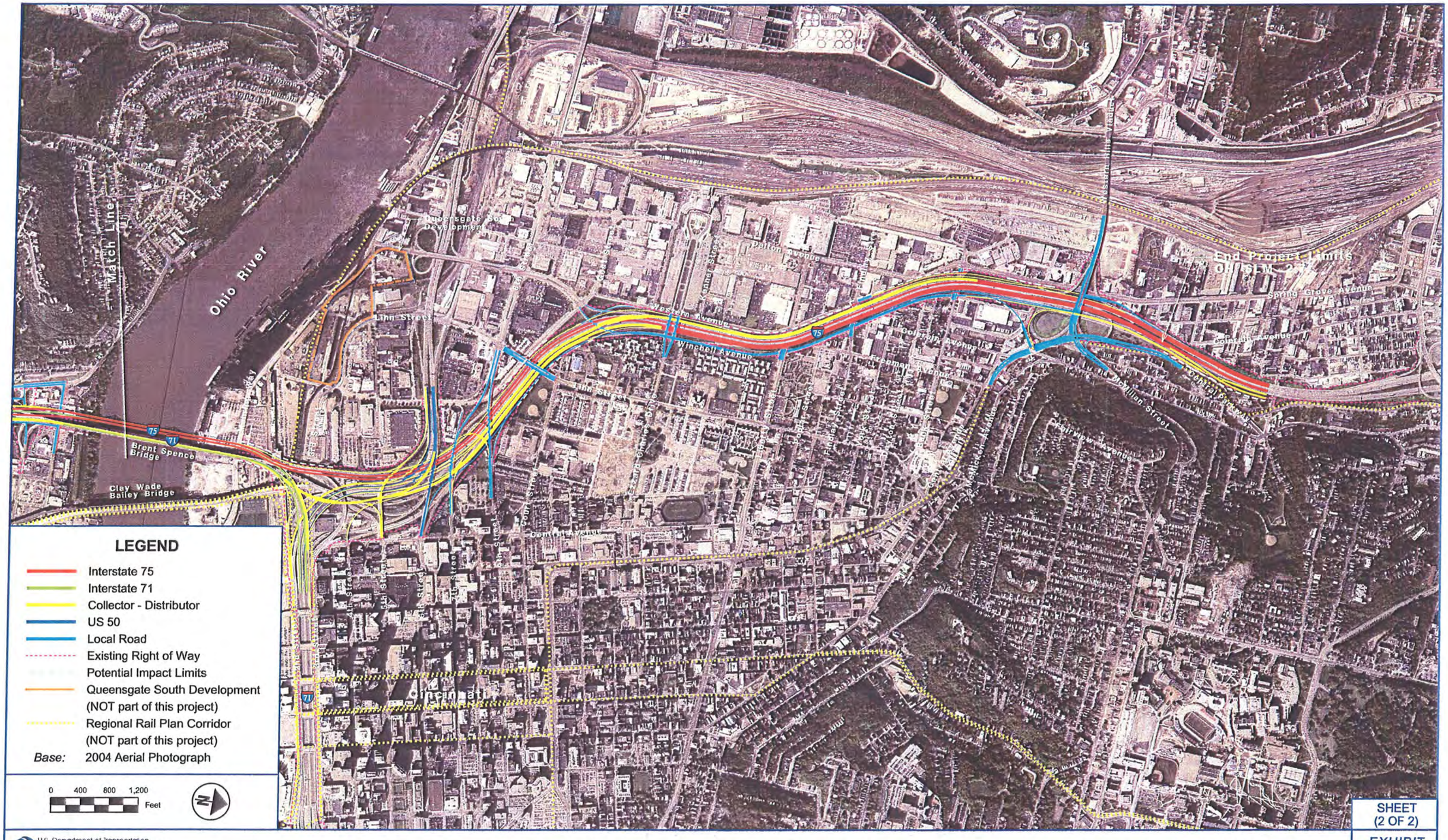
U.S. Department of Transportation
Federal Highway Administration

SHEET (1 OF 2)

ALTERNATIVE C (KENTUCKY)

EXHIBIT **6A**

Prepared by PARSONS BRINCKERHOFF



LEGEND

- Interstate 75
- Interstate 71
- Collector - Distributor
- US 50
- Local Road
- Existing Right of Way
- Potential Impact Limits
- Queensgate South Development (NOT part of this project)
- Regional Rail Plan Corridor (NOT part of this project)

Base: 2004 Aerial Photograph

0 400 800 1,200 Feet

N

U.S. Department of Transportation
Federal Highway Administration

SHEET (2 OF 2)

EXHIBIT

6B

ALTERNATIVE C (OHIO)

Prepared by PARSONS BRINCKERHOFF

LEGEND

- Interstate 75
- Interstate 71
- Collector - Distributor
- Local Road
- Existing Right of Way
- Potential Impact Limits
- St. Elizabeth Development (NOT part of this project)
- 12th Street Improvement (NOT part of this project)
- Regional Rail Plan Corridor (NOT part of this project)

Base: 2004 Aerial Photograph

0 400 800 1,200 Feet

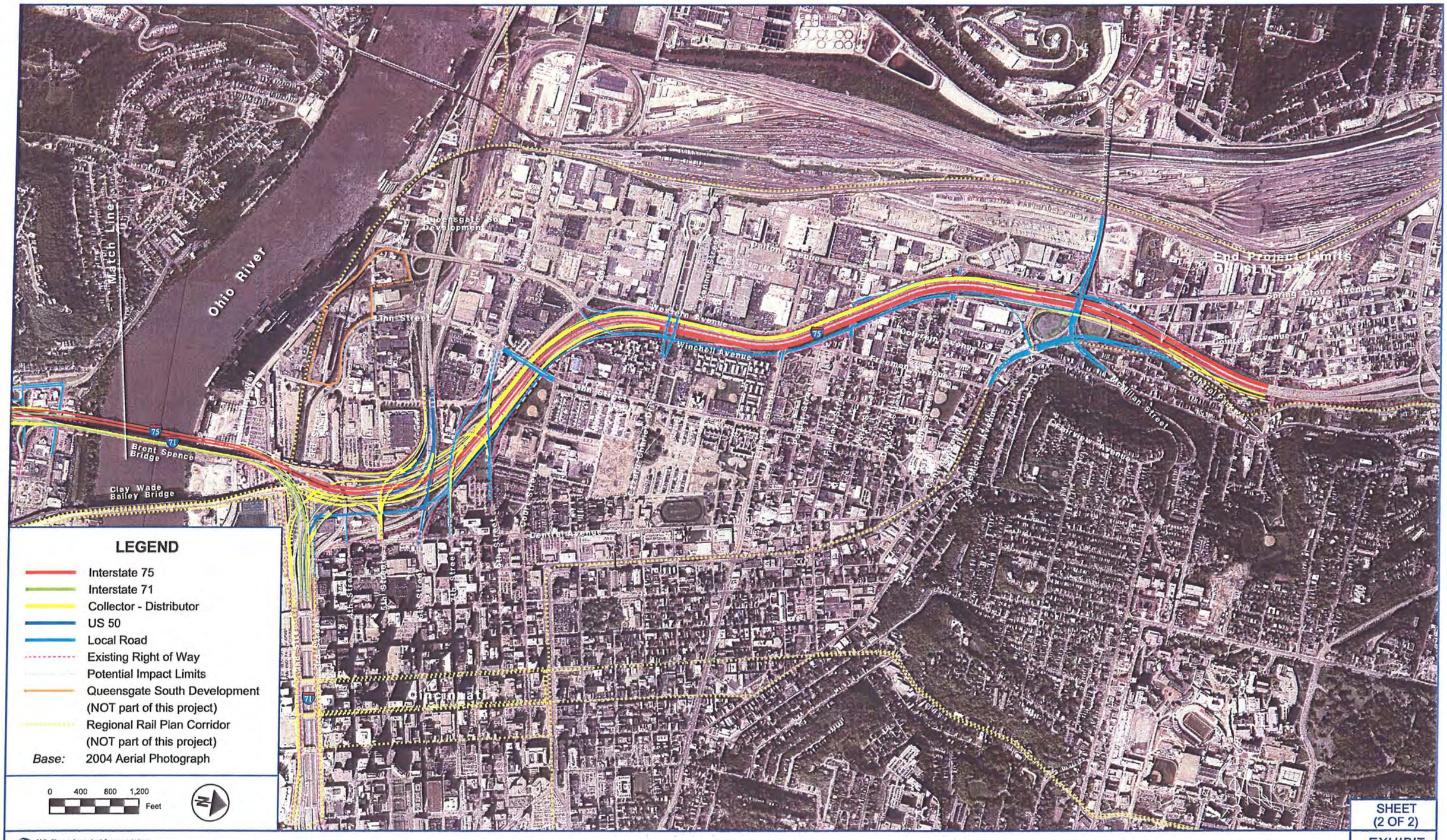
U.S. Department of Transportation
Federal Highway Administration

Prepared by
PB PARSONS BRINCKERHOFF

SHEET (1 OF 2)

ALTERNATIVE D (KENTUCKY)

EXHIBIT **7A**



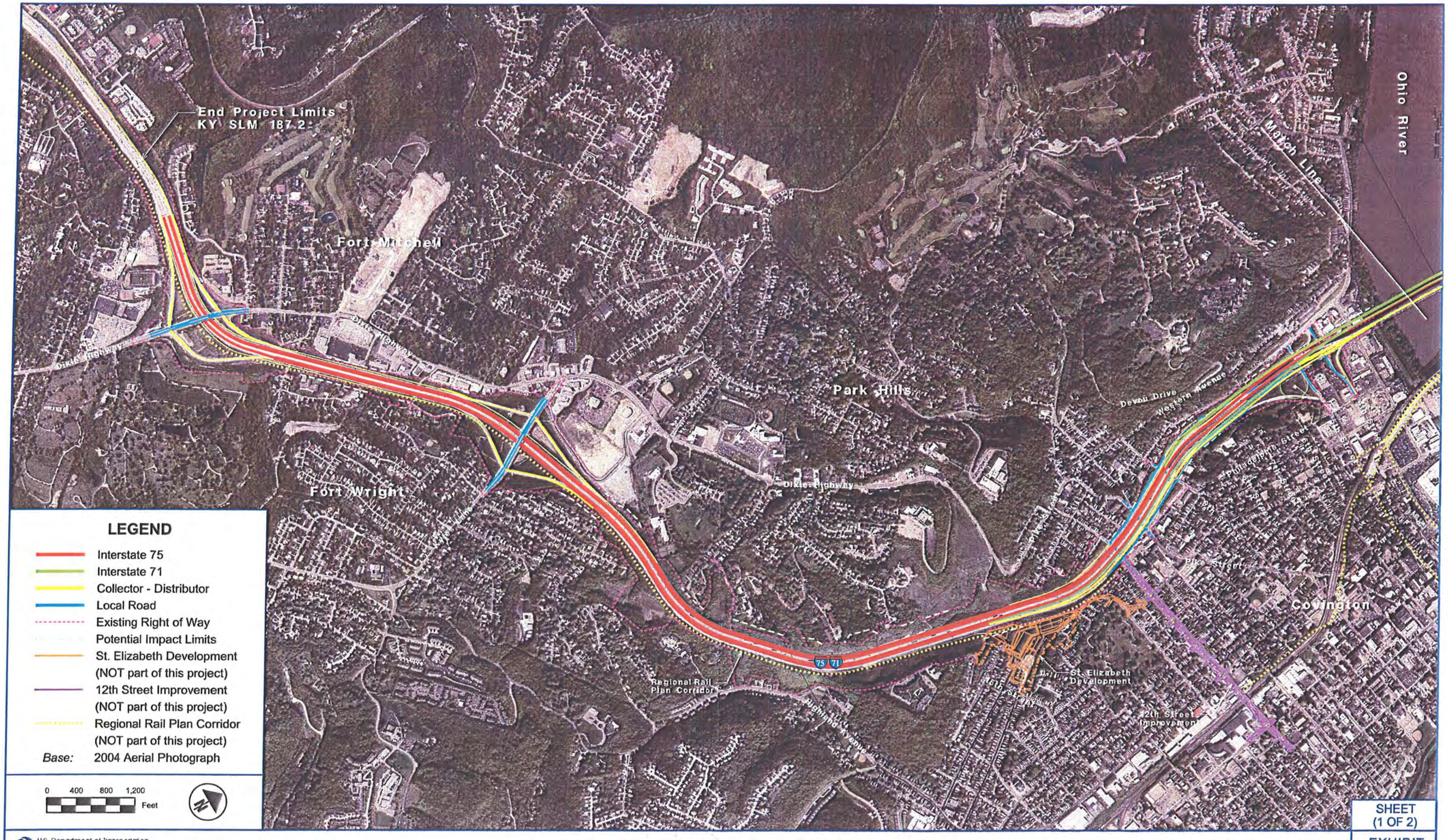
U.S. Department of Transportation
Federal Highway Administration

ALTERNATIVE D (OHIO)

SHEET (2 OF 2)

EXHIBIT **7B**

Prepared by
PARSONS BRINCKERHOFF



LEGEND

- Interstate 75
- Interstate 71
- Collector - Distributor
- Local Road
- Existing Right of Way
- Potential Impact Limits
- St. Elizabeth Development (NOT part of this project)
- 12th Street Improvement (NOT part of this project)
- Regional Rail Plan Corridor (NOT part of this project)

Base: 2004 Aerial Photograph

0 400 800 1,200 Feet

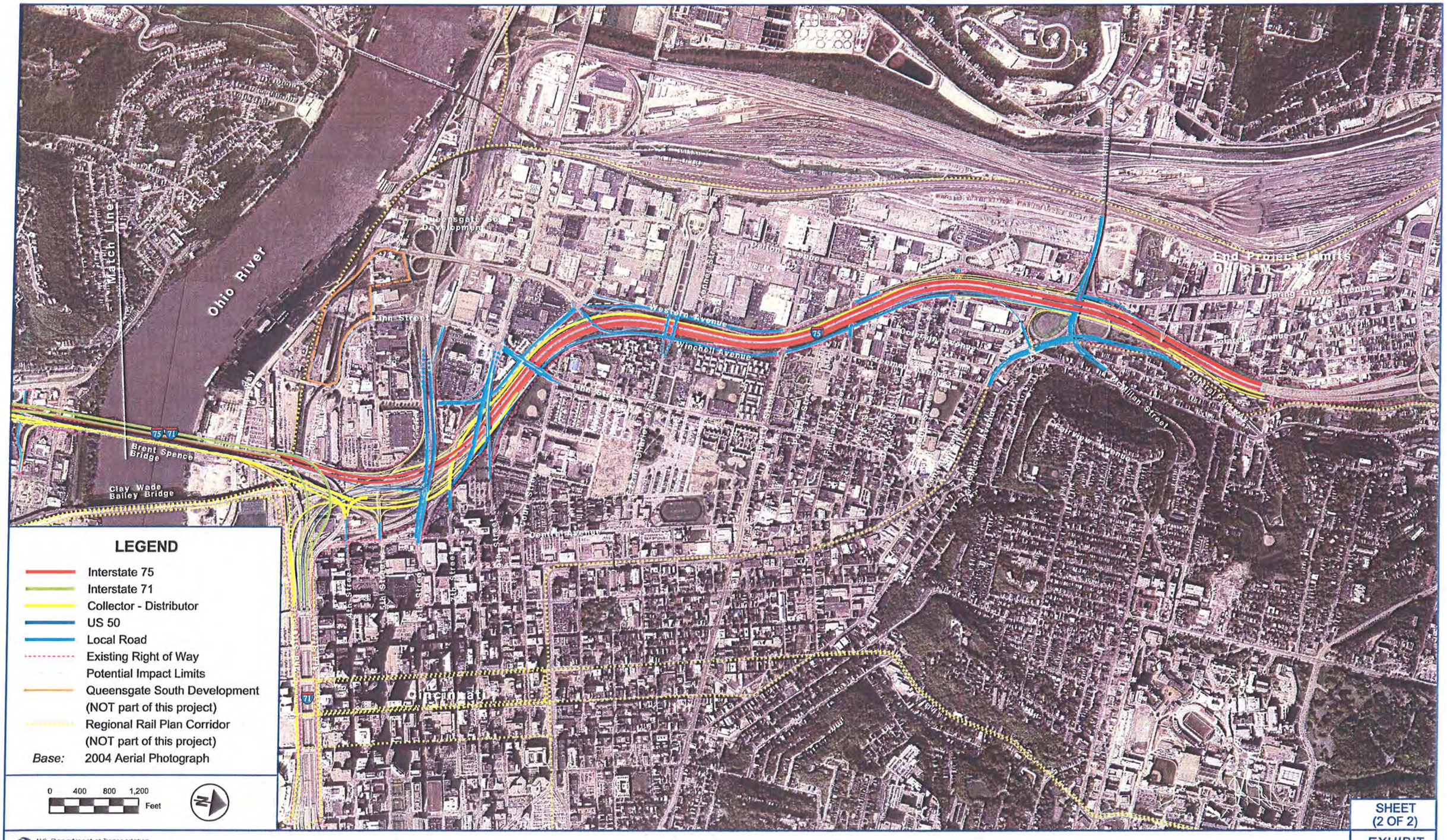
U.S. Department of Transportation
Federal Highway Administration

SHEET (1 OF 2)

ALTERNATIVE E (KENTUCKY)

EXHIBIT **8A**

Prepared by
PARSONS BRINCKERHOFF



LEGEND

- Interstate 75
- Interstate 71
- Collector - Distributor
- US 50
- Local Road
- Existing Right of Way
- Potential Impact Limits
- Queensgate South Development (NOT part of this project)
- Regional Rail Plan Corridor (NOT part of this project)

Base: 2004 Aerial Photograph

0 400 800 1,200 Feet

N

U.S. Department of Transportation
Federal Highway Administration

SHEET (2 OF 2)

ALTERNATIVE E (OHIO)

EXHIBIT **8B**

Prepared by: PARSONS BRINCKERHOFF

VALUE ANALYSIS AND CONCLUSIONS

INTRODUCTION

This section describes the value analysis (VA) procedure used during the VE workshop on the Brent Spence Bridge Replacement/Rehabilitation Project facilitated by Lewis & Zimmerman Associates, Inc., for ODOT and KYTC. The workshop was conducted August 24 - 26, 2009 at the Kentucky Transportation Cabinet, District 6 Office in Fort Mitchell, Kentucky. The project team provided the drawings and cost estimates for the workshop.

A systematic approach was used in the VE study, which is divided into three parts: (1) Preparation Effort, (2) Workshop Effort, and (3) Post-Workshop Effort. A task flow diagram outlining each of the procedures included in the VE study is attached for reference.

Following this description of the procedure, separate narratives and supporting documentation identify the following:

- VE workshop agenda
- VE workshop participants
- Economic data
- Cost model
- Function analysis
- Creative ideas and evaluations

PREPARATION EFFORT

Preparation for the workshop consisted of scheduling workshop participants and tasks and providing necessary project documents for team members to review before attending the workshop. The study documents listed below and available on the project website (http://www.brentspencebridgecorridor.com/studydocuments.html) were used as the basis for generating VE alternatives and for determining the cost implications of the selected VE alternatives:

- Brent Spence Bridge Conceptual Alternatives Study, ODOT PID 75119, KYTC Project Item No. 6-17, prepared by Parsons Brinckerhoff, dated April 2009;
- Brent Spence Bridge Conceptual Alternatives C, D, and E with Typical Sections, ODOT PID 75119, KYTC Project Item No. 6-17, prepared by Parsons Brinckerhoff, dated April 2009;
- Brent Spence Bridge Replacement/Rehabilitation Project Advisory Committee Meeting Minutes #5, ODOT PID 75119, KYTC Project Item No. 6-17, prepared by Parsons Brinckerhoff, dated February 25, 2008;
- Brent Spence Bridge MOT/Constructability Report, Stages 1-5, ODOT PID 75119, KYTC Project Item No. 6-17, prepared by Parsons Brinckerhoff;
- Brent Spence Bridge Potential Right-of-Way Impacts Drawings, Alternatives C, D, and E, ODOT PID 75119, KYTC Project Item No. 6-17, prepared by Parsons Brinckerhoff;
- Brent Spence Bridge Potential Utilities Impacts Drawings, ODOT PID 75119, KYTC Project Item No. 6-17, prepared by Parsons Brinckerhoff;

Value Engineering Study Task Flow Diagram

Preparation Effort

Coordination Project
- Verify Schedule
- Suggest Format for Designer Presentation
- Outline Project Responsibilities
- Outline Needed Background Data
- Define *Project Value Objectives*
- Identify Project Constraints

→

Prepare for Workshop
- Collect Project Data
- Distribute Data to Team Members
- Team Members Become Familiar with Project

→

Construct Cost Models
- Construct Cost Models
- Construct Graphic Function Analysis
- Outline High Cost Areas

→

LCC Model
- Roadway
- Bridges
- MOT
- Energy
- User Impact

Workshop Effort

Information Phase
- Introduction by VETL
- Project Description and Presentation by Designer
- Outline Owner Requirements
- Review Project Data
- Visit Project Site (Alt.)

→

Function Identification and Analysis Phase
- Analyze Project Costs and Energy Usage
- Perform Function Analysis and FAST Diagram
- Identify High Cost and Energy Areas
- Calculate Cost/Worth Ratios
- Identify Paradigms

List Ideas Generated During Function Analysis

→

Speculation Phase
- Introduction by VETL
- Creative Idea Listing:
  - Quantity of ideas
  - Association of Ideas
- Brainstorm
- Do Creative Thinking
  - Group Thinking
  - Individual Thinking
- Use Checklist for Ideas

→

Evaluation Phase
- Eliminate Impractical Ideas
- Rank Ideas with Advantages/ Disadvantages
- Evaluate Alternatives (Include Non-Economic considerations: Safety, Reliability, Environment, Aesthetics, O&M, etc.)
- Select Best Ideas for Implementation

→

Development Phase
- Develop Proposed Alternatives
- Prepare Alternative Design Sketches
- Estimate Costs
- Perform Life Cycle Comparison
  - Initial Cost
  - Redesign Cost
  - O&M Cost
  - LCC Cost

→

Presentation Phase
- Summarize Findings
- Present VE Ideas to Owner/ User/Designer
- Oral Presentation

Post-Workshop Effort

VE Study Report
- Develop Implementation VE Report
- Designer Prepares Responses to VE Report
- Owner Evaluates Recommendations

→

Implementation Phase
- Participate in Implementation Meeting with Owner/User/ Designer/ VE Team, as needed
- Prepare Final VE Report

→

Final Acceptance
- Redesign by Designer

- Brent Spence Bridge Phase I History/Architectural Survey - Ohio, ODOT PID 75119, KYTC Project Item No. 6-17, prepared by Parsons Brinckerhoff, dated June 2007;
- Brent Spence Bridge Phase I History/Architectural Survey - Kentucky, ODOT PID 75119, KYTC Project Item No. 6-17, prepared by Parsons Brinckerhoff, dated June 2007;
- Brent Spence Bridge Travel Lane Evaluation Study, ODOT PID 75119, KYTC Project Item No. 6-17, prepared by Parsons Brinckerhoff, dated April 2007;
- Alternative C and D (Cost) Estimate BSB Sections 1-5, ODOT PID 75119, KYTC Project Item No. 6-17, prepared by Parsons Brinckerhoff, dated 11/05/08;
- Alternative E (Cost) Estimate BSB Sections 1-5, ODOT PID 75119, KYTC Project Item No. 6-17, prepared by Parsons Brinckerhoff, dated 11/05/08;
- Brent Spence Bridge Travel Lane Evaluation Study, ODOT PID 75119, KYTC Project Item No. 6-17, prepared by Parsons Brinckerhoff, dated April 2007;
- Brent Spence Bridge Kentucky Conceptual Stage Relocation Report, KYTC Project Item No. 6-17, prepared by Parsons Brinckerhoff, dated February 2007;
- Brent Spence Bridge Planning Study Report, ODOT PID 75119, KYTC Project Item No. 6-17, prepared by Parsons Brinckerhoff, dated September 2006;
- Brent Spence Bridge Purpose and Need Report, ODOT PID 75119, KYTC Project Item No. 6-17, prepared by Parsons Brinckerhoff, dated May 2006;
- Brent Spence Bridge Existing and Future Conditions Report, ODOT PID 75119, KYTC Project Item No. 6-17, prepared by Parsons Brinckerhoff, dated February 2006;
- Brent Spence Bridge Red Flag Summary, ODOT PID 75119, KYTC Project Item No. 6-17, prepared by Parsons Brinckerhoff, dated December 2005; and
- Brent Spence Bridge Public Involvement Plan, ODOT PID 75119, KYTC Project Item No. 6-17, prepared by Parsons Brinckerhoff, dated October 2005.

Information relating to the project's purpose and need, owner concerns, project stakeholder concerns, design criteria, project constraints, funding sources and availability, regulatory agency approval requirements, and the project's schedule and costs is very important as it provides the VE team with insight about how the project has progressed to its current state.

To prepare for this exercise, the VE team studied the study documents listed above provided by the project team. The VE Team Leader also prepared basic cost models using the Alternative C and D and Alternative E(Cost) Estimates BSB Sections 1-5, prepared by Parsons Brinckerhoff, dated 11/05/08 to distribute the total project cost among the various deliverables. The VE team used the cost models to help identify higher cost elements and elements providing little or no value to the overall project objectives.

VALUE ENGINEERING WORKSHOP EFFORT

The VE workshop was a 3-day effort beginning with the design overview at 8:00 AM on Monday, August 24, 2009 and concluding with the VE Presentation at 2:00 PM on Wednesday, August 26, 2009. During the workshop, the VE Job Plan was followed in compliance with Federal Highway Administration guidelines for conducting a VE study. The Job Plan guided the search for alternatives to mitigate or eliminate high-cost drivers, secondary functions providing little or no value, and potential project issues or risks. Alternatives to specifically address the project team concerns and enhance value by reducing costs, improving construction schedule, and delivering required functional objectives were also considered. The Job Plan includes six phases:

- Information Phase

- Function Identification and Analysis Phase
- Creativity Phase
- Evaluation Phase
- Development Phase
- Presentation Phase

Information Phase

At the beginning of the study, the decisions that have influenced the project's design have to be reviewed and understood. For this reason, the workshop began with a detailed discussion and review of the project documents including an overview by the project team. The overview highlighted the information provided in the documentation reviewed by the VE team before the workshop and expanded on it to include a history of the project's development and any underlying influences that caused the design to develop to its current state. During this presentation, VE team members were given the opportunity to ask questions and obtain clarification about the information provided.

Function Identification and Analysis Phase

Having gained some information on the project, the VE team proceeded to define the functions provided by the project, identifying the costs to provide these functions, and determining whether the value provided by the functions has been optimized. Function analysis is a means of evaluating a project to see if the expenditures actually perform the requirements of the project or if there are disproportionate amounts of money spent on support functions. Elements performing support functions add cost to the project but have a relatively low worth to the basic function.

Function is defined as the intended use of a physical or process element. The team attempted to identify functions in the simplest manner using measurable noun/verb word combinations. To accomplish this, the team first looked at the project in its entirety and randomly listed its functions, which were recorded on Random Function Analysis Worksheets (provided in this section). Then the individual functions of the major components of the project depicted on the cost model were identified.

After identifying the functions, the team classified the functions according to the following:

Abbreviation	Type of Function	Definition
HO	Higher Order	The primary reason the project is being considered or project goal.
B	Basic	A function the must occur for the project to meet its higher order functions.
S	Secondary	A function that occurs because of the concept or process selected and may or may not be necessary.
RS	Required Secondary	A secondary function that may not be necessary to perform the basic function but must be included to satisfy other requirements or the project cannot proceed.
G	Goal	Secondary goal of the project.
O	Objective	Criteria to be met.
LO	Lower Order	A function that serves as a project input.

Higher order and basic functions provide value, while secondary functions tend to reduce value. The goal of the next job phase is to reduce the impact of secondary functions and thereby enhance project value.

The VE team used the cost model previously prepared to seek out the areas where most of the project funds are being applied. Because of the magnitude of these high-cost elements or functions, they also became initial targets for value enhancement.

Overall, these exercises stimulated the VE team members to focus on apparently low value areas and initially channel their creative idea development in these places.

Creativity Phase

This phase involved the creation and listing of ideas. The VE Team began by identifying the highest cost project elements with a high absolute cost compared to other elements in the project, and secondary functions providing little or no value. Then, using the classic brainstorming technique, the VE team began to generate as many ideas as possible to provide the necessary functions at a lower total life cycle cost, or to improve the quality of the project. Innovative ideas for reducing costs and delivering required functional objectives were encouraged. At this stage of the process, the VE team was looking for a large quantity of ideas and free association of ideas. A Creative Idea Listing worksheet was generated and organized by the project element being addressed.

The project team may wish to review these creative lists since they may contain ideas that were not pursued by the VE team but can be further evaluated for potential use in the design.

Evaluation Phase

Since the goal of the Creativity Phase was to conceive as many ideas as possible without regard for technical merit or applicability to the project goals, the Evaluation Phase focused on identifying those ideas that do respond to the project value objectives and are worthy of additional research and development before being presented to the owner. The selection process consisted of the VE team evaluating the ideas originated during the Creativity Phase. The following criteria were identified and used as a basis during the evaluation of each idea.

- No lane shall be over capacity
- No lane shall have substantial unused capacity
- No lane shall have more than two destinations
- No lane shall have more than one merge, diverge, or weave as a result of a local entrance or exit
- Lane endings shall end on the right of through lanes to avoid weaves
- Lane beginnings shall begin on the right of through lanes to avoid weaves
- All lanes could operate as separate, independent roadways relevant to other local roadways
- The new design shall meet FHWA noise abatement criteria (NAC) as outlined in 23 (CFR), Part 772
- The new design shall be developed in accordance with the geometric design criteria requirements of both KYTC and ODOT (See Conceptual Alternatives Study Table 4, pages 33-36)

The VE team rated each idea by consensus according to the following approach. A scale of 1 to 5 was used, with 5 or 4 indicating an idea with the greatest potential to be technically sound and provide cost

savings or improvements in other areas of the project with minimal risk, 3 indicating an idea that provides marginal value but could be used if the project was having budget problems, 2 indicating an idea with a major technical flaw, and 1 indicating an idea that does not respond to project requirements. Generally, ideas rated 4 and 5 are pursued in the next phase and presented to the owner during the Presentation Phase.

The team also used the designation "DS" to indicate a design suggestion, which is an idea that may not have specific quantifiable cost savings but may reduce project risk, improve constructability, help to minimize claims, enhance operability, ease maintenance, reduce schedule time, or enhance project value in other ways. Design suggestions could also increase a project's cost but provide value in areas not currently addressed. These are also developed in the next phase of the VE process.

Development Phase

In this phase, each highly rated idea was expanded into a workable solution designated as a VE alternative. The development consisted of describing the current design and the alternative solution, describing the advantages and disadvantages of the proposed alternative solution, and writing a brief narrative to compare the original design to the proposed change and provide a rationale for implementing the idea into the design. Sketches and design calculations, where appropriate, were also prepared in this part of the study. The VE alternatives are included in Section Two of this report.

Presentation Phase

The presentation was held at 2:00 PM on Wednesday, August 26, 2009. The goal of the presentation was to provide the attendees with an overview of the suggestions for value enhancement resulting from the VE study and afford them the opportunity to ask questions to clarify specific aspects of the alternatives presented.

POST-WORKSHOP EFFORT

The post-workshop portion of the VE study consisted of the preparation of this VE Study Report. Members of the project team will analyze each alternative and prepare a short response, recommending incorporation of the alternative into the project, offering modifications before implementation, or presenting reasons for rejection. LZA is available at your convenience as you review the alternatives. Please do not hesitate to call on us for clarification or further information as you consider an implementation approach.

VALUE ENGINEERING WORKSHOP AGENDA

Lewis & Zimmerman Associates, Inc. will conduct a four-day value engineering (VE) workshop August 24-26, 2009 for the Brent Spence Bridge Replacement/Rehabilitation Project (ODOT HAM-71/75-0.00/0.22 PID 75119, KYTC Project Item No. 6-17).

The VE workshop will be conducted at:

Kentucky Transportation Cabinet
District 6 Office
421 Buttermilk Pike
Ft. Mitchell, Kentucky 41017

Alfred B. Craig and Duane Phelps from Parsons Brinckerhoff will share a detailed presentation of the project at the beginning of the VE workshop and be available by telephone during the workshop to answer any questions.

The following persons shall be in attendance as VE Team Members:

ODOT Project Manager	Stefan Spinosa, District 8 Production
KYTC Project Manager	John Eckler, District 6 Highway Design
KYTC Project Manager	Rob Hans, District 6 Chief Engineer
ODOT Highway Design	John Otis, District 8 Production
ODOT Maintenance of Traffic	Walter Bernau, District 8 Construction
ODOT Maintenance of Traffic	Reynaldo Stargell C. O. Traffic Engineering (1st/4th day)
ODOT Traffic Control	Jay Hamilton, District 8 Planning/Programming
KYTC Structures	J.C. Pyles, Structural Design Office
ODOT Structures	Chris Howard, District 8 Production
ODOT Structures	Jeff Crace, C.O. Structural Engineering (1st/4th day)
KYTC Geotech	Darrin Beckett, C.O. Division of Materials
ODOT Geotech	Joe Smithson, District 8 Production
KYTC Construction	Kevin Rust, District 6 Construction
KYTC Construction	Nasby Stroop, C.O. Construction
ODOT Construction	Joe Bassil, District 8 Construction
ODOT Environmental	Keith Smith, District 8 Planning/Programming
Real Estate - TBA	
ODOT Program Manager	Scott Phinney, C.O. Systems Planning & Prog. Mgmt. (on call)
ODOT Estimating	C.O. Office of Estimating (on call)
Ohio FHWA	Mark Vonder Embse, Transportation Area Engr. & VE Coordinator
Kentucky FHWA	Bernadette DuPont
Kentucky FHWA	Scott Wolf
ODOT VE Coordinator	Jeanne Braxton, C.O. Office of Production (1st/4th day)
KYTC VE Coordinator	Siamak Shafaghi (1st day)
VE Facilitator	Steve Havens, P.E., C.V.S., Lewis & Zimmerman Associates
Design Group – Parsons Brinckerhoff	Alfred B. Craig (Project Manager)
	Duane Phelps (Design Lead)

AGENDA

Monday, August 24, 2009

7:45 am – 8:00 am **VE Team Informal Gathering** **(VE Team)**

VE team gathers for informal introductions
VE team prepare questions for Parsons Brinckerhoff

8:00 am – 8:10 am **Welcome, Introduction and Objectives** **(All Participants)**

Welcome: Opening Remarks and Introduction of Participants
Overview of the VE Process, Workshop Organization and Agenda
Review VE Workshop Objectives and Goals

8:10 am – 10:30 am **Design Team Detailed Presentation** **(All Participants)**

Overview, Scope, and Project Requirements
Key Design Issues for all Disciplines
Development Plan Review and Updated Opinion of Probable Project Cost
Design Team fields VE Team questions

10:30 am – 12:00 pm **Function Analysis Phase** **(VE Team)**

Identify Project Constraints and Key Issues
Identify basic and secondary functions
Analyze cost model(s) and worth assignments
Identify and Quantify Project Risks

12:00 pm – 1:00 pm **Lunch**

1:00 pm – 4:15 pm **Creative Phase** **(VE Team)**

4:15 pm – 4:30 pm **Daily Wrap-up Session** **(VE Team)**

Tuesday, August 25, 2009

8:00 am – 10:00 am **Complete Creative Phase** **(VE Team)**

Brainstorm to generate ideas through free association. Defer judgment.

10:00 am – 12:00 pm **Evaluation Phase** **(VE Team)**

Establish the criteria for evaluation and rate each idea on a scale of 1 to 5, identifying the "best" ideas for development. Assign ideas rated 4 or higher to team members for development.

12:00 pm – 1:00 pm **Lunch**

1:00 pm – 4:15 pm **Development Phase** **(VE Team)**

The VE team develops creative ideas into value engineering alternatives with sketches, calculations and written justifications. Initial and life-cycle cost estimates comparing baseline and proposed designs will be prepared

4:15 pm – 4:30 pm **Daily Wrap-up Session** **(VE Team)**

Wednesday, August 26, 2009

8:00 am – 12:00 pm **Development Phase (continued)** **(VE Team)**

The VE team continues developing creative ideas into value engineering alternatives with sketches, calculations and written justifications. Initial and life-cycle cost estimates comparing baseline and proposed designs will be prepared.

12:00 pm – 1:00 pm **Lunch**

1:00 pm – 2:00 pm **Complete Development Phase** **(VE Team)**

The VE team summarizes the findings into the Summary of Potential Savings and prepares for the outbriefing presentation.

2:00 pm – 3:00 pm **Presentation Phase** **(All Participants)**

The VE team presents the value engineering alternatives to the design team and the ODOT representatives. A draft copy of the Summary of Potential Savings will be distributed.

3:00 pm – 3:30 pm **Wrap-up/Adjourn** **(VE Team)**

OUTLINE FOR VE TEAM PRESENTATION

The design is influenced by outside input from many sources. In order to perform its work most efficiently, the value engineering team needs to understand the factors that have influenced the RFP development. The object is to avoid duplication of efforts and to aid the team in becoming familiar with the project.

To achieve this objective, the Project Team is asked to give a brief overview at the beginning of the VE workshop session. To assist the Project Team, we have outlined the information that, as a minimum, should be addressed:

- Scope of the Designer's effort
- Existing site conditions
- Design concepts for project (including alignment, right-of-way, maintenance of traffic, environmental mitigation, erosion and sedimentation control, structures, etc).
- Constraints
- Summary of cost estimate
- Construction phasing
- Pertinent information from public participation
- Issues/Concerns/Risks

VALUE ENGINEERING WORKSHOP PARTICIPANTS

The VE team was organized to provide specific expertise in the unique project elements involved with the Brent Spence Bridge Replacement/Rehabilitation Project. The multidisciplinary team comprised professionals with highway design, geometrics, structural engineering, traffic control, construction, transportation engineering, and cost estimating experience and a working knowledge of VE procedures. The following is a list of the VE team members:

Participant	Specialization	Affiliation
Stefan Spinosa	Highway Design	ODOT District #8 Project Manager
John Eckler	Highway Design	KYTC District #6 Project Manager
Rob Hans	Highway Design	KYTC District #6 Chief Engineer
John Otis	Highway Design	ODOT District #8 Production
Walter Bernau	Construction/MOT	ODOT District #8 Construction
Reynaldo Stargell	MOT	ODOT C.O. Traffic Engineering
Jay Hamilton	Traffic	ODOT District #8 Planning & Programming
J.C. Pyles	Structures	KYTC Structural Design Office
Chris Howard	Structures	ODOT District #8 Production
Jeff Crace	Structures	ODOT C.O. Structural Engineering
Darrin Beckett	Geotechnical	KYTC C.O. Division of Materials
Joe Smithson	Geotechnical	ODOT District #8 Production
Kevin Rust	Construction	KYTC District #6 Construction
Nasby Stroop	Construction	KYTC C.O. Construction
Keith Smith	Environmental	ODOT District #8 Planning and Programming
Bernadette DuPont	FHWA	Kentucky FHWA
Scott Wolf	FHWA	Kentucky FHWA
Siamak Shafaghi	VE Coordinator	KYTC C.O. Production
Jeanne Braxton	VE Coordinator	ODOT C.O. Office of Production
Stephen Havens, CVS	VE Team Leader	Lewis & Zimmerman Associates

DESIGNER'S PRESENTATION

An overview of the project was presented at 8:00 AM on August 24, 2009 by the design team from Parsons Brinckerhoff. The purpose of this design overview, in addition to being an integral part of the Information Phase of the VE study, was to bring the VE team "up to speed" regarding the overall project specifics. Additionally, the overview afforded the project team the opportunity to highlight in greater detail those areas of the project requiring additional or special attention. An attendance list for the design presentation is attached.

VALUE ENGINEERING TEAM'S PRESENTATION

The VE Team's presentation was held at 2:00 PM on August 26, 2009. The purpose of the meeting was to provide the attendees with an overview of the suggestions for value enhancement resulting from the VE study and afford them the opportunity to ask questions to clarify specific aspects of the alternatives

presented. Copies of the Draft Summary of Value Engineering Alternatives were provided to the attendees. An attendance list for the meeting is attached.

DESIGNER'S PRESENTATION

MEETING PARTICIPANTS

PROJECT: **HAM-71/75-0.00/0.22, PID 75119**
Ohio Department of Transportation
PROJECT ITEM NO. 6-17
Kentucky Transportation Cabinet

DATE: **AUGUST 24, 2009**

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DESIGNER'S PRESENTATION

MEETING PARTICIPANTS

PROJECT: **HAM-71/75-0.00/0.22, PID 75119** DATE: **AUGUST 24, 2009**
Ohio Department of Transportation
PROJECT ITEM NO. 6-17
Kentucky Transportation Cabinet

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DESIGNER'S PRESENTATION

MEETING PARTICIPANTS

PROJECT: **HAM-71/75-0.00/0.22, PID 75119**
Ohio Department of Transportation
PROJECT ITEM NO. 6-17
Kentucky Transportation Cabinet

DATE: **AUGUST 24, 2009**

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VE TEAM PRESENTATION

PROJECT: **HAM-71/75-0.00/0.22, PID 75119**
Ohio Department of Transportation
PROJECT ITEM NO. 6-17
Kentucky Transportation Cabinet

DATE: **AUGUST 26, 2009**

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VE TEAM PRESENTATION

PROJECT: **HAM-71/75-0.00/0.22, PID 75119**
Ohio Department of Transportation
PROJECT ITEM NO. 6-17
Kentucky Transportation Cabinet

DATE: **AUGUST 26, 2009**

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VE TEAM PRESENTATION

PROJECT: **HAM-71/75-0.00/0.22, PID 75119**
Ohio Department of Transportation
PROJECT ITEM NO. 6-17
Kentucky Transportation Cabinet

DATE: **AUGUST 26, 2009**

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STEPHEN HAVENS em shavens@lza.com	LZA VE TEAM LEADER	ph mob 608-438-8227 fx
em		ph mob fx
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ECONOMIC DATA

The comparisons of life cycle costs between the VE alternatives and the current design solutions were performed on the basis of discounted present worth. To accomplish this, the VE team developed economic criteria to use in its calculations based on information gathered from the Alternative C and D, and Alternative E (Cost) Estimates BSB Sections 1-5, ODOT PID 75119, KYTC Project Item No. 6-17, prepared by Parsons Brinckerhoff, dated 11/05/08. The following parameters were used when calculating discounted present worth:

Year of Analysis:	2008
Construction Start Date:	2015
Construction Mid-Point:	June 2017
Construction Completion:	2020
Construction Duration:	5 seasons
Contingency (Inflation Cost Percentage):	59.5%

The VE Team used a 59.5% markup as the baseline when preparing VE alternative cost worksheets based upon the Brent Spence Bridge Conceptual Alternatives Study Section 6.4.3.

COST MODEL

The VE team leader prepared Cost Histograms or Pareto charts for the project that follows this page. The Cost Histograms display the major construction elements in descending order of magnitude identified in Alternative C and D, and Alternative E (Cost) Estimate BSB Sections 1-5, ODOT PID 75119, KYTC Project Item No. 6-17, prepared by Parsons Brinckerhoff, dated 11/05/08.

From the Alternative C and D cost models it can be seen that approximately 97.5% of the $2.28 billion estimated construction cost is represented by the following project elements:

- Structures 38.85%
- Roadway 23.20%
- Design Engineering 18.92%
- General Conditions 5.39%
- Pavement 3.98%
- Maintenance of Traffic 3.02%
- Noise Barrier 2.13%
- Retaining Walls 2.06%

From the Alternative E cost models it can be seen that approximately 99.1% of the $2.58 billion estimated construction cost is represented by the following project elements:

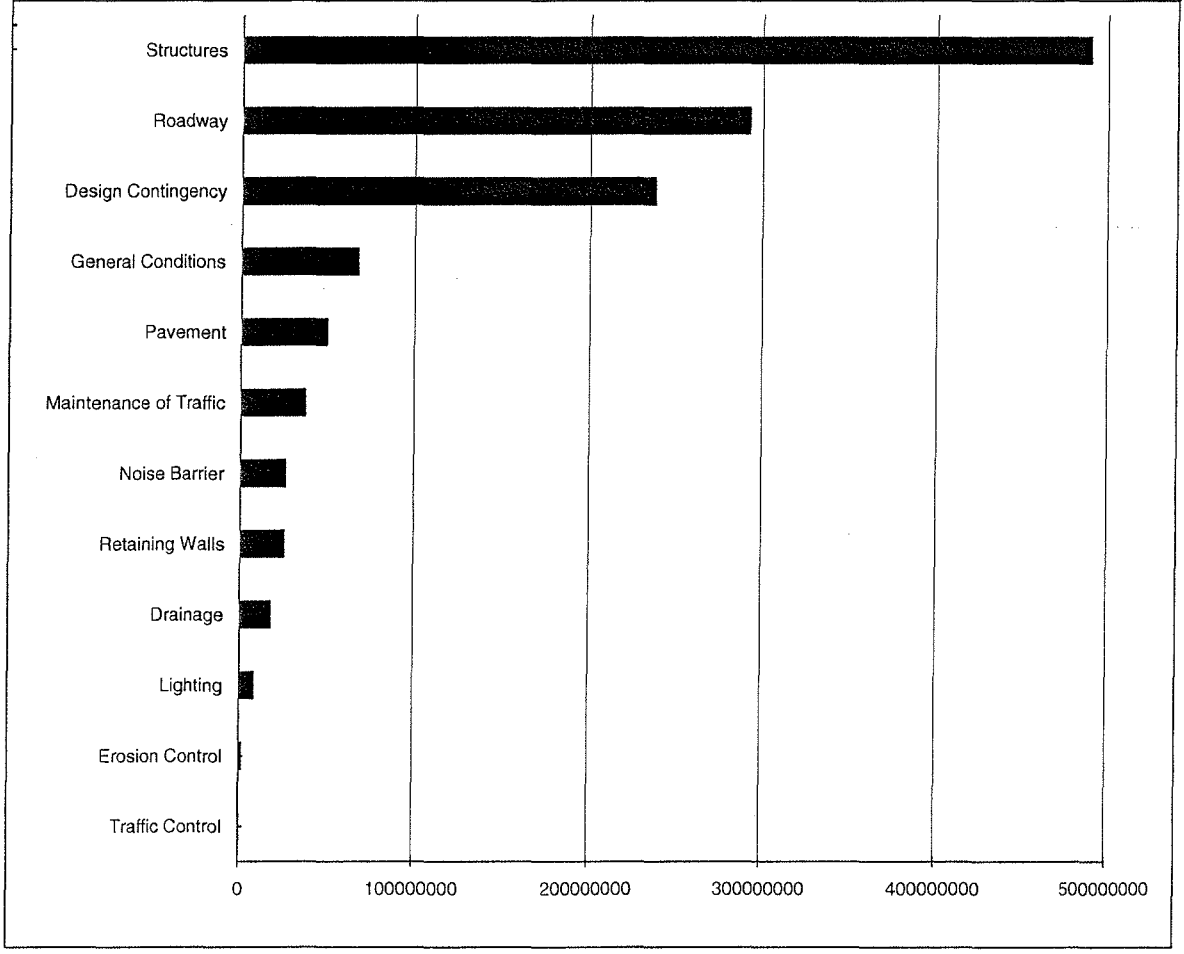
- Structures 40.43%
- Roadway 22.19%
- Design Contingency 18.94%
- General Conditions 5.30%
- Pavement 3.79%
- Maintenance of Traffic 2.66%
- Retaining Walls 2.48%
- Noise Barrier 2.01%
- Drainage 1.31%

This cost model information was used to help prioritize the areas of focus during the creative phase of the workshop.

COST HISTOGRAM

PROJECT: HAM-71/75-0.00/0.22, PID 75119
Ohio Department Of Transportation
Project Item No. 6-17
Kentucky Transportation Cabinet

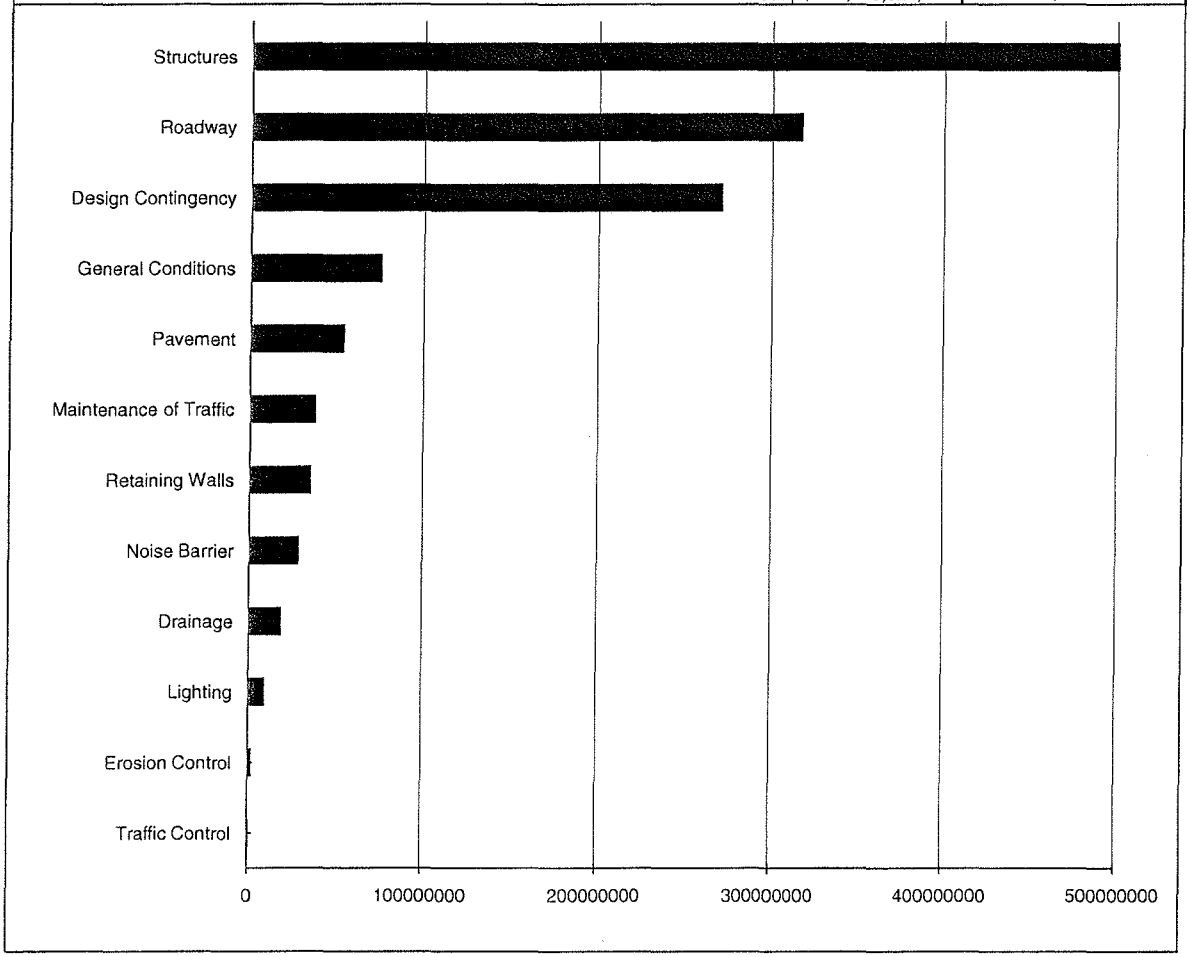
Hybrid Alternative CD - Total Project Summary		COST	PERCENT	CUM. PERCENT
Structures		490,109,955	38.85%	38.85%
Roadway		292,778,037	23.20%	62.05%
Design Contingency		238,729,497	18.92%	80.97%
General Conditions		68,055,079	5.39%	86.37%
Pavement		50,155,627	3.98%	90.34%
Maintenance of Traffic		38,050,000	3.02%	93.36%
Noise Barrier		26,890,905	2.13%	95.49%
Retaining Walls		25,949,714	2.06%	97.54%
Drainage		18,489,925	1.47%	99.01%
Lighting		9,140,596	0.72%	99.73%
Erosion Control		2,122,949	0.17%	99.90%
Traffic Control		1,230,280	0.10%	100.00%
	Subtotal	**$ 1,261,702,564**	**100.00%**	
	Escalation to Mid Construction @ 59.50%	$ 750,713,026		
	Subtotal	$ 2,012,415,589		
	Project Development	$ 210,400,000		
	Right-of-Way	$ 18,000,000		
	Utility Relocations	$ 39,400,000		
	Total	**$ 2,280,215,589**	Comp Mark-up:	59.50%



COST HISTOGRAM

PROJECT: HAM-71/75-0.00/0.22, PID 75119
Ohio Department Of Transportation
Project Item No. 6-17
Kentucky Transportation Cabinet

BSB Alt CD - Total Project Summary	COST	PERCENT	CUM. PERCENT
Structures	578,785,850	40.43%	40.43%
Roadway	317,663,500	22.19%	62.62%
Design Contingency	271,155,020	18.94%	81.56%
General Conditions	75,837,205	5.30%	86.86%
Pavement	54,276,700	3.79%	90.65%
Maintenance of Traffic	38,050,000	2.66%	93.31%
Retaining Walls	35,494,648	2.48%	95.78%
Noise Barrier	28,707,653	2.01%	97.79%
Drainage	18,683,261	1.31%	99.09%
Lighting	9,640,432	0.67%	99.77%
Erosion Control	2,122,949	0.15%	99.92%
Traffic Control	1,195,086	0.08%	100.00%
Subtotal	**$ 1,431,612,303**	**100.00%**	
Escalation to Mid Construction @ 59.50%	$ 851,809,320		
Subtotal	$ 2,283,421,623		
Project Development	$ 236,300,000		
Right-of-Way	$ 16,400,000		
Utility Relocations	$ 39,400,000		
Total	**$ 2,575,521,623**	Comp Mark-up:	59.50%



FUNCTION ANALYSIS

A random function analysis of the Brent Spence Bridge Replacement/Rehabilitation Project was performed to (1) understand the project purpose and need, (2) define the requirements for each project element, (3) ensure a complete and thorough understanding by the VE team of the basic functions needed to attain the given project purpose and need, (4) identify other goals, and (5) identify secondary functions that should be addressed by the VE team. The Random Function Analysis worksheet completed by the team for the project in its entirety and the various elements follow.

The key opportunity areas for potential value engineering betterments and cost avoidance established during the function analysis session includes the following:

- Maintenance of Traffic
  - Reroute Traffic
  - Identify Contractor Lay-Down Area
- Roadway
  - Adjust Roadway Alignment
  - Reduce Right-of-Way
  - Reduce Excavation Requirements
  - Protect Slope
- Pavement
  - Improve Emergency Response Vehicle Access
  - Minimize Impacts to Parks/Historic Areas
  - Improve Access to Cincinnati/Covington
  - Increase Utilization of Clay Wade Bailey Bridge
- Structures
  - Use Tie-Back Walls
  - Mitigate Willow Run Sewer Structural Impacts
  - Reduce New Bridge Width

RANDOM FUNCTION ANALYSIS

PROJECT: **HAM-71/75-0.00/0.22, PID 75119**
Ohio Department of Transportation
Project Item No. 6-17
Kentucky Transportation Cabinet

SHEET NO.: **1 of 3**

DESCRIPTION	FUNCTION		
	VERB	NOUN	KIND
TOTAL PROJECT (NEEDS & PURPOSE)	Improve	Level of Service	HO
	Improve	Traffic Flow	HO
	Increase	Capacity	B
	Enhance	Safety	HO
	Correct	Geometric Deficiencies	RS
	Meet	Current Design Standards	B
	Reduce	Crash Rates	HO
	Improve	Key Connections	RS
	Improve	Access	G
	Increase	Distance Between Access Points	RS
	Maintain	Local Access Connections	RS
	Increase	Design Speed	O
	Meter	Ramps	S
	Accommodate	Trucks	RS
	Separate	Local Traffic	RS
PAVEMENT	Replace	Damaged Pavement (Full Depth)	RS
	Replace	Ramps	RS
	Add	Lanes	RS

Function defined as: Action Verb, Measurable Noun

Kind: B = Basic; S = Secondary; RS = Required Secondary; HO = Higher Order; LO = Lower Order; O = Objective; G = Goal

RANDOM FUNCTION ANALYSIS

PROJECT: **HAM-71/75-0.00/0.22, PID 75119**
Ohio Department of Transportation
Project Item No. 6-17
Kentucky Transportation Cabinet

SHEET NO.: **2 of 3**

DESCRIPTION	FUNCTION		
	VERB	NOUN	KIND
STRUCTURES	Separate	Grade	RS
	Span	Riverway	B
	Span	Railroad	B
	Span	Utilities	B
	Span	Historic Sites	RS
	Access	Community	HO
	Connect	Points	B
	Convey	Traffic	B
	Retain	Soil	RS
	Construct	Facility	RS
	Rehabilitate	Existing Facility	G
ROADWAY	Prepare	Roadway	B
	Remove	Pavement	RS
	Excavate	Soil/Rock	RS
	Excavate	Hazardous Materials	RS
	Borrow/Fill	Embankment	RS
	Install	Permanent Barriers	RS
	Treat	Sub-grade	RS
	Salvage	Existing Pavement	G
DRAINAGE	Transfer	Stormwater	B
	Control	Discharge	RS

Function defined as: Action Verb, Measurable Noun

Kind: B = Basic; S = Secondary; RS = Required Secondary; HO = Higher Order; LO = Lower Order; O = Objective; G = Goal

RANDOM FUNCTION ANALYSIS

PROJECT: **HAM-71/75-0.00/0.22, PID 75119**
Ohio Department of Transportation
Project Item No. 6-17
Kentucky Transportation Cabinet

SHEET NO.: **3 of 3**

DESCRIPTION	FUNCTION		
	VERB	NOUN	KIND
DRAINAGE (Continued)	Separate	Sanitary Sewage	RS
	Manage	Stormwater Quality	B
	Manage	Stormwater Quantity	B
MAINTENANCE OF TRAFFIC	Maintain	Traffic	B
	Maintain	Interchange Access	RS
	Reroute	Traffic	RS
	Assure	Safety	B
	Maintain	3 lanes in Ohio	RS
	Maintain	2 lanes in KY	RS
GENERAL	Reduce	Right-of-Way	G
	Avoid	Utilities	G
	Relocate	Utilities	RS
	Avoid	Gasline	G

Function defined as: Action Verb / Measurable Noun

Kind: B = Basic; S = Secondary; RS = Required Secondary; HO = Higher Order; LO = Lower Order; O = Objective; G = Goal

CREATIVE IDEA LISTING AND EVALUATION OF IDEAS

During the Creativity Phase, numerous ideas were generated for the Brent Spence Bridge Replacement/ Rehabilitation Project using conventional brainstorming techniques. These ideas were recorded and are shown with their corresponding ranking on the attached Creative Idea Listing Worksheets. For the convenience of tracking an idea through the VA process, the ideas were grouped according to the following project elements and numbered in the order in which they were conceived. The following letter prefixes were used to identify the project elements.

PROJECT ELEMENT	PREFIX
Maintenance of Traffic	MOT
Roadway	R
Pavement	P
Structures	S

Creative Idea Evaluation

After discussing each idea, the team evaluated the ideas by consensus. This effort produced 11 ideas rated 4 or 5 to research and develop into VE alternatives and 10 ideas to develop as design suggestions to be included in the Section Two of the report. Ideas that were not developed further may have been combined with another related idea or discarded as a result of additional research indicating the concept as not being cost effective or technically feasible. The project team is encouraged to review the Creative Idea Listing and Evaluation worksheet since it may suggest additional ideas that can be applied to the design.

CREATIVE IDEA LISTING

PROJECT: **HAM-71/75-0.00/0.22, PID 75119**
Ohio Department of Transportation
Project Item No. 6-17
Kentucky Transportation Cabinet

SHEET NO.: **1 of 3**

NO.	IDEA DESCRIPTION	RATING
	MAINTENANCE OF TRAFFIC (MOT)	
MOT-1A	For all options in Kentucky, replace the shoulders on I-471 southbound with full depth pavement to support rerouting of traffic during construction.	5
MOT-1B	For all options in Kentucky, replace the shoulders on I-471 southbound with full depth pavement to support rerouting of traffic during construction.	5
MOT-1C	For all options in Kentucky, replace the shoulders on I-471 southbound with full depth pavement to support rerouting of traffic during construction.	5
MOT-2	For all options in Ohio, add alternative Newport exit signing from I-71 via US 27 to reroute traffic during construction.	DS
MOT-3	For all options, identify northbound and southbound locations for safe pull-off for overweight vehicle enforcement.	2
MOT-4	For all options, indentify acceptable contractor lay-down areas and access routes for use during constructions.	DS
MOT-5	Develop a staging strategy which would allow the new bridge to be constructed later or as a separate project, if needed.	1
MOT-6	Consider banning truck access during construction.	2
	ROADWAY (R)	
R-1	For all options, realign Section 1 near the hill to the east to reduce excavation requirements.	DS
R-2	Specify that recycled concrete pavement is acceptable for use as sub-grade stabilization in Kentucky.	DS
	PAVEMENT/RAMPS (P)	
P-1	For all options, eliminate the braid on northbound I-75 between Kyle's Lane and Dixie Highway.	3
P-2	Incorporate the Alternative E design in Kentucky with the Hybrid Alternative CD design in Ohio to provide two direct interstate access points in Covington.	3
P-3	In Alternative E, replace the 5th Street northbound ramp to I-71 in Kentucky with an indirect ramp connection from the collector-distributor roadway to I-71 in Ohio.	4
P-4	For all options, improve access to Covington from I-71/I-75 by changing 4th and 5th streets from one-way pairs to two-way traffic west of Main Street.	2

Rating: 1→2 = Not to be developed 3→4 = Varying degrees of development potential 5 = Most likely to be developed
DS = Design suggestion ABD = Already being done

CREATIVE IDEA LISTING

PROJECT: **HAM-71/75-0.00/0.22, PID 75119**
Ohio Department of Transportation
Project Item No. 6-17
Kentucky Transportation Cabinet

SHEET NO.: **2 of 3**

NO.	IDEA DESCRIPTION	RATING
	PAVEMENT/RAMPS (Continued)	
P-5	Eliminate the KY 9th Street intersection with the collector-distributor roadway from all options.	DS
P-6	Add a ramp to access northbound I-75 from 6th Street in Ohio in the Hybrid Alternative CD design.	2
P-7	In the Hybrid Alternative CD, identify a shorter route for emergency responses from the Fire Station at 5th Street and Central Avenue to the Fort Washington Way Trench.	DS
P-8	In the Hybrid Alternative CD, provide a direct connection from the southbound collector-distributor to 2nd Street in Ohio and add an additional connection to the US 42/3rd Street Intersection to improve access and increase the utilization of the Clay Wade Bailey Bridge.	4
P-9	Clarify the negative impacts to I-71/I-75 interstate access in Covington by providing collector-distributor roadway access from Kentucky to northbound I-71 in Ohio.	Combine with P-3
P-10	In the Hybrid Alternative CD, provide access from Winchell Avenue just north of Ezzard Charles Drive to northbound I-75.	4
P-11	In the Hybrid Alternative CD, update the cost estimate to reflect the additional lane on the I-75 mainline.	DS
P-12	Use a shorter barrier design or provide short length crossovers for emergency vehicle access on one-way section areas on bridges and mainlines.	2
P-13	In Alternative E, shift the collector-distributor roadway to minimize impacts to Goebel Park and avoid relocating the radio station tower.	DS
P-14	Provide improvements to Alternative E to reduce business impacts in Ohio.	ABD
P-15	Adjust the profile of the collector-distributor roadways under Kyle's Lane to provide adequate vertical clearance under the haunched girders.	ABD
P-16	Provide an emergency crossover between Ezzard Charles Drive and 12th Street in Kentucky.	2
	STRUCTURES (S)	
S-1	In the Hybrid Alternative CD, provide an exit from northbound I-75 to Ezzard Charles Drive similar to that shown in the Alternative E design.	DS
S-2	With all options, use tie-back walls on the west side of southbound KY I-75 and in other applicable areas in Kentucky to reduce excavation and right-of-way requirements.	DS

Rating: 1→2 = Not to be developed 3→4 = Varying degrees of development potential 5 = Most likely to be developed
DS = Design suggestion ABD = Already being done

CREATIVE IDEA LISTING

PROJECT: **HAM-71/75-0.00/0.22, PID 75119**
Ohio Department of Transportation
Project Item No. 6-17
Kentucky Transportation Cabinet

SHEET NO.: **3 of 3**

NO.	IDEA DESCRIPTION	RATING
	STRUCTURES (S) Continued	
S-3	Consider slope stabilization in the area near Crescent Avenue during Stage 2 construction.	ABD
S-4	With all options, provide a means to mitigate potential structural impacts to the Willow Run Sewer during construction.	DS
S-5	For all options, use a single deck bridge for I-75 only in lieu of a double deck bridge and keep I-71 on the existing bridge.	1
S-6A	For the Hybrid Alternative CD, adjust the lane configurations on each deck of the new bridge to save one lane per deck.	4
S-6B	For Alternative E, make the traffic operations directional on each deck of the new bridge to save one lane per deck.	4
S-7	Use drilled shafts or auger cast piles in lieu of driven piles to prevent potential damage to the existing gas line during construction.	2

Rating: 1→2 = Not to be developed 3→4 = Varying degrees of development potential 5 = Most likely to be developed
DS = Design suggestion ABD = Already being done

Appendix C
Property Maps

	HAM-71/ 75-0.00/ 0.22	PROPERTY MAPS ALTERNATIVE E	

HAM-71/ 75-0.00/ 0.22

PROPERTY MAPS
ALTERNATIVE E

16 / 3	HAM-71/75-0.00/0.22	PROPERTY MAPS ALTERNATIVE E	CALCULATED CHECKED	0 100 200 HORIZONTAL SCALE IN FEET

	HAM-71/ 75-0.00/ 0.22	PROPERTY MAPS ALTERNATIVE E	

HAM-71/ 75-0.00/ 0.22	PROPERTY MAPS ALTERNATIVE E	

HAM-71/ 75-0.00/ 0.22

PROPERTY MAPS
ALTERNATIVE E

HAM-71/ 75-0.00/ 0.22

PROPERTY MAPS
ALTERNATIVE E

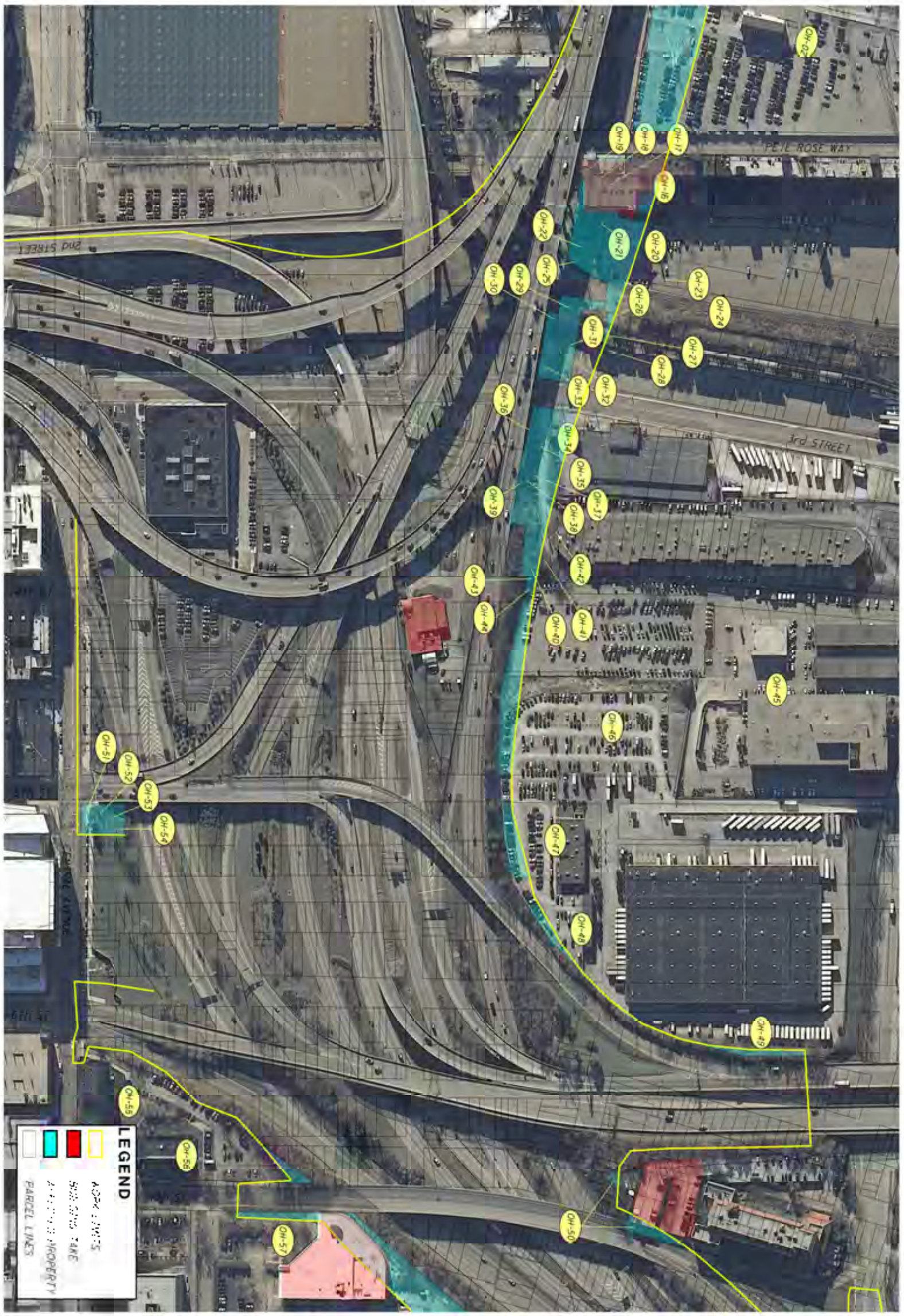
16 / 8	HAM-71/75-0.00/0.22	PROPERTY MAPS ALTERNATIVE E	CALCULATED CHECKED	0 100 200 HORIZONTAL SCALE IN FEET

19 / 9	HAM-71/75-0.00/0.22	PROPERTY MAPS ALTERNATIVE E	CALCULATED CHECKED	0 100 200 HORIZONTAL SCALE IN FEET

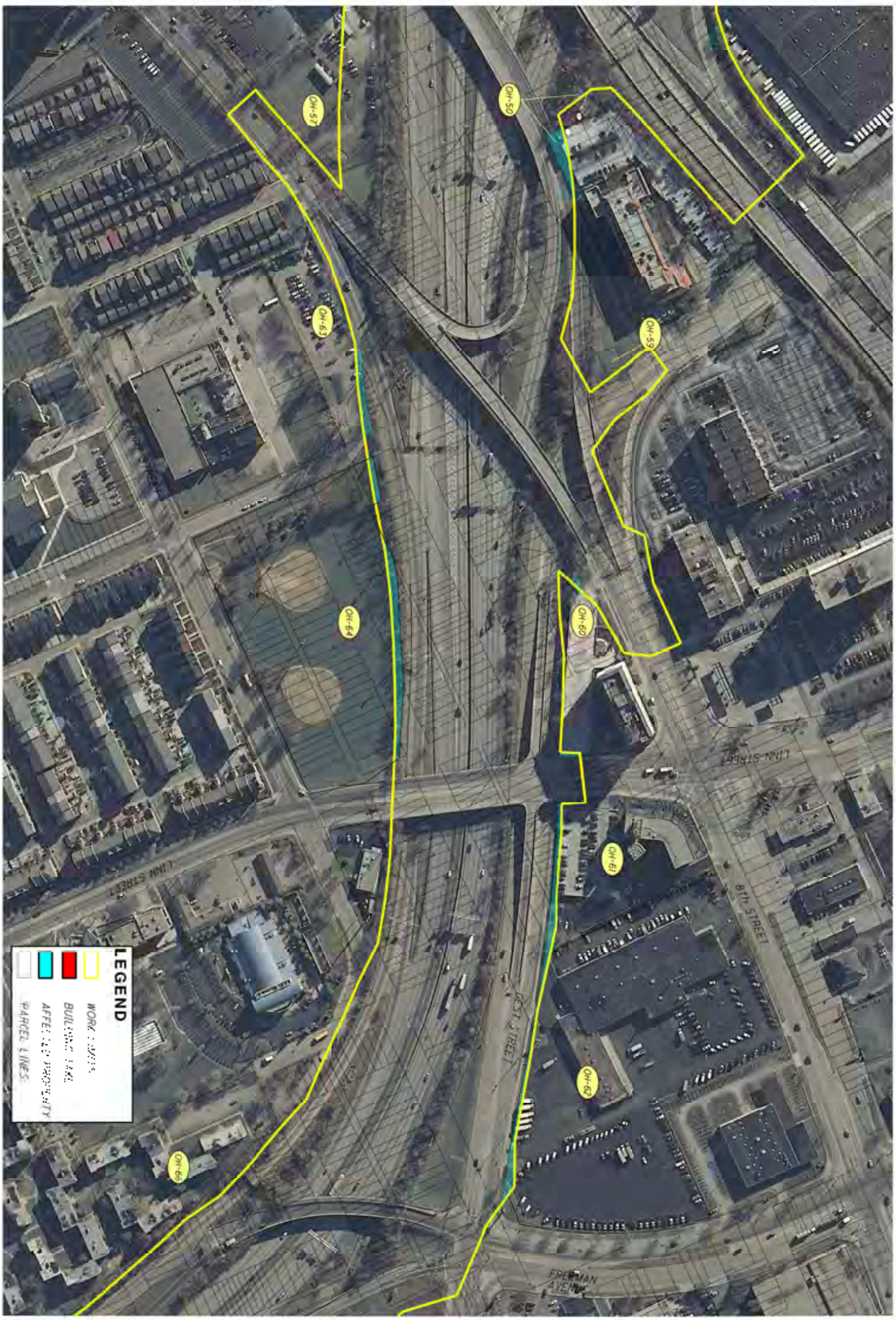
PROPERTY MAPS
ALTERNATIVE E

HAM-71/75-0.00/0.22

	HAM-71/75-0.00/0.22	PROPERTY MAPS ALTERNATIVE E	



	HAM-71/ 75-0.00/ 0.22	PROPERTY MAPS ALTERNATIVE E	



	HAM-71/ 75-0.00/ 0.22	PROPERTY MAPS ALTERNATIVE E	

	HAM-71/ 75-0.00/ 0.22	PROPERTY MAPS ALTERNATIVE E	

PROPERTY MAPS
ALTERNATIVE E

HAM-71/75-0.00/0.22

SPRING GROVE AVENUE

SPRING GROVE AVENUE

OH-72
OH-77
OH-78
OH-79
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OH-133
OH-134
OH-135
OH-136
OH-137
OH-138

PATTERSON AVENUE

HARRISON AVENUE

CENTRAL PARKWAY

MONTGOMERY AVE

LEGEND

- PROPERTY LINES
- BUILDINGS TAKE
- AFFECTED PROPERTY
- PARCEL LINES

PROPERTY MAPS
ALTERNATIVE E

HAM-71/75-0.00/0.22

ALTERNATIVE E PROPERTY MAPS

MAP ID	PAGE #	PIDN OR PARCEL ID	OWNER	ADDRESS	ADDRESS CONT.	LAND USE CLASS	MARKET LAND	MARKET IMPROVEMENT	MARKET TOTAL	TOTAL ACRES	TAKEN ACRES	TAKEN PERCENT
KY-001	1	028-10-16-014.00	PARK 75 PROPERTY OWNERS ASSN	222 GRANDVIEW DR		commercial	0	0	0	1.13	0.02	1.65%
KY-002	1	028-10-16-011.00	PARK 75 PROPERTY OWNERS ASSN	250 GRANDVIEW DR		commercial	0	0	0	5.55	0.01	0.10%
KY-003	2	028-30-08-001.00	FT MITCHELL POINTE COUNCIL OF	45-A MAPLE AVE W		residential	0	0	0	4.14	0.25	6.04%
KY-004	2	028-30-08-027.01	FT MITCHELL HOTEL LLC	2100 DIXIE HWY		commercial	1,500,000	2,600,000	4,100,000	6.92	0.11	1.60%
KY-005	2	028-30-04-005.00	BEECHWOOD INDEPENDENT SCHOOL	50 BEECHWOOD RD		commercial	1,000,000	9,126,900	10,126,900	16.64	0.10	0.59%
KY-006	3	028-30-10-001.00	CENTRAL CHURCH OF NAZARENE	2006 PIECK LN		commercial	301,000	700,000	1,001,000	2.86	0.44	15.41%
KY-007	3	028-30-10-001.02	CENTRAL CHURCH OF NAZARENE	2006-A PIECK LN		commercial	60,000	248,000	308,000	1.11	0.15	13.37%
KY-008	3	028-30-12-006.00	SAM PROPERTIES	1971 PIECK LN		residential	40,000	140,000	180,000	0.27	0.27	100.00%
KY-009	3	028-30-12-005.00	KITO PROPERTIES I LLC	1975 PIECK LN		residential	35,000	164,000	199,000	0.44	0.06	13.66%
KY-010	3	041-20-00-151.00	JAHNKE MARK A & SHERRY L	51 RIVARD DR		residential	30,000	150,000	180,000	0.49	0.00	0.14%
KY-011	3	041-20-00-151.02	OSTERHAGE SUSAN K & WILLIAM J	45 RIVARD DR		residential	30,000	150,000	180,000	0.27	0.27	100.00%
KY-012	3	027-40-15-009.00	FORT WRIGHT PLAZA LLC	1949-2001 DIXIE HWY		commercial	1,000,000	841,500	1,841,500	9.71	0.42	4.32%
KY-013	3	041-20-00-002.00	HOSPITALILITY ASSOS OF	1945 DIXIE HWY		commercial	415,000	1,135,000	1,550,000	1.93	1.93	100.00%
KY-014	3	041-20-00-003.00	EMPIRE ENTERPRISES LLC	1937 DIXIE HWY		commercial	376,000	874,000	1,250,000	2.07	0.09	4.53%
KY-015	3	041-20-00-003.01	B V GRIFFITH INC	1939 DIXIE HWY		commercial	180,000	470,000	650,000	1.03	0.01	0.71%
KY-016	3	041-20-00-006.00	WESSELS CONST & DEV CO INC	1885 DIXIE HWY		commercial	295,000	1,505,000	1,800,000	1.02	0.12	12.16%
KY-017	4	041-20-00-080.01	MCKINLEY GUSTIN A &	11 HIGHVIEW DR		vacant - res	30,000	0	30,000	1.20	0.01	0.45%
KY-018	4	041-20-00-080.02	KALAPASEV NENAD S &	15 HIGHVIEW DR		residential	30,000	118,000	148,000	0.58	0.58	100.00%
KY-019	4	041-20-00-015.00	STOLZ JOHN & MARCELLA	HIGHVIEW DR		vacant - res	500	0	500	0.08	0.08	100.00%
KY-020	4	041-20-20-006.01	WALLACE JAMES E	1598 MARCELLA DR		residential	30,000	97,100	127,100	0.37	0.01	1.70%
KY-021	4	041-20-20-005.03	JOHNSON MARY M	1596 MARCELLA DR		residential	30,000	110,000	140,000	0.57	0.06	10.11%
KY-022	4	041-20-20-005.02	HORSTKAMP VERA S TRUSTEE	1594 MARCELLA DR		residential	30,000	90,000	120,000	0.35	0.07	19.17%
KY-023	4	041-20-20-004.03	BROPHY JOHN H	1952 MARCELLA DR		residential	30,000	90,000	120,000	0.34	0.08	22.29%
KY-024	4	041-20-00-007.00	FT WRIGHT CITY	1881 DIXIE HWY		commercial	474,000	2,126,000	2,600,000	1.36	0.37	27.18%
KY-025	4	041-20-00-009.01	KUCHLE REALTY CO LLC	1817-25 DIXIE HWY		vacant - com	639,500	0	639,500	1.72	0.02	1.39%
KY-026	5	041-20-01-003.01	AUTOMANAGE LLC	700 WRIGHTSUMMIT PKWY		vacant - com	1,204,500	0	1,204,500	4.50	0.25	5.53%
KY-027	5	041-20-01-003.02	SISTERS OF NOTRE DAME OF	WRIGHTSUMMIT PKWY		vacant - com	317,000	0	317,000	1.27	0.11	8.94%
KY-028	5	041-20-00-001.01	SISTERS OF NOTRE DAME OF	1601-A DIXIE HWY		vacant - com	143,000	0	143,000	0.68	0.26	38.46%
KY-029	5	041-20-00-001.00	SISTERS OF NOTRE DAME OF	1601 DIXIE HWY		commercial	1,890,000	54,500,000	56,390,000	42.69	0.97	2.26%
KY-030	5	041-40-00-005.00	OLT REAL ESTATE HOLDINGS II	505 ST JOSEPH LN		residential	60,000	215,000	275,000	0.44	0.44	100.00%
KY-031	5	041-40-00-001.03	DICKMAN JEANNE & DALE VINCENT	504 ST JOSEPH LN		commercial	60,000	215,000	275,000	0.59	0.14	23.69%
KY-032	5	041-40-00-001.04	WACHS DANIEL G	502 ST JOSEPH LN		residential	70,000	232,500	302,500	0.94	0.94	100.00%
KY-033	5	041-40-00-009.00	OLT REAL ESTATE LLC	1200-04 ELBERTA CIR		commercial	135,000	250,000	385,000	3.58	1.16	32.43%
KY-034	5	041-20-20-004.01	TERREL SYDNEY J	1590 MARCELLA DR		residential	30,000	90,000	120,000	0.34	0.09	27.85%
KY-035	5	041-20-20-003.01	WIGGER RALPH P & REBECCA L	1588 MARCELLA DR		residential	30,000	90,000	120,000	0.28	0.09	32.68%
KY-036	5	041-20-20-002.01	RALEIGH JOHNNY & BELLE R	1586 MARCELLA DR		residential	30,000	90,000	120,000	0.18	0.02	10.50%
KY-037	6	041-40-00-016.00	ALBERS ROBERT & JANEY	1208 FAR HILLS DR		vacant - res	45,000	0	45,000	1.91	0.02	1.24%
KY-038	6	041-40-00-017.00	DICKMAN ROBERT G	1132-34-35-37 CEDER RIDGE LN		residential	300,000	1,540,000	1,840,000	9.54	1.76	18.46%
KY-039	6	041-30-00-020.01	GRAY DAVID & HAZEL	507 SCENIC DR		residential	45,000	140,000	185,000	0.45	0.45	100.00%
KY-040	6	041-30-00-020.02	WALL TERRANCE M JR	508 SCENIC DR		residential	100,000	200,000	300,000	0.26	0.26	100.00%
KY-041	6	041-30-00-020.09	BEUTTEL WILLIAM C & JANE	506 SCENIC DR		residential	60,000	105,000	165,000	0.32	0.32	100.00%
KY-042	6	041-30-00-106.00	SANITATION DISTRICT #1 OF	500 SCENIC DR		vacant - res	50,000	0	50,000	3.42	0.28	8.04%
KY-043	6	041-30-00-020.03	BARRETT ROBIN	510 SCENIC DR		residential	60,000	100,000	160,000	0.28	0.28	100.00%
KY-044	6	041-30-00-020.04	UTLEY FORREST G	512 SCENIC DR		residential	100,000	195,000	295,000	0.61	0.00	0.31%
KY-045	7	055-11-33-005.00	SAINT ELIZABETH MEDICAL	MONROE ST		vacant - com	15,000	0	15,000	3.03	0.41	13.69%
KY-046	7	041-33-08-005.00	RABE CLIFFORD L	609 WATKINS ST		residential	5,000	120,000	125,000	0.27	0.06	22.37%
KY-047	7	041-33-08-004.00	RABE TAMMY O	607 WATKINS ST		residential	5,000	55,000	60,000	0.13	0.13	100.00%
KY-048	8	040-44-09-026.01	HENSON MONA G &	612 12TH ST W		residential	5,000	50,000	55,000	0.12	0.12	100.00%
KY-049	8	040-44-09-026.00	EUBANKS REBECCA	610 12TH ST W		residential	5,000	70,000	75,000	0.06	0.06	100.00%
KY-050	8	040-44-09-025.00	CUMMINGS HEIDI	608 12TH ST W		residential	5,000	87,000	92,000	0.06	0.06	100.00%
KY-051	8	040-44-09-024.00	WHEELER SAM	606 12TH ST W		residential	5,000	29,900	34,900	0.05	0.05	100.00%
KY-052	8	040-44-09-023.00	FROELICHER CHARLOTTE & MARIE	604 12TH ST W		residential	5,000	50,000	55,000	0.06	0.06	100.00%
KY-053	8	040-44-09-020.00	GREFER JEFFREY & LORI	605 11TH ST W		residential	5,000	24,000	29,000	0.06	0.06	100.00%
KY-054	8	040-44-09-019.00	GIER THOMAS C & DANINE B	609 11TH ST W		residential	5,000	50,000	55,000	0.12	0.12	100.00%
KY-055	8	040-44-08-017.01	FINAN JOSEPH L	606 11TH ST W		residential	5,000	29,000	34,000	0.05	0.05	100.00%
KY-056	8	040-44-08-017.02	GREFER JEFF & LORI	608 11TH ST W		residential	5,000	27,000	32,000	0.05	0.05	100.00%

ALTERNATIVE E PROPERTY MAPS

MAP ID	PAGE #	PIDN OR PARCEL ID	OWNER	ADDRESS	ADDRESS CONT.	LAND USE CLASS	MARKET LAND	MARKET IMPROVEMENT	MARKET TOTAL	TOTAL ACRES	TAKEN ACRES	TAKEN PERCENT
KY-057	8	040-44-08-018.00	GREFER JEFFREY M & LORI A	610-12 11TH ST W		residential	5,000	3,000	8,000	0.11	0.11	100.00%
KY-065	8	040-44-06-027.00	LEWISBURG ENTERPRISES LLC	610-18 PIKE ST		commercial	150,000	0	150,000	0.31	0.31	100.00%
KY-066	8	040-44-06-025.00	LEWISBURG ENTERPRISES LLC	620 LEWIS ST		vacant - res	10,000	0	10,000	0.12	0.12	100.00%
KY-067	8	040-44-06-024.00	C E O ASSOCIATES	622 LEWIS ST		residential	5,000	26,500	31,500	0.11	0.01	9.09%
KY-076	8	040-44-06-013.00	STANDARD CLUB OF COVINGTON	643 LAUREL ST		commercial	27,000	63,500	90,500	0.34	0.10	28.21%
KY-077	8	040-44-06-012.00	STANDARD CLUB OF COVINGTON	643 LAUREL ST		commercial	17,000	3,000	20,000	0.23	0.06	24.04%
KY-078	8	040-44-06-002.00	WILDER DARRELL & MARY	639 9TH ST W		residential	5,000	45,000	50,000	0.11	0.11	100.00%
KY-079	8	040-44-06-003.00	SCHULTE JOSEPH M	641-5 9TH ST W		commercial	15,000	37,500	52,500	0.17	0.17	100.00%
KY-080	8	040-44-06-006.00	ASAP PROPERTIES LLC	906 BAKER ST		residential	5,000	44,200	49,200	0.06	0.01	12.00%
KY-081	8	040-44-06-005.00	CHASTAIN MATTHEW	904 BAKER ST		residential	5,000	51,000	56,000	0.06	0.06	100.00%
KY-082	8	040-44-06-004.00	JMG PROPERTIES	902 BAKER ST		residential	5,000	20,000	25,000	0.05	0.05	100.00%
KY-083	8	040-44-05-006.00	COLE VIRGIL & FREDA D	905 BAKER ST		residential	5,000	40,000	45,000	0.10	0.01	9.20%
KY-084	8	040-44-05-005.00	GONIC CHARLIE SR	901 BAKER ST		residential	5,000	30,000	35,000	0.06	0.06	100.00%
KY-085	8	040-44-05-004.00	BRINEY KEVIN S	719 9TH ST W		residential	5,000	20,000	25,000	0.09	0.01	7.67%
KY-086	8	040-44-05-002.00	ROY MARK W	721-23 9TH ST W		residential	5,000	70,000	75,000	0.19	0.00	2.42%
KY-087	8	040-44-03-019.00	RIESS PHILLIP J	720 9TH ST W		residential	5,000	40,000	45,000	0.12	0.00	0.50%
KY-088	8	040-44-03-020.00	DUDLEY PROPERTIES II LLC	716 9TH ST W		residential	5,000	42,000	47,000	0.06	0.00	4.33%
KY-089	8	040-44-03-021.00	KENNEDY JIM	714 9TH ST W		residential	5,000	35,000	40,000	0.05	0.00	5.20%
KY-090	8	040-44-03-022.00	KENNEDY JIM	712 9TH ST W		vacant - res	4,000	0	4,000	0.05	0.01	10.40%
KY-091	8	040-44-03-023.00	KENTUCKY FEDERAL SAVINGS &	710 9TH ST W		residential	5,000	52,000	57,000	0.06	0.01	12.17%
KY-092	8	040-44-03-024.00	BISHOP GEORGIA G	708 9TH ST W		residential	5,000	24,000	29,000	0.07	0.01	13.14%
KY-093	8	040-44-03-025.00	SETTER TIMOTHY L & MARDIS JOHN	706 9TH ST W		residential	5,000	40,000	45,000	0.05	0.01	12.40%
KY-094	8	040-44-03-026.00	SULLIVAN LEEANN & TOMMY	704 9TH ST W		residential	5,000	43,500	48,500	0.05	0.01	12.40%
KY-095	8	040-44-03-027.00	STEINFORT BARBARA	702 9TH ST W		residential	5,000	40,000	45,000	0.06	0.01	10.83%
KY-096	8	040-44-04-033.00	BIRMINGHAM TIMOTHY H	872 CRESCENT AVE		residential	6,000	39,000	45,000	0.06	0.06	100.00%
KY-097	8	040-44-04-032.00	HUNTER CLAY	870 CRESCENT AVE		residential	4,000	12,000	16,000	0.06	0.06	100.00%
KY-098	8	040-44-04-031.00	SCHMIDT EDNA M	868 CRESCENT AVE		residential	4,000	36,000	40,000	0.10	0.10	100.00%
KY-099	8	040-44-04-030.00	FINAN JOSEPH & LISA A	866 CRESCENT AVE		residential	4,000	52,000	56,000	0.07	0.07	100.00%
KY-100	8	040-44-04-029.00	LIMLE KIMBERLY A	862 CRESCENT AVE		residential	4,000	38,000	42,000	0.10	0.10	100.00%
KY-101	8	040-44-04-028.00	LANSKY DENISE MARY	860 CRESCENT AVE		residential	4,000	42,000	46,000	0.08	0.08	100.00%
KY-102	8	040-44-04-027.00	FINDLEY ANN	858 CRESCENT AVE		residential	4,000	31,000	35,000	0.06	0.06	100.00%
KY-103	8	040-44-04-026.00	MARKSBERRY JULIA M	856 CRESCENT AVE		residential	4,000	21,000	25,000	0.07	0.07	100.00%
KY-104	8	040-44-04-025.00	WISSMANN KARL S	854 CRESCENT AVE		residential	4,000	56,000	60,000	0.05	0.02	44.00%
KY-105	8	040-44-04-024.00	SHOLLER RICHARD A	852 CRESCENT AVE		residential	4,000	36,000	40,000	0.06	0.06	100.00%
KY-106	8	040-44-04-023.00	JOHNSON PAUL D & MEDORAH KAREN	850 CRESCENT AVE		residential	4,000	31,000	35,000	0.06	0.06	100.00%
KY-107	8	040-44-04-022.00	FINAN JOE	848 CRESCENT AVE		residential	5,000	11,500	16,500	0.05	0.05	100.00%
KY-108	8	040-44-04-021.00	OLT PROPERTIES II LLC	846 CRESCENT AVE		residential	5,000	40,000	45,000	0.05	0.05	100.00%
KY-109	8	040-44-04-020.00	HAMER JOAN & CHRISTOPHER	844 CRESCENT AVE		residential	4,000	31,000	35,000	0.06	0.00	7.17%
KY-110	8	040-44-04-017.00	HASENBEIN RALPH W & ELVA	834 CRESCENT AVE		residential	4,000	31,000	35,000	0.08	0.03	34.75%
KY-111	8	040-44-04-016.00	MCCALL ERNA	832 CRESCENT AVE		residential	4,000	36,000	40,000	0.05	0.05	100.00%
KY-112	8	040-44-04-015.00	COVINGTON CITY OF	830 CRESCENT AVE		vacant - res	20,000	0	20,000	0.09	0.09	100.00%
KY-113	8	040-44-04-014.00	T L C PROPERTIES INC	826 CRESCENT AVE		commercial	20,000	0	20,000	0.04	0.04	100.00%
KY-114	8	040-44-04-013.00	COVINGTON CITY OF	826 CRESCENT AVE		commercial	10,000	0	10,000	0.09	0.09	100.00%
KY-115	8	040-44-04-012.00	MAYHEW AMANDA E	824 CRESCENT AVE		residential	5,000	106,800	111,800	0.06	0.06	100.00%
KY-116	8	040-44-04-011.00	RUEDEBUSCH ROBERT L	822 CRESCENT AVE		residential	10,000	83,000	93,000	0.06	0.06	100.00%
KY-117	8	040-44-04-010.01	CLAXTON FELECIA	820 CRESCENT AVE		residential	5,000	35,000	40,000	0.06	0.06	100.00%
KY-118	8	040-44-04-009.00	JOHNSON CHARLES M & LILLIAN	818 CRESCENT AVE		residential	5,000	35,000	40,000	0.05	0.05	100.00%
KY-119	8	040-44-04-008.00	HLE PROPERTIES LLC	816 CRESCENT AVE		residential	5,000	30,000	35,000	0.06	0.06	100.00%
KY-120	8	040-44-04-007.00	JOHNSON DAVID	812 CRESCENT AVE		residential	4,000	6,900	10,900	0.11	0.11	100.00%
KY-121	8	040-44-04-005.00	HLE PROPERTIES LLC	810 CRESCENT AVE		vacant - res	1,500	0	1,500	0.05	0.05	100.00%
KY-122	8	040-44-04-004.00	HLE PROPERTIES LLC	808 CRESCENT AVE		residential	5,000	40,000	45,000	0.06	0.06	100.00%
KY-123	8	040-44-04-003.00	BECKER PATRICIA M	806 CRESCENT AVE		residential	5,000	40,000	45,000	0.06	0.06	100.00%
KY-124	8	040-44-04-002.00	RAHEMI FATNA	804 CRESCENT AVE		residential	5,000	7,000	12,000	0.06	0.06	100.00%
KY-125	8	040-44-20-007.01	JLD MANAGEMENT LLC	540 WATKINS ST		residential	5,000	73,500	78,500	0.15	0.05	32.13%
KY-126	8	040-44-19-013.00	COLUMBIA SUSSEX CORP	JILLIANS WAY		commercial	1,000,000	3,200,000	4,200,000	4.11	0.22	5.27%
KY-127	8	040-44-19-004.00	PIKE PRO LLC	555 PIKE ST		commercial	105,000	112,000	217,000	0.35	0.35	100.00%

ALTERNATIVE E PROPERTY MAPS

MAP ID	PAGE #	PIDN OR PARCEL ID	OWNER	ADDRESS	ADDRESS CONT.	LAND USE CLASS	MARKET LAND	MARKET IMPROVEMENT	MARKET TOTAL	TOTAL ACRES	TAKEN ACRES	TAKEN PERCENT
KY-134	8	040-44-11-001.00	OAKLAND PROPERTIES INC	902-26 WILLOW RUN		commercial	150,000	485,000	635,000	0.94	0.94	100.00%
KY-135	8	040-44-11-002.00	FAIRHAVEN RESCUE MISSION INC	603 9TH ST W		residential	5,000	25,000	30,000	0.06	0.01	20.17%
KY-136	8	040-44-11-003.00	FAIRHAVEN RESCUE MISSION INC	601 9TH ST W		mixed	10,000	65,000	75,000	0.05	0.01	24.20%
KY-137	8	040-44-10-010.01	ATSINGER EDWARD G III TRUSTEE	620 9TH ST W		tower	0	0	0	0.34	0.34	100.00%
KY-138	8	040-44-10-010.00	COVINGTON CITY OF	847 PHILADELPHIA		commercial	133,500	116,500	250,000	2.62	0.84	32.03%
KY-140	9	040-44-03-047.00	AXUT BUILDING LLC	803-09 CRESCENT AVE		residential	50,000	0	50,000	0.22	0.01	5.18%
KY-141	9	040-44-03-048.00	AXUT BUILDING LLC	801 CRESCENT AVE		vacant - res	10,000	0	10,000	0.07	0.04	55.43%
KY-142	9	040-43-02-014.00	VISIONS DEVELOPMENT GROUP LLC	731 CRESCENT AVE		residential	15,000	235,000	250,000	0.06	0.06	100.00%
KY-143	9	040-43-02-014.03	VISIONS DEVELOPMENT GROUP LLC	729 CRESCENT AVE		residential	15,000	235,000	250,000	0.06	0.06	100.00%
KY-144	9	040-43-02-014.02	VISIONS DEVELOPMENT GROUP LLC	727 CRESCENT AVE		residential	15,000	235,000	250,000	0.06	0.06	100.00%
KY-145	9	040-43-02-014.01	VISIONS DEVELOPMENT GROUP LLC	725 CRESCENT AVE		residential	15,000	235,000	250,000	0.09	0.09	100.00%
KY-146	9	040-43-02-013.00	BECKER FAMILY LTD PTN	643-723 CRESCENT AVE		vacant - res	70,000	0	70,000	2.16	1.67	77.12%
KY-147	9	040-43-02-012.00	MANN ROBERT J & JULIE	641 CRESCENT AVE		residential	5,000	55,000	60,000	0.05	0.05	100.00%
KY-148	9	040-43-02-011.00	AXUT BUILDING LLC	637-39 CRESCENT AVE		vacant - res	10,000	0	10,000	0.10	0.10	100.00%
KY-149	9	040-43-02-010.00	JOHNSON DAVID	635 CRESCENT AVE		residential	10,000	20,000	30,000	0.08	0.08	100.00%
KY-150	9	040-43-02-009.05	AXUT BUILDING LLC	627-33 CRESCENT AVE		vacant - res	52,000	0	52,000	0.22	0.22	100.00%
KY-151	9	040-43-03-022.00	BEZOLD CLEMENT L JR	630 CRESCENT AVE		vacant - res	1,000	0	1,000	0.06	0.06	100.00%
KY-152	9	040-43-03-023.00	WURZELBACHER JAMIE J	628 CRESCENT AVE		vacant - res	9,000	0	9,000	0.05	0.05	100.00%
KY-153	9	040-43-03-024.00	WURZELBACHER JAMIE J	624 CRESCENT AVE		vacant - res	4,000	0	4,000	0.06	0.06	100.00%
KY-154	9	040-43-02-009.04	COTTON JOSEPH W & NORMA	625 CRESCENT AVE		residential	5,000	20,000	25,000	0.05	0.05	100.00%
KY-155	9	040-43-02-009.03	MATTINGLY KELLY S	623 CRESCENT AVE		vacant - res	5,000	0	5,000	0.05	0.05	100.00%
KY-156	9	040-43-02-009.02	MATTINGLY KELLY S	621 CRESCENT AVE		residential	5,000	40,000	45,000	0.03	0.03	100.00%
KY-157	9	040-43-02-009.01	MATTINGLY KELLY S	619 CRESCENT AVE		residential	5,000	40,000	45,000	0.04	0.04	100.00%
KY-158	9	040-43-02-008.00	MURNAN ALBERT E & PHYLIS D	615-17 CRESCENT AVE		residential	20,000	36,900	56,900	0.08	0.08	100.00%
KY-159	9	040-43-02-007.00	HANAUER MARK R	611-13 CRESCENT AVE		residential	20,000	40,000	60,000	0.15	0.15	100.00%
KY-160	9	040-43-02-006.00	MATTINGLY KELLY S	609 CRESCENT AVE		residential	5,000	60,000	65,000	0.05	0.05	100.00%
KY-161	9	040-43-02-005.00	READNOUR JACK	607 CRESCENT AVE		residential	6,000	0	6,000	0.05	0.05	100.00%
KY-162	9	040-43-02-004.00	ROBERTS CONNIE	605 CRESCENT AVE		residential	5,000	50,000	55,000	0.05	0.05	100.00%
KY-163	9	040-43-02-003.00	WAGONER KELLY L	601-03 CRESCENT AVE		residential	5,000	94,200	99,200	0.11	0.11	100.00%
KY-164	9	040-43-03-028.00	HUE ENTERPRISES INC	502 CRESCENT AVE		commercial	43,000	15,000	58,000	0.33	0.33	100.00%
KY-165	9	040-43-02-002.00	HUE ENTERPRISES INC	431-529 CRESCENT AVE		commercial	320,000	569,000	889,000	0.88	0.16	18.22%
KY-166	9	040-43-02-017.00	SCHNEIDER ARTHUR W & DONNA S	644 WESTERN AVE		vacant - res	8,000	0	8,000	0.08	0.08	100.00%
KY-167	9	040-43-02-018.00	SCHNEIDER ARTHUR W & DONNA S	640 WESTERN AVE		residential	5,000	45,000	50,000	0.06	0.06	100.00%
KY-168	9	040-43-02-019.00	MARTIN DONALD R	638 WESTERN AVE		residential	5,000	50,000	55,000	0.06	0.06	100.00%
KY-169	9	040-43-02-020.00	THORNTON PETER & TRULA	636 WESTERN AVE		residential	5,000	45,000	50,000	0.04	0.04	100.00%
KY-170	9	040-43-02-021.00	MCQUEARY MICHAEL L & DEBORAH	632-34 WESTERN AVE		residential	5,000	60,000	65,000	0.12	0.12	100.00%
KY-171	9	040-43-02-022.00	BEDD SCENIC VIEW LLC	630 WESTERN AVE		residential	5,000	50,000	55,000	0.07	0.07	100.00%
KY-172	9	040-43-02-023.00	MCQUEARY MICHAEL & DEBORAH	628 WESTERN AVE		vacant - res	3,000	0	3,000	0.05	0.05	100.00%
KY-173	9	040-43-02-024.00	MCQUEARY MICHAEL L & DEBORAH	624 WESTERN AVE		vacant - res	2,000	0	2,000	0.04	0.04	100.00%
KY-174	9	040-43-02-025.00	MCMURRAY THOS P	622 WESTERN AVE		residential	5,000	50,000	55,000	0.07	0.07	100.00%
KY-175	9	040-43-02-026.00	C P L E ASSOCIATES	618-20 WESTERN AVE		residential	4,000	0	4,000	0.07	0.03	37.57%
KY-176	9	040-43-02-027.00	NELSON JAMES A	616 WESTERN AVE		residential	10,000	75,000	85,000	0.07	0.01	7.43%
KY-177	9	040-34-03-005.00	COVINGTON CITY OF	670 4TH ST W		commercial	850,000	200,000	1,050,000	0.73	0.73	100.00%
KY-178	9	040-34-03-003.00	COVINGTON CITY OF	669-71 3RD ST W		commercial	1,000,000	112,000	1,112,000	0.50	0.50	100.00%
KY-179	9	040-34-03-002.00	THIRD STREET LLC	673-75 3RD ST W		commercial	250,000	50,000	300,000	0.30	0.01	3.10%
KY-180	9	040-34-02-001.00	RUSK HEATING & AIR COND INC	664-66 3RD ST W		commercial	475,000	215,000	690,000	0.72	0.72	100.00%
KY-181	9	040-34-02-012.00	COVINGTON CITY OF	687 2ND ST W		vacant - res	35,000	0	35,000	0.34	0.34	100.00%
KY-182	9	040-34-02-011.00	COVINGTON CITY OF	689 2ND ST W		commercial	150,000	100,000	250,000	0.81	0.13	16.33%
KY-183	10	040-34-03-008.00	COVINGTON CITY OF	610-A 2ND ST W		vacant - res	7,000	0	7,000	6.17	1.59	25.79%
KY-184	9	040-43-05-003.00	COVINGTON CITY OF	501 PHILADELPHIA ST		recreation	500,000	650,000	1,150,000	5.64	0.00	0.07%

ALTERNATIVE E PROPERTY MAPS

MAP ID	PAGE #	PIDN OR PARCEL ID	OWNER	ADDRESS	ADDRESS CONT.	LAND USE CLASS	MARKET LAND	MARKET IMPROVEMENT	MARKET TOTAL	TOTAL ACRES	TAKEN ACRES	TAKEN PERCENT
OH-001	10	013700030078	DUKE ENERGY OHIO INC	Front Street		Industrial	919000	1,041,800	1,960,800	11.04	3.74	33.89%
OH-002	10	013700030020	DUKE ENERGY OHIO INC	646 Mehring Way		Industrial	464,200	671,100	1,135,300	4.28	0.93	21.67%
OH-003	10	013700030059	HILLTOP CONCRETE CORP	612 Mehring Way		Industrial	92,640	3,740	96,380	0.04	0.04	100.00%
OH-004	10	013700030060	HILLTOP CONCRETE CORP	612 Mehring Way		Industrial	0	0	0	0.05	0.03	54.95%
OH-005	10	013700030054	HILLTOP BASIC RESOURCES	Augusta Avenue		Vacant - Ind	45,140	0	45,140	0.37	0.01	1.97%
OH-006	10	013700030044	CORMAN ROBERT	603 W Pete Rose Way		Commercial	104,550	33,760	138,310	1.29	0.15	11.74%
PART OF OH-006		013700030045	CORMAN ROBERT	603 W Pete Rose Way		Commercial	0	0	0	0.18	0.00	0.89%
OH-008	10	013700030053	HILLTOP CONCRETE CORP	Augusta Avenue		Vacant - Ind	39,940	0	39,940	0.06	0.06	100.00%
OH-016	12	014700050121	LONGWORTH HALL LLC	700 Pete Rose Way		Commercial	996,580	6,651,110	7,647,690	2.02	0.94	46.40%
PART OF OH-016		014700050126	LONGWORTH HALL LLC	700 W PETE ROSE WAY		Commercial	0	0	0	0.07	0.07	100.00%
PART OF OH-016		014700050127	LONGWORTH HALL LLC	700 W PETE ROSE WAY		Commercial	0	0	0	0.11	0.11	100.00%
PART OF OH-016		014700050128	LONGWORTH HALL LLC	700 W PETE ROSE WAY		Commercial	0	0	0	0.10	0.10	100.00%
PART OF OH-016		014700050120	LONGWORTH HALL LLC	700 W PETE ROSE WAY		Commercial	0	0	0	0.48	0.23	47.85%
PART OF OH-016		014700050124	LONGWORTH HALL LLC	700 W PETE ROSE WAY		Commercial	0	0	0	0.05	0.05	100.00%
PART OF OH-016		014700050125	LONGWORTH HALL LLC	701 W PETE ROSE WAY		Commercial	0	0	0	0.62	0.04	7.21%
PART OF OH-016		014700050119	LONGWORTH HALL LLC	700 W PETE ROSE WAY		Commercial	0	0	0	0.09	0.03	28.54%
OH-024	12	014700050140	CENTRAL RAILROAD CO OF			Railroad	0	0	0	1.46	0.07	4.67%
OH-025	12	014700050123	CENTRAL RAILROAD CO OF			Railroad	0	0	0	0.07	0.07	100.00%
OH-026	12	014700050051	COVINGTON & CINCINNATI			Railroad	0	0	0	0.03	0.01	50.55%
OH-027	12	014700050050	COVINGTON & CINCINNATI			Railroad	0	0	0	0.01	0.00	27.40%
OH-028	12	014700050049	KNOCK INVESTMENTS LLC	750 W THIRD ST		Industrial	217360	0	217360	0.01	0.00	9.09%
OH-029	12	014700050149	CSX TRANSPORATION INC	500 WATER ST		Railroad	0	0	0	0.14	0.14	100.00%
OH-030	12	014700050148	LONGWORTH HALL LLC	5 3rd Street		Vacant - Ind	4,010	0	4,010	0.03	0.03	100.00%
OH-031	12	014700050152	NORTON OUTDOOR ADVERTISING	62 3rd Street		Vacant - Ind	0	0	0	0.06	0.06	100.00%
OH-032	12	014700050153	CINCINNATI CITY OF	62 3rd Street		Vacant - Ind	0	0	0	0.06	0.06	100.00%
OH-033	12	014700050054	LONGWORTH HALL LLC	5 3rd Street		Vacant - Ind	10,990	0	10,990	0.06	0.06	100.00%
OH-034	12	014700070212	CALDWELL REALTY CO	690 3rd Street		Industrial	459000	651,900	1,110,900	0.27	0.12	45.27%
OH-035	12	014700070225	TOWNVIEW 56TH STREET LLC	360 Gest St		Commercial	1,103,700	4,096,300	5,200,000	1.203	0.64	53.62%
PART OF OH-035		014700070226	TOWNVIEW 56TH STREET LLC	359 Gest St		Commercial	0	0	0	0.02	0.02	100.00%
PART OF OH-035		014700070214	TOWNVIEW 56TH STREET LLC	360 Gest St		Commercial	0	0	0	0.03	0.03	100.00%
PART OF OH-035		014700070215	TOWNVIEW 56TH STREET LLC	360 Gest St		Commercial	0	0	0	0.03	0.03	100.00%
PART OF OH-035		014700070216	TOWNVIEW 56TH STREET LLC	360 Gest St		Commercial	0	0	0	0.03	0.03	100.00%
PART OF OH-035		014700070177	TOWNVIEW 56TH STREET LLC	360 Gest St		Commercial	0	0	0	0.18	0.18	100.00%
PART OF OH-035		014700070161	TOWNVIEW 56TH STREET LLC	360 Gest St		Commercial	0	0	0	0.10	0.05	53.63%
PART OF OH-035		014700070715	TOWNVIEW 56TH STREET LLC	360 Gest St		Commercial	0	0	0	0.08	0.01	12.53%
PART OF OH-035		014700070256	TOWNVIEW 56TH STREET LLC	360 Gest St		Commercial	0	0	0	0.27	0.01	2.39%
PART OF OH-035		014700070258	TOWNVIEW 56TH STREET LLC	360 Gest St		Commercial	0	0	0	0.56	0.01	2.19%
OH-045	12	014700070268	DUKE ENERGY OHIO INC	Gest Street		Commercial	1,058,700	3,083,900	4,142,600	6.50	0.11	1.75%
OH-046	12	014700070267	CALDWELL REALTY CO	500 Gest Street		Industrial	909,300	1,401,220	2,310,520	2.33	0.21	9.06%
OH-047	12	014700040199	CALDWELL REALTY CO	P O BOX 28606		Industrial	0	0	0	0.88	0.24	26.69%
OH-048	12	014600050180	CALDWELL REALTY CO	P O BOX 28606		Industrial	0	0	0	0.42	0.07	15.42%
OH-049	12	014600050025	CINCINNATI CITY OF	500 Gest Street			0	0	0	1.09	0.06	5.90%
OH-050	12	013600030241	TAPPAN PROPERTIES Fox 19 Station	635 Seventh Street		Commercial	766,800	2,933,200	3,700,000	2.56	0.09	3.61%
OH-051	12	014500030229	CITY OF CINCINNATI	801 PLUM ST		ROW	0	0	0	0.07	0.05	70.97%
OH-052	12	014500030230	CITY OF CINCINNATI	801 PLUM ST		ROW	0	0	0	0.07	0.05	71.90%
OH-053	12	014500030231	CITY OF CINCINNATI	801 PLUM ST		ROW	0	0	0	0.04	0.03	72.47%
OH-054	12	014500030232	CITY OF CINCINNATI	801 PLUM ST		ROW	0	0	0	0.04	0.03	72.65%
OH-055	12	014500030247	UNION BAPTIST CHURCH	619 CENTRAL AVE		Residential	1,782,530	2,556,530	4,339,060	1.33	0.02	1.69%
OH-056	12	014500030246	STARGEL ROGENA TR	405 W SEVENTH ST		Commercial	1,001,400	902,300	1,903,700	0.74	0.06	8.61%
OH-057	12	014600060115	AUTOMATIC DATA PROCESSING	500 7th Street		Commercial	4,339,600	1,910,400	6,250,000	6.76	0.64	9.50%
OH-059	13	013600030060	CINCINNATI CITY OF	705 Cutter		ROW	0	0	0	0.06	0.00	2.45%
OH-060	13	013600020211	AAIG OF CINCINNATI LLC	800 W 8TH ST		Commercial	821300	1,975,700	2,797,000	1.17	0.03	2.32%
OH-061	13	013600010238	LINN STREET INVESTMENT LL	801 Linn Street		Commercial	873,000	812,530	1,685,530	1.97	0.11	5.35%
OH-062	13	013900030242	FULLER PROPERTIES LLC	900 W EIGHTH ST		Commercial	1,020,770	1,196,970	2,217,740	7.45	0.11	1.53%
OH-063	13	013600020249	CINCINNATI CITY OF	904 Cutter Street		Transportation	108,980	36,260	145,240	1.13	0.07	6.61%
OH-064	13	013600020056	CINCINNATI CITY OF	706 Ninth Street		Municipal	5,000	0	5,000	5.23	0.21	4.00%
PART OF OH-064		013600020055	CINCINNATI CITY OF	706 Ninth Street		Municipal						
PART OF OH-064		013600020054	CINCINNATI CITY OF	710 9th Street		Municipal						

ALTERNATIVE E PROPERTY MAPS

MAP ID	PAGE #	PIDN OR PARCEL ID	OWNER	ADDRESS	ADDRESS CONT.	LAND USE CLASS	MARKET LAND	MARKET IMPROVEMENT	MARKET TOTAL	TOTAL ACRES	TAKEN ACRES	TAKEN PERCENT
PART OF OH-064		013600020053	CINCINNATI CITY OF	710 9th Street		Municipal						
PART OF OH-064		013600020214	CINCINNATI CITY OF	909 Cutter Street		Municipal						
PART OF OH-064		013600020023	CINCINNATI CITY OF	717 Richmond Street		Municipal						
PART OF OH-064		013600020022	CINCINNATI CITY OF	719 Richmond Street		Municipal						
PART OF OH-064		013600020021	CINCINNATI CITY OF	721 Richmond Street		Municipal						
PART OF OH-064		013600020020	CINCINNATI CITY OF	723 Richmond Street		Municipal						
PART OF OH-064		013600020019	CINCINNATI CITY OF	723 Richmond Street		Municipal						
PART OF OH-064		013600020018	CINCINNATI CITY OF	723 Richmond Street		Municipal						
PART OF OH-064		013600020017	CINCINNATI CITY OF	731 Richmond Street		Municipal						
PART OF OH-064		013600020016	CINCINNATI CITY OF	733 Richmond Street		Municipal						
PART OF OH-064		013600020015	CINCINNATI CITY OF	735 Richmond Street		Municipal						
PART OF OH-064		013600020014	CINCINNATI CITY OF	737 Richmond Street		Municipal						
PART OF OH-064		013600020013	CINCINNATI CITY OF	739 Richmond Street		Municipal						
PART OF OH-064		013600020012	CINCINNATI CITY OF	741 Richmond Street		Municipal						
PART OF OH-064		013600020011	CINCINNATI CITY OF	743 Richmond Street		Municipal						
PART OF OH-064		013600020010	CINCINNATI CITY OF	745 Richmond Street		Municipal						
PART OF OH-064		013600020009	CINCINNATI CITY OF	747 Richmond Street		Municipal						
PART OF OH-064		013600020008	CINCINNATI CITY OF	749 Richmond Street		Municipal						
PART OF OH-064		013400060067	CINCINNATI CITY OF	750 Richmond Street		Municipal						
PART OF OH-064		013400060066	CINCINNATI CITY OF	752 Richmond Street		Municipal						
PART OF OH-064		013400060065	CINCINNATI CITY OF	754 Richmond Street		Municipal						
PART OF OH-064		013400060064	CINCINNATI CITY OF	756 Richmond Street		Municipal						
PART OF OH-064		013400060063	CINCINNATI CITY OF	Richmond Street		Municipal						
OH-066	14	013500030008	EZZARD CHARLES ASSOCIATES	850 Ezzard Charles Dr		Residential	216,000	817,120	1,033,120	2.13	0.00	0.01%
OH-067	14	013900030012	CINCINNATI CITY OF	991 Gest St		ROW	0	0	0	0.07	0.06	76.14%
OH-068	14	014200010080	CINCINNATI CITY OF	801 PLUM ST		ROW	0	0	0	1.00	0.30	29.75%
PART OF OH-68		014200010079	CINCINNATI CITY OF	956 Gest St		ROW						
PART OF OH-68		014200010078	CINCINNATI CITY OF	1024 Freeman Ave		ROW						
PART OF OH-68		014200010077	CINCINNATI CITY OF	1030 Freeman Ave		ROW						
PART OF OH-68		014200010076	CINCINNATI CITY OF	1018 Freeman Ave		ROW						
PART OF OH-68		014200010075	CINCINNATI CITY OF	801 PLUM ST		ROW						
PART OF OH-68		014200010074	CINCINNATI CITY OF	1014 Freeman Ave		ROW						
PART OF OH-68		014200010073	CINCINNATI CITY OF	1012 Freeman Ave		ROW						
PART OF OH-68		014200010072	CINCINNATI CITY OF	1040 Freeman Ave		ROW						
PART OF OH-68		014200010071	CINCINNATI CITY OF	1008 Freeman Ave		ROW						
PART OF OH-68		014200010070	CINCINNATI CITY OF	1044 Freeman Ave		ROW						
PART OF OH-68		014200010069	CINCINNATI CITY OF	1046 Freeman Ave		ROW						
OH-069	14	014200020015	ROTHSCHILD HANNAH C ET AL	931 DERRICK TURNBOW AVE		ROW	0	0	0	0.04	0.00	1.35%
OH-070	15	018500060113	1130 FINDLAY STREET LLC	1130 Findlay St		Industrial	237,740	1,222,260	1,460,000	1.72	0.00	0.01%
OH-071	15	018500060123	LOFTSPRING HARRIS &	1905 DALTON ST		Commercial	0	0	0	0.12	0.03	21.64%
OH-072	15	018500060116	MPEMR LLC	1850 DALTON AVE		Industrial	51,580	310,960	362,540	0.54	0.05	9.24%
OH-075	15	018500060022	LEIN LLC	2020 DALTON AVE		Commercial	68,650	355,150	423,800	0.42	0.13	30.30%
OH-076	15	018400060258	BUDIG REALTY LLC	1100 GEST ST		Vacant - Industrial	0	0	0	0.08	0.00	5.73%
OH-077	15	018400060256	BUDIG REALTY LLC	1100 GEST ST		Vacant - Industrial	0	0	0	0.14	0.08	62.26%
OH-078	15	018400060236	BUDIG REALTY LLC	1100 GEST ST		Vacant - Industrial	0	0	0	0.05	0.05	100.00%
OH-079	15	018400060250	BUDIG REALTY LLC	1100 GEST ST		Vacant - Industrial	0	0	0	0.06	0.06	100.00%
OH-080	15	018400060114	BUDIG REALTY LLC	1161 Harrison Ave		Vacant - Industrial	41,700	0	41,700	0.11	0.11	100.00%
OH-081	16	018700080133	MARTIN MEDIA	2402 Spring Grove Ave		Vacant - Commercial	8,500	0	8,500	0.10	0.06	57.17%
OH-082	16	018700080071	BLACKBURN-IVEY KAREN L	2408 Spring Grove Ave		Commercial	0	0	0	0.05	0.02	39.66%
OH-083	16	018700080070	BLACKBURN-IVEY KAREN L	2408 Spring Grove Ave		Commercial	0	0	0	0.05	0.02	37.36%
OH-084	16	018700080069	BLACKBURN-IVEY KAREN L	2408 Spring Grove Ave		Commercial	19,280	100,720	120,000	0.06	0.02	35.28%
OH-085	16	018700080159	BLACKBURN-IVEY KAREN L	2408 Spring Grove Ave		Commercial	0	0	0	0.06	0.02	33.28%
OH-086	16	018700080067	CREATIVE DISPLAYS INC	2412 Spring Grove Ave		Vacant - Commercial	5,700	0	5,700	0.06	0.02	28.48%
OH-087	16	018700080122	SPRING GROVE SHEET METAL	2428 Spring Grove Ave		Industrial	47,940	153,820	201,760	0.07	0.01	18.62%
OH-088	16	018700080066	SPRING GROVE SHEET METAL	2428 Spring Grove Ave		Industrial	0	0	0	0.07	0.01	10.42%
OH-089	16	18700080065	SPRING GROVE SHEET METAL	2428 Spring Grove Ave		Industrial	0	0	0	0.08	0.00	5.88%
OH-090	16	018700080064	SPRING GROVE SHEET METAL	2428 Spring Grove Ave		Industrial	0	0	0	0.03	0.00	5.13%
OH-091	16	018700080063	SPRING GROVE SHEET METAL	2428 Spring Grove Ave		Industrial	0	0	0	0.07	0.00	4.15%

ALTERNATIVE E PROPERTY MAPS

MAP ID	PAGE #	PIDN OR PARCEL ID	OWNER	ADDRESS	ADDRESS CONT.	LAND USE CLASS	MARKET LAND	MARKET IMPROVEMENT	MARKET TOTAL	TOTAL ACRES	TAKEN ACRES	TAKEN PERCENT
OH-092	16	018700080062	SPRING GROVE SHEET METAL	2428 Spring Grove Ave		Industrial	0	0	0	0.08	0.00	1.88%
OH-093	16	018700080101	SMITH WALTER A & JOANN E	2440 Spring Grove Ave		Commercial	60,630	173,990	234,620	0.07	0.00	0.76%
OH-094	16	009700010024	MARTIN MEDIA	2315 McMicken Ave		Vacant - Commercial	4,200	0	4,200	0.20	0.06	31.52%
OH-095	16	009700010023	MARTIN MEDIA	2317 McMicken Ave		Vacant - Commercial	3,000	0	3,000	0.10	0.03	31.39%
OH-096	16	009700010022	MARTIN MEDIA	2319 McMicken Ave		Vacant - Commercial	3,400	0	3,400	0.14	0.09	63.96%
OH-097	16	009700010021	BIERMAN CHRISTOPHER R &	2321 W MCMICKEN AVE		Residential	19,200	84,700	103,900	0.12	0.12	100.00%
OH-098	16	009700010020	EADS THOMAS W	2323 W MCMICKEN AVE		Residential	17,230	20,270	37,500	0.10	0.10	100.00%
OH-099	16	009700010019	SMITH ELLEN K	2325 W MCMICKEN AVE		Residential	18,000	104,900	122,900	0.11	0.11	100.00%
OH-100	16	009700010018	SMITH ELLEN K	2348 Central Parkway		Vacant - Res	4,820	0	4,820	0.06	0.06	100.00%
OH-101	16	009700010017	BERGER ALFRED J JR &	2567 QUEEN CITY AVE		Vacant - Res	6,740	0	6,740	0.11	0.11	100.00%
OH-102	16	009700010016	BERGER ALFRED J JR &	2333 McMicken Ave		Vacant - Res	6,740	0	6,740	0.11	0.11	100.00%
OH-103	16	009700010015	IDEIS BAKER M	2335 McMicken Ave		Residential	12,730	104,430	117,160	0.22	0.22	100.00%
OH-104	16	009700010014	BERGER ALFRED J JR &	2341 McMicken Ave		Residential	18,050	74,870	92,920	0.21	0.21	100.00%
OH-105	16	009700010013	MCCARTY TERESA E	2343 W MCMICKEN AVE		Residential	27,070	89,770	116,840	0.22	0.22	100.00%
OH-106	16	009700010012	GRAPHIC COMMUNICATIONS	2351 W MCMICKEN AVE		Commercial	0	0	0	0.12	0.12	100.00%
OH-107	16	009700010011	GRAPHIC COMMUNICATIONS	2351 W MCMICKEN AVE		Commercial	26,200	171,500	197,700	0.25	0.25	100.00%
OH-108	16	009700010010	BURNS ERNESTINE & DEBORAH	2355 W MCMICKEN AVE		Residential	15,840	96,300	112,140	0.10	0.10	100.00%
OH-109	16	009700010009	FRANCE MAUREEN &	2359 W MCMICKEN AVE		Residential	21,940	68,060	90,000	0.15	0.15	100.00%
OH-110	16	009700010008	SMITH LATOSHA	2361 W MCMICKEN AVE		Residential	18,620	64,200	82,820	0.10	0.04	46.01%
OH-111	16	009700010007	CONTRERAS SERGIO	2365 W MCMICKEN AVE		Residential	16,200	5,800	22,000	0.18	0.05	25.74%
OH-112	16	009700010006	OBERDING ROBERT &	2403 W MCMICKEN AVE		Residential	25,700	112,100	137,800	0.10	0.00	2.70%
OH-113	16	009700010225	SINGH HARDEET K	2374 CENTRAL PW		Commercial	3,590	0	3,590	0.02	0.02	100.00%
OH-114	16	009700010224	SINGH HARDEET K	2376 CENTRAL PW		Commercial	3,980	0	3,980	0.04	0.04	100.00%
OH-115	16	009700010222	SINGH HARDEET K	2378 CENTRAL PW		Commercial	4,010	0	4,010	0.04	0.04	100.00%
OH-116	16	009700010223	SINGH HARDEET K	2310 CENTRAL PW		Commercial	21,900	15,430	37,330	0.10	0.10	100.00%
OH-117	16	009700010005	SINGH HARDEET K	2384 CENTRAL PW		Commercial	3,880	0	3,880	0.03	0.03	100.00%
OH-118	16	009700010004	FISCHESSER ROBERT W	2316 CENTRAL PW		Residential	9,900	71,900	81,800	0.04	0.04	100.00%
OH-119	16	009700010227	SINGH HARDEET K	Ada Street		Commercial	210	0	210	0.01	0.01	100.00%
OH-120	16	009700010003	RUFF JASON	2318 Central Parkway		Residential	5,200	800	6,000	0.05	0.05	100.00%
OH-121	16	009700010002	RICHARD BOWDEN LLC	2320 CENTRAL PW		Residential	12,200	14,800	27,000	0.05	0.05	100.00%
OH-122	16	009700010001	INSCO RONALD G	2322 Central Parkway		Residential	9,000	2,000	11,000	0.05	0.05	100.00%
OH-123	16	009800050095	BAKER IRENE	2404 CENTRAL PW		Vacant - Res	3,420	0	3,420	0.06	0.00	0.18%
OH-124	16	009800050094	HARDCORN ANDREA L TR	2406 Central Parkway		Vacant - Commercial	2,900	0	2,900	0.05	0.00	0.59%
OH-125	16	009800050093	HARDCORN ANDREA L TR	2406 Central Parkway		Vacant - Commercial	2,900	0	2,900	0.05	0.00	0.99%
OH-126	16	009800050092	HARDCORN ANDREA L TR	2406 Central Parkway		Vacant - Commercial	2,900	0	2,900	0.06	0.00	0.67%
OH-127	16	009700010161	SPENCER PAMELA	2408 Fargo Al		Vacant - res	10,490	0	10,490	0.04	0.04	100.00%
OH-128	16	009800050116	SCHULTE GERHARD B	2409 W MCMICKEN AVE		Residential	8,400	35,000	43,400	0.04	0.04	100.00%
OH-129	16	009800050078	SCHUCK HAROLD A	2400 McMicken Ave		Residential	11,730	71,500	83,230	0.03	0.03	100.00%
OH-130	16	009800050106	ROBERTS SHIRLEE ANN	McMillan Ave		Vacant - Res	2,680	0	2,680	0.03	0.03	100.00%
OH-131	16	009800050105	HOMECOMINGS FINANCIAL	2402 Fargo Al		Vacant - Res	6,530	0	6,530	0.04	0.04	100.00%
OH-132	16	009800050104	SPENCER JOE & ODESSA	2404 Fargo Al		Vacant - Res	2,890	0	2,890	0.03	0.03	100.00%
OH-133	16	009800050103	ROLAND CAROL SUE	2406 FARGO AL		Vacant - Res	7,380	0	7,380	0.04	0.04	100.00%
OH-134	16	009800050204	ROLAND CAROL SUE	2406 FARGO AL		Vacant - Res	0	0	0	0.01	0.01	100.00%
OH-135	16	009800050100	SHEPHERD ZACHARIAH	1059 RUSH ST		Residential	9,630	49,860	59,490	0.08	0.08	100.00%
OH-136	16	009800050102	KINNEY PATRICIA G &	1055 Rush Street		Vacant - Res	860	0	860	0.03	0.03	100.00%
OH-137	16	009800050111	ALLENDORF LOUISE	4334 NORTH BEND RD		Vacant - Res	0	0	0	0.00	0.00	100.00%
OH-138	16	009800050110	ALLENDORF LOUISE	2423 McMicken Ave		Vacant - Res	540	0	540	0.00	0.00	100.00%
No Label	12	14700070133	CITY OF CINCINNATI	602 W. Fourth St.		Commercial	0	0	0	0.00	0.00	0.00%

HAM-71/ 75-0.00/ 0.22

PROPERTY MAPS
ALTERNATIVE I

HAM-71/ 75-0.00/ 0.22

PROPERTY MAPS
ALTERNATIVE 1

16 / 3	HAM-71/75-0.00/0.22	PROPERTY MAPS ALTERNATIVE I	CALCULATED CHECKED	0 100 200 HORIZONTAL SCALE IN FEET

	HAM-71/ 75-0.00/ 0.22	PROPERTY MAPS ALTERNATIVE I	

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ST. JOSEPH LANE
MARCELLA DRIVE
ST. ANTHONY DRIVE
UPLAND AVE
EMERY DRIVE

LEGEND

- WORK LIMITS
- BUILDING TAKE
- AFFECTED PROPERTY
- PARCEL LINES

HORIZONTAL SCALE IN FEET

CALCULATED
CHECKED

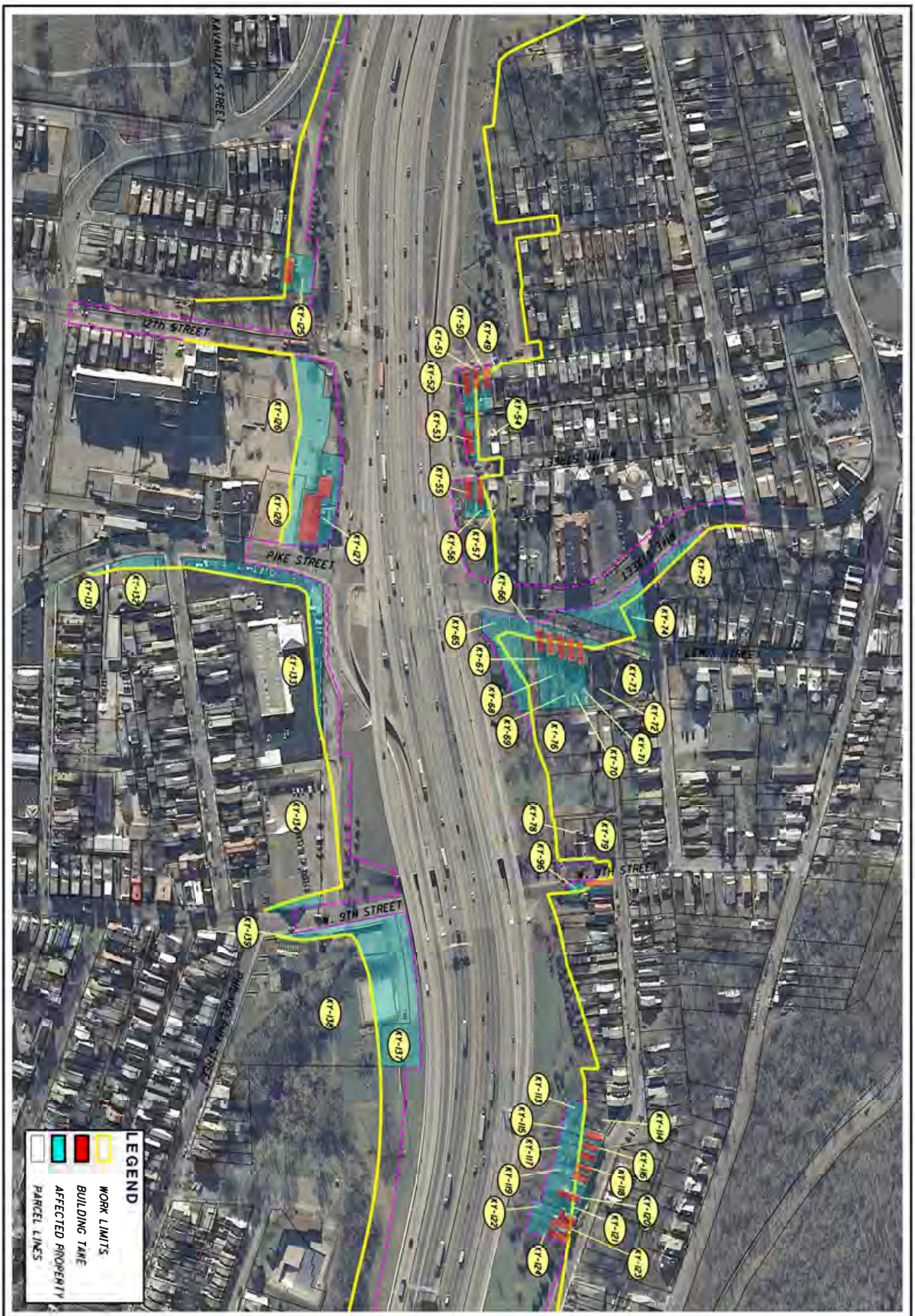
PROPERTY MAPS
ALTERNATIVE I

HAM-71/75-0.00/0.22

5/16

	HAM-71/ 75-0.00/ 0.22	PROPERTY MAPS ALTERNATIVE I	

	HAM-71/ 75-0.00/ 0.22	PROPERTY MAPS ALTERNATIVE I	



16 / 8	HAM-71/75-0.00/0.22	PROPERTY MAPS ALTERNATIVE I	CALCULATED CHECKED	0 100 200 HORIZONTAL SCALE IN FEET

HAM-71/ 75-0.00/ 0.22

PROPERTY MAPS
ALTERNATIVE I

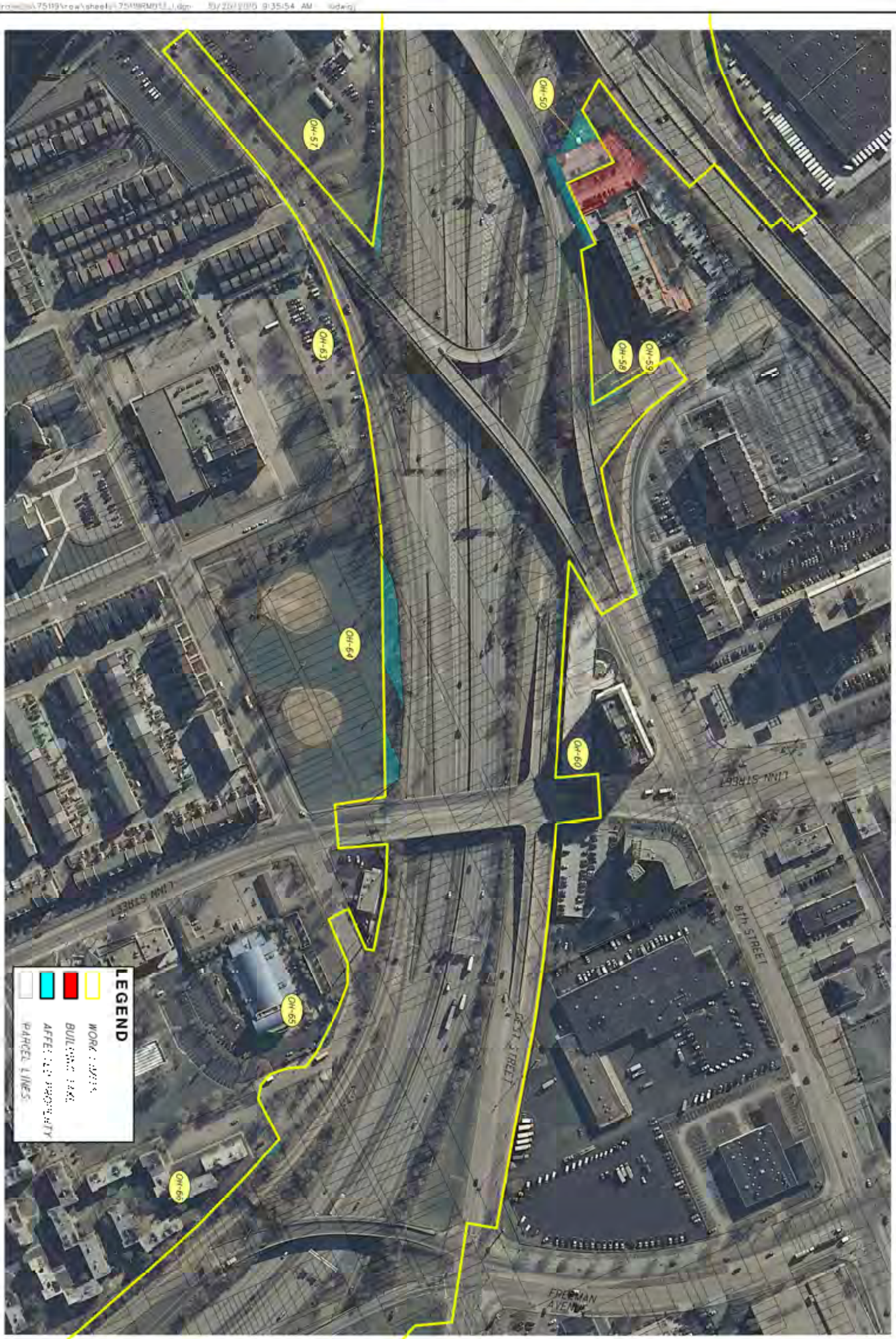
PROPERTY MAPS
ALTERNATIVE 1

HAM-71/75-0.00/0.22

HAM-71/ 75-0.00/ 0.22

PROPERTY MAPS
ALTERNATIVE 1

	HAM-71/ 75-0.00/ 0.22	PROPERTY MAPS ALTERNATIVE 1	



HAM-71/ 75-0.00/ 0.22

PROPERTY MAPS
ALTERNATIVE 1

	HAM-71/ 75-0.00/ 0.22	PROPERTY MAPS ALTERNATIVE 1	

PROPERTY MAPS
ALTERNATIVE 1

HAM-71/75-0.00/0.22

OH-135
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OH-78
OH-79
OH-80
SPRING GROVE AVENUE
SPRING GROVE AVENUE
PATTERSON
CENTRAL PARKWAY
MONTGOMERY AVE

LEGEND

- ROW LINES
- BUILDING TAKE
- AFFECTED PROPERTY
- PARCEL LINES

PROPERTY MAPS
ALTERNATIVE 1

HAM-71/75-0.00/0.22

ALTERNATIVE I PROPERTY MAPS

MAP ID	PAGE #	PIDN OR PARCEL ID	OWNER	ADDRESS	ADDRESS CONT.	LAND USE CLASS	MARKET LAND	MARKET IMPROVEMENT	MARKET TOTAL	TOTAL ACRES	TAKEN ACRES	TAKEN PERCENT
KY-001	1	028-10-16-014.00	PARK 75 PROPERTY OWNERS ASSN	222 GRANDVIEW DR		commercial	0	0	0	1.13	0.02	1.65%
KY-002	1	028-10-16-011.00	PARK 75 PROPERTY OWNERS ASSN	250 GRANDVIEW DR		commercial	0	0	0	5.55	0.01	0.10%
KY-003	2	028-30-08-001.00	FT MITCHELL POINTE COUNCIL OF	45-A MAPLE AVE W		residential	0	0	0	4.14	0.25	6.04%
KY-004	2	028-30-08-027.01	FT MITCHELL HOTEL LLC	2100 DIXIE HWY		commercial	1,500,000	2,600,000	4,100,000	6.92	0.11	1.60%
KY-005	2	028-30-04-005.00	BEECHWOOD INDEPENDENT SCHOOL	50 BEECHWOOD RD		commercial	1,000,000	9,126,900	10,126,900	16.64	0.10	0.59%
KY-006	3	028-30-10-001.00	CENTRAL CHURCH OF NAZARENE	2006 PIECK LN		commercial	301,000	700,000	1,001,000	2.86	0.44	15.41%
KY-007	3	028-30-10-001.02	CENTRAL CHURCH OF NAZARENE	2006-A PIECK LN		commercial	60,000	248,000	308,000	1.11	0.15	13.37%
KY-008	3	028-30-12-006.00	SAM PROPERTIES	1971 PIECK LN		residential	40,000	140,000	180,000	0.27	0.27	100.00%
KY-009	3	028-30-12-005.00	KITO PROPERTIES I LLC	1975 PIECK LN		residential	35,000	164,000	199,000	0.44	0.06	13.66%
KY-010	3	041-20-00-151.00	JAHNKE MARK A & SHERRY L	51 RIVARD DR		residential	30,000	150,000	180,000	0.49	0.00	0.14%
KY-011	3	041-20-00-151.02	OSTERHAGE SUSAN K & WILLIAM J	45 RIVARD DR		residential	30,000	150,000	180,000	0.27	0.27	100.00%
KY-012	3	027-40-15-009.00	FORT WRIGHT PLAZA LLC	1949-2001 DIXIE HWY		commercial	1,000,000	841,500	1,841,500	9.71	0.42	4.32%
KY-013	3	041-20-00-002.00	HOSPITALILITY ASSOS OF	1945 DIXIE HWY		commercial	415,000	1,135,000	1,550,000	1.93	1.93	100.00%
KY-014	3	041-20-00-003.00	EMPIRE ENTERPRISES LLC	1937 DIXIE HWY		commercial	376,000	874,000	1,250,000	2.07	0.09	4.53%
KY-015	3	041-20-00-003.01	B V GRIFFITH INC	1939 DIXIE HWY		commercial	180,000	470,000	650,000	1.03	0.01	0.71%
KY-016	3	041-20-00-006.00	WESSELS CONST & DEV CO INC	1885 DIXIE HWY		commercial	295,000	1,505,000	1,800,000	1.02	0.12	12.16%
KY-017	4	041-20-00-080.01	MCKINLEY GUSTIN A &	11 HIGHVIEW DR		vacant - res	30,000	0	30,000	1.20	0.01	0.45%
KY-018	4	041-20-00-080.02	KALAPASEV NENAD S &	15 HIGHVIEW DR		residential	30,000	118,000	148,000	0.58	0.58	100.00%
KY-019	4	041-20-00-015.00	STOLZ JOHN & MARCELLA	HIGHVIEW DR		vacant - res	500	0	500	0.08	0.08	100.00%
KY-020	4	041-20-20-006.01	WALLACE JAMES E	1598 MARCELLA DR		residential	30,000	97,100	127,100	0.37	0.01	1.70%
KY-021	4	041-20-20-005.03	JOHNSON MARY M	1596 MARCELLA DR		residential	30,000	110,000	140,000	0.57	0.06	10.11%
KY-022	4	041-20-20-005.02	HORSTKAMP VERA S TRUSTEE	1594 MARCELLA DR		residential	30,000	90,000	120,000	0.35	0.07	19.17%
KY-023	4	041-20-20-004.03	BROPHY JOHN H	1952 MARCELLA DR		residential	30,000	90,000	120,000	0.34	0.08	22.29%
KY-024	4	041-20-00-007.00	FT WRIGHT CITY	1881 DIXIE HWY		commercial	474,000	2,126,000	2,600,000	1.36	0.37	27.18%
KY-025	4	041-20-00-009.01	KUCHLE REALTY CO LLC	1817-25 DIXIE HWY		vacant - com	639,500	0	639,500	1.72	0.02	1.39%
KY-026	5	041-20-01-003.01	AUTOMANAGE LLC	700 WRIGHTSUMMIT PKWY		vacant - com	1,204,500	0	1,204,500	4.50	0.25	5.53%
KY-027	5	041-20-01-003.02	SISTERS OF NOTRE DAME OF	WRIGHTSUMMIT PKWY		vacant - com	317,000	0	317,000	1.27	0.11	8.94%
KY-028	5	041-20-00-001.01	SISTERS OF NOTRE DAME OF	1601-A DIXIE HWY		vacant - com	143,000	0	143,000	0.68	0.26	38.46%
KY-029	5	041-20-00-001.00	SISTERS OF NOTRE DAME OF	1601 DIXIE HWY		commercial	1,890,000	54,500,000	56,390,000	42.69	0.97	2.26%
KY-030	5	041-40-00-005.00	OLT REAL ESTATE HOLDINGS II	505 ST JOSEPH LN		residential	60,000	215,000	275,000	0.44	0.44	100.00%
KY-031	5	041-40-00-001.03	DICKMAN JEANNE & DALE VINCENT	504 ST JOSEPH LN		commercial	60,000	215,000	275,000	0.59	0.14	23.69%
KY-032	5	041-40-00-001.04	WACHS DANIEL G	502 ST JOSEPH LN		residential	70,000	232,500	302,500	0.94	0.94	100.00%
KY-033	5	041-40-00-009.00	OLT REAL ESTATE LLC	1200-04 ELBERTA CIR		commercial	135,000	250,000	385,000	3.58	1.16	32.43%
KY-034	5	041-20-20-004.01	TERREL SYDNEY J	1590 MARCELLA DR		residential	30,000	90,000	120,000	0.34	0.09	27.85%
KY-035	5	041-20-20-003.01	WIGGER RALPH P & REBECCA L	1588 MARCELLA DR		residential	30,000	90,000	120,000	0.28	0.09	32.68%
KY-036	5	041-20-20-002.01	RALEIGH JOHNNY & BELLE R	1586 MARCELLA DR		residential	30,000	90,000	120,000	0.18	0.02	10.50%
KY-037	6	041-40-00-016.00	ALBERS ROBERT & JANEY	1208 FAR HILLS DR		vacant - res	45,000	0	45,000	1.91	0.02	1.24%
KY-038	6	041-40-00-017.00	DICKMAN ROBERT G	1132-34-35-37 CEDER RIDGE LN		residential	300,000	1,540,000	1,840,000	9.54	1.76	18.46%
KY-039	6	041-30-00-020.01	GRAY DAVID & HAZEL	507 SCENIC DR		residential	45,000	140,000	185,000	0.45	0.45	100.00%
KY-040	6	041-30-00-020.02	WALL TERRANCE M JR	508 SCENIC DR		residential	100,000	200,000	300,000	0.26	0.26	100.00%
KY-041	6	041-30-00-020.09	BEUTTEL WILLIAM C & JANE	506 SCENIC DR		residential	60,000	105,000	165,000	0.32	0.32	100.00%
KY-042	6	041-30-00-106.00	SANITATION DISTRICT #1 OF	500 SCENIC DR		vacant - res	50,000	0	50,000	3.42	0.28	8.04%
KY-043	6	041-30-00-020.03	BARRETT ROBIN	510 SCENIC DR		residential	60,000	100,000	160,000	0.28	0.28	100.00%
KY-044	6	041-30-00-020.04	UTLEY FORREST G	512 SCENIC DR		residential	100,000	195,000	295,000	0.61	0.00	0.31%
KY-045	7	055-11-33-005.00	SAINT ELIZABETH MEDICAL	MONROE ST		vacant - com	15,000	0	15,000	3.03	0.41	13.69%
KY-049	8	040-44-09-026.00	EUBANKS REBECCA	610 12TH ST W		residential	5,000	70,000	75,000	0.06	0.00	5.17%
KY-050	8	040-44-09-025.00	CUMMINGS HEIDI	608 12TH ST W		residential	5,000	87,000	92,000	0.06	0.06	100.00%
KY-051	8	040-44-09-024.00	WHEELER SAM	606 12TH ST W		residential	5,000	29,900	34,900	0.05	0.05	100.00%
KY-052	8	040-44-09-023.00	FROELICHER CHARLOTTE & MARIE	604 12TH ST W		residential	5,000	50,000	55,000	0.06	0.06	100.00%
KY-053	8	040-44-09-020.00	GREFER JEFFREY & LORI	605 11TH ST W		residential	5,000	24,000	29,000	0.06	0.06	100.00%
KY-054	8	040-44-09-019.00	GIER THOMAS C & DANINE B	609 11TH ST W		residential	5,000	50,000	55,000	0.12	0.00	1.42%
KY-055	8	040-44-08-017.01	FINAN JOSEPH L	606 11TH ST W		residential	5,000	29,000	34,000	0.05	0.05	100.00%
KY-056	8	040-44-08-017.02	GREFER JEFF & LORI	608 11TH ST W		residential	5,000	27,000	32,000	0.05	0.05	100.00%
KY-057	8	040-44-08-018.00	GREFER JEFFREY M & LORI A	610-12 11TH ST W		residential	5,000	3,000	8,000	0.11	0.01	9.55%
KY-065	8	040-44-06-027.00	LEWISBURG ENTERPRISES LLC	610-18 PIKE ST		commercial	150,000	0	150,000	0.31	0.31	100.00%
KY-066	8	040-44-06-025.00	LEWISBURG ENTERPRISES LLC	620 LEWIS ST		vacant - res	10,000	0	10,000	0.12	0.03	21.08%

ALTERNATIVE I PROPERTY MAPS

MAP ID	PAGE #	PIDN OR PARCEL ID	OWNER	ADDRESS	ADDRESS CONT.	LAND USE CLASS	MARKET LAND	MARKET IMPROVEMENT	MARKET TOTAL	TOTAL ACRES	TAKEN ACRES	TAKEN PERCENT
KY-067	8	040-44-06-024.00	C E O ASSOCIATES	622 LEWIS ST		residential	5,000	26,500	31,500	0.11	0.11	100.00%
KY-068	8	040-44-06-023.00	C E O ASSOCIATES INC	624 LEWIS ST		residential	5,000	27,000	32,000	0.10	0.10	100.00%
KY-069	8	040-44-06-022.00	GRONEMAN ALLEN	626 LEWIS ST		residential	5,000	35,000	40,000	0.10	0.10	100.00%
KY-070	8	040-44-06-021.00	GIGLIO EMIL F & THERESA L	628 LEWIS ST		residential	5,000	24,000	29,000	0.09	0.09	100.00%
KY-071	8	040-44-06-020.00	LOUDEN KATHERINE	630 LEWIS ST		residential	5,000	35,000	40,000	0.08	0.08	100.00%
KY-072	8	040-44-06-019.00	MARTIN JOSEPH C	632-634 LEWIS ST		commercial	20,000	85,000	105,000	0.17	0.02	10.18%
KY-073	8	040-44-03-018.00	BOSSE DOUGLAS & DEREK &	636-40 LEWIS ST		commercial	25,000	68,000	93,000	0.26	0.00	0.08%
KY-074	8	040-44-07-015.01	ROMAN CATHOLIC BISHOP OF COV	639-41 LEWIS ST		vacant - com	31,000	0	31,000	0.28	0.28	100.00%
KY-075	8	040-44-07-015.02	ST JOHNS CHURCH	652-54 PIKE ST		commercial	100,000	0	100,000	0.55	0.07	13.09%
KY-076	8	040-44-06-013.00	STANDARD CLUB OF COVINGTON	643 LAUREL ST		commercial	27,000	63,500	90,500	0.34	0.01	2.38%
KY-078	8	040-44-06-002.00	WILDER DARRELL & MARY	639 9TH ST W		residential	5,000	45,000	50,000	0.11	0.01	7.45%
KY-079	8	040-44-06-003.00	SCHULTE JOSEPH M	641-5 9TH ST W		commercial	15,000	37,500	52,500	0.17	0.00	1.29%
KY-096	8	040-44-04-033.00	BIRMINGHAM TIMOTHY H	872 CRESCENT AVE		residential	6,000	39,000	45,000	0.06	0.06	100.00%
KY-113	8	040-44-04-014.00	T L C PROPERTIES INC	826 CRESCENT AVE		commercial	20,000	0	20,000	0.04	0.04	100.00%
KY-114	8	040-44-04-013.00	COVINGTON CITY OF	826 CRESCENT AVE		commercial	10,000	0	10,000	0.09	0.01	13.78%
KY-115	8	040-44-04-012.00	MAYHEW AMANDA E	824 CRESCENT AVE		residential	5,000	106,800	111,800	0.06	0.06	100.00%
KY-116	8	040-44-04-011.00	RUEDEBUSCH ROBERT L	822 CRESCENT AVE		residential	10,000	83,000	93,000	0.06	0.06	100.00%
KY-117	8	040-44-04-010.01	CLAXTON FELECIA	820 CRESCENT AVE		residential	5,000	35,000	40,000	0.06	0.06	100.00%
KY-118	8	040-44-04-009.00	JOHNSON CHARLES M & LILLIAN	818 CRESCENT AVE		residential	5,000	35,000	40,000	0.05	0.05	100.00%
KY-119	8	040-44-04-008.00	HLE PROPERTIES LLC	816 CRESCENT AVE		residential	5,000	30,000	35,000	0.06	0.06	100.00%
KY-120	8	040-44-04-007.00	JOHNSON DAVID	812 CRESCENT AVE		residential	4,000	6,900	10,900	0.11	0.11	100.00%
KY-121	8	040-44-04-005.00	HLE PROPERTIES LLC	810 CRESCENT AVE		vacant - res	1,500	0	1,500	0.05	0.05	100.00%
KY-122	8	040-44-04-004.00	HLE PROPERTIES LLC	808 CRESCENT AVE		residential	5,000	40,000	45,000	0.06	0.06	100.00%
KY-123	8	040-44-04-003.00	BECKER PATRICIA M	806 CRESCENT AVE		residential	5,000	40,000	45,000	0.06	0.06	100.00%
KY-124	8	040-44-04-002.00	RAHEMI FATNA	804 CRESCENT AVE		residential	5,000	7,000	12,000	0.06	0.06	100.00%
KY-125	8	040-44-20-007.01	JLD MANAGEMENT LLC	540 WATKINS ST		residential	5,000	73,500	78,500	0.15	0.15	100.00%
KY-126	8	040-44-19-013.00	COLUMBIA SUSSEX CORP	JILLIANS WAY		commercial	1,000,000	3,200,000	4,200,000	4.11	0.43	10.34%
KY-127	8	040-44-19-004.00	PIKE PRO LLC	555 PIKE ST		commercial	105,000	112,000	217,000	0.35	0.35	100.00%
KY-128	8	040-44-19-003.00	COLUMBIA SUSSEX CORP	537 PIKE ST		vacant - com	1,200,000	0	1,200,000	0.36	0.10	27.50%
KY-131	8	040-44-18-017.00	MARSHALL ROBERT G & BLANCHE	500 PIKE ST		commercial	50,000	28,000	78,000	0.21	0.01	4.51%
KY-132	8	040-44-18-018.00	MACKE JAMES E	512-20 PIKE ST		commercial	115,000	296,000	411,000	0.38	0.07	18.81%
KY-133	8	040-44-12-001.00	KRONE BRUCE A TRUSTEE	550 PIKE ST		commercial	472,500	1,014,000	1,486,500	2.17	0.39	17.98%
KY-134	8	040-44-11-001.00	OAKLAND PROPERTIES INC	902-26 WILLOW RUN		commercial	150,000	485,000	635,000	0.94	0.06	6.15%
KY-137	8	040-44-10-010.01	ATSINGER EDWARD G III TRUSTEE	620 9TH ST W		tower	0	0	0	0.34	0.34	100.00%
KY-138	8	040-44-10-010.00	COVINGTON CITY OF	847 PHILADELPHIA		commercial	133,500	116,500	250,000	2.62	0.59	22.63%
KY-139	8	040-44-10-010.02	SANDERS ROBT E TRUSTEE OF	9TH ST W		commercial	40,900	0	40,900	0.02	0.01	42.50%
KY-146	9	040-43-02-013.00	BECKER FAMILY LTD PTN	643-723 CRESCENT AVE		vacant - res	70,000	0	70,000	2.16	0.63	29.04%
KY-147	9	040-43-02-012.00	MANN ROBERT J & JULIE	641 CRESCENT AVE		residential	5,000	55,000	60,000	0.05	0.05	100.00%
KY-148	9	040-43-02-011.00	AXUT BUILDING LLC	637-39 CRESCENT AVE		vacant - res	10,000	0	10,000	0.10	0.10	100.00%
KY-149	9	040-43-02-010.00	JOHNSON DAVID	635 CRESCENT AVE		residential	10,000	20,000	30,000	0.08	0.08	100.00%
KY-150	9	040-43-02-009.05	AXUT BUILDING LLC	627-33 CRESCENT AVE		vacant - res	52,000	0	52,000	0.22	0.22	100.00%
KY-151	9	040-43-03-022.00	BEZOLD CLEMENT L JR	630 CRESCENT AVE		vacant - res	1,000	0	1,000	0.06	0.06	100.00%
KY-152	9	040-43-03-023.00	WURZELBACHER JAMIE J	628 CRESCENT AVE		vacant - res	9,000	0	9,000	0.05	0.05	100.00%
KY-153	9	040-43-03-024.00	WURZELBACHER JAMIE J	624 CRESCENT AVE		vacant - res	4,000	0	4,000	0.06	0.06	100.00%
KY-154	9	040-43-02-009.04	COTTON JOSEPH W & NORMA	625 CRESCENT AVE		residential	5,000	20,000	25,000	0.05	0.05	100.00%
KY-155	9	040-43-02-009.03	MATTINGLY KELLY S	623 CRESCENT AVE		vacant - res	5,000	0	5,000	0.05	0.05	100.00%
KY-156	9	040-43-02-009.02	MATTINGLY KELLY S	621 CRESCENT AVE		residential	5,000	40,000	45,000	0.03	0.03	100.00%
KY-157	9	040-43-02-009.01	MATTINGLY KELLY S	619 CRESCENT AVE		residential	5,000	40,000	45,000	0.04	0.04	100.00%
KY-158	9	040-43-02-008.00	MURNAN ALBERT E & PHYLIS D	615-17 CRESCENT AVE		residential	20,000	36,900	56,900	0.08	0.08	100.00%
KY-159	9	040-43-02-007.00	HANAUER MARK R	611-13 CRESCENT AVE		residential	20,000	40,000	60,000	0.15	0.01	3.40%
KY-164	9	040-43-03-028.00	HUE ENTERPRISES INC	502 CRESCENT AVE		commercial	43,000	15,000	58,000	0.33	0.33	100.00%
KY-177	9	040-34-03-005.00	COVINGTON CITY OF	670 4TH ST W		commercial	850,000	200,000	1,050,000	0.73	0.73	100.00%
KY-178	9	040-34-03-003.00	COVINGTON CITY OF	669-71 3RD ST W		commercial	1,000,000	112,000	1,112,000	0.50	0.50	100.00%
KY-179	9	040-34-03-002.00	THIRD STREET LLC	673-75 3RD ST W		commercial	250,000	50,000	300,000	0.30	0.03	9.17%
KY-180	9	040-34-02-001.00	RUSK HEATING & AIR COND INC	664-66 3RD ST W		commercial	475,000	215,000	690,000	0.72	0.72	100.00%
KY-181	9	040-34-02-012.00	COVINGTON CITY OF	687 2ND ST W		vacant - res	35,000	0	35,000	0.34	0.34	100.00%

ALTERNATIVE I PROPERTY MAPS

MAP ID	PAGE #	PIDN OR PARCEL ID	OWNER	ADDRESS	ADDRESS CONT.	LAND USE CLASS	MARKET LAND	MARKET IMPROVEMENT	MARKET TOTAL	TOTAL ACRES	TAKEN ACRES	TAKEN PERCENT
KY-182	9	040-34-02-011.00	COVINGTON CITY OF	689 2ND ST W		commercial	150,000	100,000	250,000	0.81	0.14	16.91%
KY-183	10	040-34-03-008.00	COVINGTON CITY OF	610-A 2ND ST W		vacant - res	7,000	0	7,000	6.17	1.59	25.81%

ALTERNATIVE I PROPERTY MAPS

MAP ID	PAGE #	PIDN OR PARCEL ID	OWNER	ADDRESS	ADDRESS CONT.	LAND USE CLASS	MARKET LAND	MARKET IMPROVEMENT	MARKET TOTAL	TOTAL ACRES	TAKEN ACRES	TAKEN PERCENT
OH-001	10	013700030078	DUKE ENERGY OHIO INC	Front Street		Industrial	919000	1,041,800	1,960,800	11.04	3.73	33.83%
OH-002	10	013700030020	DUKE ENERGY OHIO INC	646 Mehring Way		Industrial	464,200	671,100	1,135,300	4.28	0.90	20.91%
OH-003	10	013700030059	HILLTOP CONCRETE CORP	612 Mehring Way		Industrial	92,640	3,740	96,380	0.04	0.04	100.00%
OH-004	10	013700030060	HILLTOP CONCRETE CORP	612 Mehring Way		Industrial	0	0	0	0.05	0.03	54.95%
OH-005	10	013700030054	HILLTOP BASIC RESOURCES	Augusta Avenue		Vacant - Ind	45,140	0	45,140	0.37	0.01	1.97%
OH-006	10	013700030044	CORMAN ROBERT	603 W Pete Rose Way		Commercial	104,550	33,760	138,310	0.30	0.09	30.20%
Part of OH-006	10	013700030045	CORMAN ROBERT	603 W Pete Rose Way		Commercial	0	0	0	0.18	0.00	0.89%
OH-008	10	013700030053	HILLTOP CONCRETE CORP	Augusta Avenue		Vacant - Ind	39,940	0	39,940	0.06	0.06	96.76%
OH-009	12	013700030028	CORMAN ROBERT	603 W Pete Rose Way		Vacant - Ind	68,640	0	68,640	0.04	0.04	100.00%
OH-010	12	013700030029	CORMAN ROBERT	603 W Pete Rose Way		Vacant - Ind	0	0	0	0.03	0.03	98.82%
OH-011	12	013700030030	CORMAN ROBERT	603 W Pete Rose Way		Vacant - Ind	0	0	0	0.03	0.02	76.26%
OH-012	12	013700030031	CORMAN ROBERT	603 W PETE ROSE WY		Vacant	68640	0	68,640	0.03	0.01	44.38%
OH-013	12	013700030032	CORMAN ROBERT	603 W Pete Rose Way		Vacant - Ind	0	0	0	0.05	0.00	9.53%
OH-014	12	013700030046	CORMAN ROBERT	603 W Pete Rose Way		Vacant - Ind	0	0	0	0.18	0.00	0.89%
OH-015	12	014700060068	CINCINNATI CITY OF	Pete Rose Way		Commercial	555,460	43,900	599,360	1.31	0.03	2.60%
OH-016	12	014700050121	LONGWORTH HALL LLC	700 Pete Rose Way		Commercial	996,580	6,651,110	7,647,690	2.26	0.50	22.04%
Part of OH-016	12	014700050126	LONGWORTH HALL LLC	700 W PETE ROSE WAY		Commercial	0	0	0	0.07	0.07	100.00%
Part of OH-016	12	014700050127	LONGWORTH HALL LLC	700 W PETE ROSE WAY		Commercial	0	0	0	0.11	0.11	100.00%
Part of OH-016	12	014700050128	LONGWORTH HALL LLC	700 W PETE ROSE WAY		Commercial	0	0	0	0.10	0.10	100.00%
Part of OH-016	12	014700050120	LONGWORTH HALL LLC	700 W PETE ROSE WAY		Commercial	0	0	0	0.48	0.19	40.40%
Part of OH-016	12	014700050124	LONGWORTH HALL LLC	700 W PETE ROSE WAY		Commercial	0	0	0	0.05	0.05	100.00%
Part of OH-016	12	014700050125	LONGWORTH HALL LLC	701 W PETE ROSE WAY		Commercial	0	0	0	0.62	0.04	7.21%
Part of OH-016	12	014700050119	LONGWORTH HALL LLC	700 W PETE ROSE WAY		Commercial	0	0	0	0.09	0.02	19.32%
OH-024	12	014700050140	CENTRAL RAILROAD CO OF			Railroad	0	0	0	1.46	0.04	2.55%
OH-025	12	014700050123	CENTRAL RAILROAD CO OF			Railroad	0	0	0	0.07	0.07	100.00%
OH-026	12	014700050051	COVINGTON & CINCINNATI			Railroad	0	0	0	0.03	0.00	0.37%
OH-029	12	014700050149	CSX TRANSPORATION INC	500 WATER ST		Railroad	0	0	0	0.14	0.14	100.00%
OH-030	12	014700050148	LONGWORTH HALL LLC	5 3rd Street		Vacant - Ind	4,010	0	4,010	0.03	0.03	100.00%
OH-031	12	014700050152	NORTON OUTDOOR ADVERTISING	62 3rd Street		Vacant - Industrial	0	0	0	0.06	0.06	100.00%
OH-032	12	014700050153	CINCINNATI CITY OF	62 3rd Street		Vacant - Industrial	0	0	0	0.06	0.06	100.00%
OH-033	12	014700050054	LONGWORTH HALL LLC	5 3rd Street		Vacant - Ind	10,990	0	10,990	0.06	0.06	100.00%
OH-034	12	014700070212	CALDWELL REALTY CO	690 3rd Street		Industrial	459000	651,900	1,110,900	0.27	0.07	26.18%
OH-035	12	014700070225	TOWNVIEW 56TH STREET LLC	360 Gest St		Commercial	1,103,700	4,096,300	5,200,000	0.20	0.20	100.00%
Part of OH-035	12	014700070226	TOWNVIEW 56TH STREET LLC	359 Gest St		Commercial	0	0	0	0.02	0.02	100.00%
Part of OH-035	12	014700070214	TOWNVIEW 56TH STREET LLC	360 Gest St		Commercial	0	0	0	0.03	0.03	100.00%
Part of OH-035	12	014700070215	TOWNVIEW 56TH STREET LLC	360 Gest St		Commercial	0	0	0	0.03	0.03	100.00%
Part of OH-035	12	014700070216	TOWNVIEW 56TH STREET LLC	360 Gest St		Commercial	0	0	0	0.03	0.03	100.00%
Part of OH-035	12	014700070177	TOWNVIEW 56TH STREET LLC	360 Gest St		Commercial	0	0	0	0.18	0.18	100.00%
Part of OH-035	12	014700070161	TOWNVIEW 56TH STREET LLC	360 Gest St		Commercial	0	0	0	0.10	0.06	54.13%
Part of OH-035	12	014700070715	TOWNVIEW 56TH STREET LLC	360 Gest St		Commercial	0	0	0	0.08	0.00	2.77%
Part of OH-035	12	014700070256	TOWNVIEW 56TH STREET LLC	360 Gest St		Commercial	0	0	0	0.27	0.01	3.65%
Part of OH-035	12	014700070258	TOWNVIEW 56TH STREET LLC	360 Gest St		Commercial	0	0	0	0.56	0.02	3.53%
OH-045	12	014700070268	DUKE ENERGY OHIO INC	Gest Street		Commercial	1,058,700	3,083,900	4,142,600	6.50	0.20	3.06%
OH-046	12	014700070267	CALDWELL REALTY CO	500 Gest Street		Industrial	909,300	1,401,220	2,310,520	2.33	0.41	17.46%
OH-047	12	014700040199	CALDWELL REALTY CO	P O BOX 28606		Industrial	0	0	0	0.88	0.24	26.69%
OH-048	12	014600050180	CALDWELL REALTY CO	P O BOX 28606		Industrial	0	0	0	0.42	0.06	13.88%
OH-050	12	013600030241	TAPPAN PROPERTIES Fox 19 Station	635 Seventh Street		Commercial	766,800	2,933,200	3,700,000	2.56	0.38	14.71%
OH-051	12	014500030229	CITY OF CINCINNATI	801 PLUM ST		ROW	0	0	0	0.07	0.01	18.28%
OH-052	12	014500030230	CITY OF CINCINNATI	801 PLUM ST		ROW	0	0	0	0.07	0.02	20.60%
OH-053	12	014500030231	CITY OF CINCINNATI	801 PLUM ST		ROW	0	0	0	0.04	0.01	18.96%
OH-054	12	014500030232	CITY OF CINCINNATI	801 PLUM ST		ROW	0	0	0	0.04	0.01	17.26%
OH-056	12	014500030246	STARGEL ROGENA TR	405 W SEVENTH ST		Commercial	1,001,400	902,300	1,903,700	0.74	0.05	7.39%
OH-057	12	014600060115	AUTOMATIC DATA PROCESSING	500 7th Street		Commercial	4,339,600	1,910,400	6,250,000	7.00	0.06	0.90%
OH-058	13	013600030059	CINCINNATI CITY OF	709 Cutter Street		ROW	0	0	0	0.04	0.02	37.93%
OH-059	13	013600030060	CINCINNATI CITY OF	705 Cutter		ROW	0	0	0	0.06	0.01	19.79%
OH-060	13	013600010211	AAIG OF CINCINNATI LLC	800 W 8TH ST		Commercial	821300	1,975,700	2,797,000	1.17	0.01	0.99%
OH-063	13	013600020249	CINCINNATI CITY OF	904 Cutter Street		Commercial	108,980	36,260	145,240	1.13	0.01	0.55%
OH-064	13	013600020056	CINCINNATI CITY OF	706 Ninth Street		Park	5,000	0	5,000	5.23	0.28	5.33%
PART OF OH-064		013600020055	CINCINNATI CITY OF	706 Ninth Street								

ALTERNATIVE I PROPERTY MAPS

MAP ID	PAGE #	PIDN OR PARCEL ID	OWNER	ADDRESS	ADDRESS CONT.	LAND USE CLASS	MARKET LAND	MARKET IMPROVEMENT	MARKET TOTAL	TOTAL ACRES	TAKEN ACRES	TAKEN PERCENT
PART OF OH-064		013600020054	CINCINNATI CITY OF	710 9th Street								
PART OF OH-064		013600020053	CINCINNATI CITY OF	710 9th Street								
PART OF OH-064		013600020214	CINCINNATI CITY OF	909 Cutter Street								
PART OF OH-064		013600020023	CINCINNATI CITY OF	717 Richmond Street								
PART OF OH-064		013600020022	CINCINNATI CITY OF	719 Richmond Street								
PART OF OH-064		013600020021	CINCINNATI CITY OF	721 Richmond Street								
PART OF OH-064		013600020020	CINCINNATI CITY OF	723 Richmond Street								
PART OF OH-064		013600020019	CINCINNATI CITY OF	723 Richmond Street								
PART OF OH-064		013600020018	CINCINNATI CITY OF	723 Richmond Street								
PART OF OH-064		013600020017	CINCINNATI CITY OF	731 Richmond Street								
PART OF OH-064		013600020016	CINCINNATI CITY OF	733 Richmond Street								
PART OF OH-064		013600020015	CINCINNATI CITY OF	735 Richmond Street								
PART OF OH-064		013600020014	CINCINNATI CITY OF	737 Richmond Street								
PART OF OH-064		013600020013	CINCINNATI CITY OF	739 Richmond Street								
PART OF OH-064		013600020012	CINCINNATI CITY OF	741 Richmond Street								
PART OF OH-064		013600020011	CINCINNATI CITY OF	743 Richmond Street								
PART OF OH-064		013600020010	CINCINNATI CITY OF	745 Richmond Street								
PART OF OH-064		013600020009	CINCINNATI CITY OF	747 Richmond Street								
PART OF OH-064		013600020008	CINCINNATI CITY OF	749 Richmond Street								
PART OF OH-064		013400060067	CINCINNATI CITY OF	750 Richmond Street								
PART OF OH-064		013400060066	CINCINNATI CITY OF	752 Richmond Street								
PART OF OH-064		013400060065	CINCINNATI CITY OF	754 Richmond Street								
PART OF OH-064		013400060064	CINCINNATI CITY OF	756 Richmond Street								
PART OF OH-064		013400060063	CINCINNATI CITY OF	Richmond Street								
OH-065	13	013500010073	CINCINNATI-HAMILTON COUNT	880 Court Street		Commercial	148,900	2,317,600	2,466,500	1.73	0.01	0.29%
OH-066	13	013500030008	EZZARD CHARLES ASSOCIATES	850 Ezzard Charles Dr		Residential	216,000	817,120	1,033,120	2.13	0.01	0.51%
OH-067	14	013900030012	CINCINNATI CITY OF	991 Gest St		ROW	0	0	0	0.07	0.06	76.14%
OH-068	14	014200010080	CINCINNATI CITY OF	801 PLUM ST		ROW	0	0	0	1.00	0.33	33.32%
PART OF OH-68		014200010079	CINCINNATI CITY OF	956 Gest St		ROW						
PART OF OH-68		014200010078	CINCINNATI CITY OF	1024 Freeman Ave		ROW						
PART OF OH-68		014200010077	CINCINNATI CITY OF	1030 Freeman Ave		ROW						
PART OF OH-68		014200010076	CINCINNATI CITY OF	1018 Freeman Ave		ROW						
PART OF OH-68		014200010075	CINCINNATI CITY OF	801 PLUM ST		ROW						
PART OF OH-68		014200010074	CINCINNATI CITY OF	1014 Freeman Ave		ROW						
PART OF OH-68		014200010073	CINCINNATI CITY OF	1012 Freeman Ave		ROW						
PART OF OH-68		014200010072	CINCINNATI CITY OF	1040 Freeman Ave		ROW						
PART OF OH-68		014200010071	CINCINNATI CITY OF	1008 Freeman Ave		ROW						
PART OF OH-68		014200010070	CINCINNATI CITY OF	1044 Freeman Ave		ROW						
PART OF OH-68		014200010069	CINCINNATI CITY OF	1046 Freeman Ave		ROW						
OH-069	14	014200020015	ROTHSCHILD HANNAH C ET AL	931 DERRICK TURNBOW AVE		ROW	0	0	0	0.04	0.00	1.35%
OH-070	15	018500060113	1130 FINDLAY STREET LLC	1130 Findlay St		Industrial	237,740	1,222,260	1,460,000	1.72	0.00	0.01%
OH-071	15	018500060123	LOFTSPRING HARRIS &	1905 DALTON ST		Commercial	0	0	0	0.12	0.03	21.64%
OH-072	15	018500060116	MPEMR LLC	1850 DALTON AVE		Industrial	51,580	310,960	362,540	0.54	0.05	9.24%
OH-073	15	018500060122	MPEMR LLC	1850 DALTON AVE		Industrial	0	0	0	0.04	0.00	2.05%
OH-074	15	018500060120	CINCINNATI CITY OF	Dalton Ave		ROW	0	0	0	0.03	0.00	12.33%
OH-075	15	018500060022	LEIN LLC	2020 DALTON AVE		Commercial	68,650	355,150	423,800	0.42	0.15	34.90%
OH-076	15	018400060258	BUDIG REALTY LLC	1100 GEST ST		Vacant - Industrial	0	0	0	0.08	0.04	53.33%
OH-077	15	018400060256	BUDIG REALTY LLC	1100 GEST ST		Vacant - Industrial	0	0	0	0.14	0.14	100.00%
OH-078	15	018400060236	BUDIG REALTY LLC	1100 GEST ST		Vacant - Industrial	0	0	0	0.05	0.05	100.00%
OH-079	15	018400060250	BUDIG REALTY LLC	1100 GEST ST		Vacant - Industrial	0	0	0	0.06	0.06	100.00%
OH-080	15	018400060114	BUDIG REALTY LLC	1161 Harrison Ave		Vacant - Industrial	41,700	0	41,700	0.11	0.11	100.00%
OH-081	16	018700080133	MARTIN MEDIA	2402 Spring Grove Ave		Vacant - Commercial	8,500	0	8,500	0.10	0.07	66.12%
OH-082	16	018700080071	BLACKBURN-IVEY KAREN L	2408 Spring Grove Ave		Commercial	0	0	0	0.05	0.00	2.95%
OH-083	16	018700080070	BLACKBURN-IVEY KAREN L	2408 Spring Grove Ave		Commercial	0	0	0	0.05	0.00	3.83%
OH-084	16	018700080069	BLACKBURN-IVEY KAREN L	2408 Spring Grove Ave		Commercial	19,280	100,720	120,000	0.06	0.00	4.26%
OH-085	16	018700080159	BLACKBURN-IVEY KAREN L	2408 Spring Grove Ave		Commercial	0	0	0	0.06	0.00	4.35%
OH-086	16	018700080067	CREATIVE DISPLAYS INC	2412 Spring Grove Ave		Vacant - Commercial	5,700	0	5,700	0.06	0.00	1.15%
OH-132	16	018700090127	ALBI HOLDINGS PLL	2201 Spring Grove Ave		Industrial	70,620	824,720	895,340	0.73	0.13	18.48%
OH-133	16	018700090123	DUKE ENERGY OHIO INC	2229 Spring Grove Ave		Industrial	46,900	201,100	248,000	0.54	0.11	21.19%

ALTERNATIVE I PROPERTY MAPS

MAP ID	PAGE #	PIDN OR PARCEL ID	OWNER	ADDRESS	ADDRESS CONT.	LAND USE CLASS	MARKET LAND	MARKET IMPROVEMENT	MARKET TOTAL	TOTAL ACRES	TAKEN ACRES	TAKEN PERCENT
OH-134	16	018700090004	E & T REAL ESTATE HOLDING	1220 Harrison Ave		Industrial	74,000	41,000	115,000	2.38	0.44	18.68%
OH-135	16	018700090156	L & N RAIL	500 Water St		Industrial	0	0	0	2.32	0.02	0.83%
No label	12	14700070133	CITY OF CINCINNATI	602 W. Fourth St.		Commercial	0	0	0	0.00	0.00	0.00%

Appendix D
Drainage Criteria Forms
(LD-35)

ODOT Form LD-35 (Modified for Kentucky)
Revised January 2006

GENERAL PROJECT INFORMATION

Kentucky I-71 / I-75
Kenton County Route

(Attach Typical Section)

AFFECTED ROADWAYS:	Route	Average Daily Traffic	Rural / Urban
INTERSTATE OR OTHER L/A FACILITIES	I-71, I-75	I-75 (Dixie Highway to 12th Street) - 221,780 ADT (2035) I-75 (12th Street to Bridge) - 79,500 ADT (2035) I-71 - 77,900 ADT (2035)	Urban
ARTERIALS AND COLLECTORS	US 42 (Dixie Highway), West 3rd St., West 4th St., West 5th St., West 9th St., West 11th St., West 12th St, Collector-Distributor	C-D – 75,510 ADT (2035) US 42 - 24,070 ADT (2035) 12th St. – 12,060 ADT (2035) 9th St. – 5,460 ADT (2035) 4th St. – 16,510 ADT (2035)	Urban
LOCALS	East Orchard Rd., Rivard Dr., Kyles Ln., Bullock St., Jillians Way, Pike St., Lewis St., Crescent Ave., Philadelphia St.	Kyles Ln. – 27,500 ADT (2035) Bullock St. – 16,550 ADT (2035) Jillians Way – 17,540 ADT (2035) Pike St. – 16,310 ADT (2035)	Urban
CLEAR ZONE	30 ft		

All Units are English:

PIPE POLICY:

The Pipe Policy of KYTC will be used for this project. See *KYTC Drainage Guidance Manual*; *KYTC Drainage Manual, 2009 Edition, DR 705* for Storm Sewers; and *KYTC Standard Drawings*. Pipe is bid as "xx inch Culvert Pipe" or "xx inch Storm Sewer Pipe". Pipe materials are not specified on plans. The contractor selects pipe material based on fill heights and pH shown on pipe sheets. Pipe is furnished and installed in conformance with *KYTC Standard Specifications for Road and Bridge Construction, Section 701*.

POST CONSTRUCTION BMP POLICY:

A detailed Post Construction BMP policy doesn't exist for KYTC at this time. Follow a combination of KPDES permit requirements under *KYR100000* and KYTC guidelines in *KYTC Drainage Manual, 2009 Edition, DR 200*; and *KYTC Drainage Guidance Manual, Chapter 10 - Erosion Control* (These can be found on the KYTC Drainage website at http://transportation.ky.gov/design/drainage/drainage.html). For water quality regulations, see *KAR 401, Chapter 5*. General Erosion Control requirements can be found in *KYTC Standard Specifications for Road and Bridge Construction, Section 701, Sections 212 and 213*. Karst Guidelines can be found in *KYTC Drainage Manual, 2009 Edition, DR 200*. See updated version of KYTC *Special Note 11F* for turf reinforcing mat specifications. Otherwise, defer to municipal separate storm sewer systems (MS4) and local criteria if possible.

For KYTC projects, designers do not develop detailed Erosion Control Plans for general erosion control. Rather, the designer conservatively estimates erosion control quantities using KYTC formulas. The contractor and resident engineer develop a detailed Erosion Control Plan including placements for erosion control structures such as silt traps, silt fence, etc. and submit it to the Kentucky Division of Water. For additional general erosion control information, contact Danny Jasper or Stephen Bowling in KYTC Central Office Construction at (502) 564- 4780.

Section A. Roadway Culverts

1. DESIGN STORM RETURN INTERVAL (DR-04.300, Table 4-1 Return Interval; Table 402-1, Design Storm Return Interval):

		Design	Check
a.	ADT<400 (Local Roads)	10 Year	100 Year
b.	400<ADT<1700 (Collector)	10Year, 25 Year	100 Year
c.	1700<ADT<5000 (Arterial)	25 Year	100 Year
d.	ADT>5,000 (Interstate)	50 Year	100 Year

2. BANKFULL DESIGN Yes (No) (Circle yes if at least one culvert has bankfull design) *attach a list of culverts with bankfull designs*

3. FLOOD PLAIN CULVERT(S) NEEDED? Yes (No) (Circle yes if at least one culvert has flood plain culverts) *attach a list of culverts with flood plain culverts*

4. DURABILITY SERVICE LIFE 75 Year *attach a list of culverts with their durability service life if multiple culverts have different frequencies.*

5. ABRASIVE SITE? Yes (No) (Circle yes if at least one culvert has an abrasive site) *attach a list of culverts with their abrasive site assumptions if multiple culverts are different*

6. ALLOWABLE HEADWATER BASED UPON (DR-06.300, Hydraulic Design):

   a. Allowable increase in flow depth for the 5-year storm.

   b. Shoulder elevation, ditch break-over, and elevation of development for the design storm.

   c. Normal 100-year flow plus one foot for drainage areas greater than one square mile.

   Additionally, sound judgment must be applied to the selection of the allowable headwater elevation and to the discharge with which the elevation is to be associated for any upstream control. For example, for nuclear power plants use a 500-year design storm. For houses, buildings with equipment, and other valuable property use a 100-year design storm. For farmland and barns use a 25-year design storm.

   Note: Chapter 6 of *KYTC Drainage Guidance Manual* (Culverts and Headwalls) is currently being revised and should be released by the end of the year. Check KYTC Drainage website for updates.

7. METHOD USED TO ESTIMATE DESIGN DISCHARGE (Q) (DR-04.400 Discharge Methods):

   a. Rational Method for drainage areas 0 to 200 acres.

   b. Regional Method (see USGS Water Resources Investigations Report 03-4180, "Estimating the Magnitude of Peak Flows for Streams in Kentucky for Selected Recurrence Intervals," 2003) for drainage areas 201 acres to 1000 square miles. Use Urbanization Technique for areas with greater than 15% development.

8. MAPPING USED TO DELINEATE DRAINAGE AREAS (DR-03.220, Drainage Area):

   a. Drainage area < 50 acres: As long as it is legible, display drainage areas based on survey Digital Terrain Model.

   b. 50 acres < Drainage area < 10,000 acres: USGS Topographic Quadrangle Map.

Section A. Roadway Culverts – Continued

c. Drainage area >10,000 acres: 15 min. USGS quad sheets if appropriate, county maps may be used.

9. MANNING'S "n" USED FOR (DR-705-4, Pipe Roughness):

a. Smooth pipe 0.012

b. Corrugated pipe ($^1/_2$" x 2 $^1/_2$" corrugations): 0.024

See Kentucky Standard Drawing RDI-035-01, "Coatings, Linings, and Pavings for Non-Structural Plate Pipe" for pipe coating and paving requirements.

10. ENTRANCE LOSS COEFFICIENT (K_e) (FHWA's Hydraulic Design Series (HDS-5), *Hydraulic Design of Highway Culverts, Table 12 – Entrance Loss Coefficients*):

	Coefficient K_e
a. **Pipe, Concrete:**	
Projecting from fill, socket end (groove-end)	0.2
Projecting from fill, sq. cut end	0.5
Headwall or headwall and wingwalls	
Socket end of pipe (groove-end)	0.2
Square-edge	0.5
Rounded (radius = D/12)	0.2
Mitered to conform to fill slope	0.7
End-Section conforming to fill slope	0.5
Beveled edges, 33.7° or 45° bevels	0.2
Side- or slope-tapered inlet	0.2
b. **Pipe or Pipe-Arch Corrugated Metal:**	
Projecting from fill (no headwall)	0.9
Headwall or headwall and wingwalls square-edge	0.5
Mitered to conform to fill slope, paved or unpaved slope	0.7
End-Section conforming to fill slope	0.5
Beveled edges, 33.7° or 45° bevels	0.2
Side- or slope-tapered inlet	0.2
c. **Box, Reinforced Concrete:**	
Headwall parallel to embankment (no wingwalls)	
Square-edged on 3 edges	0.5
Rounded on 3 edges to radius of D/12 or B/12 or beveled edges on 3 sides	0.2
Wingwalls at 30° to 75° to barrel	
Square-edged at crown	0.4
Crown edge rounded to radius of D/12 or beveled top edge	0.2
Wingwall at 10° to 25° to barrel	
Square-edged at crown	0.5
Wingwalls parallel (extension of sides)	
Square-edged at crown	0.7
Side- or slope-tapered inlet	0.2

11. MINIMUM COVER (top of pipe to subgrade) FOR (DR-06.240, Culvert Pipe):

a. 12" from the top of pipe to subgrade with a desirable cover of at least 24".

12. MAXIMUM COVER FOR (DR-06.240, Culvert Pipe):

a. Circular pipe: 120 feet.

Section A. Roadway Culverts – Continued

b. Non-circular pipe: 10 feet.

See Kentucky Standard Drawings RDI-001-08 to RDI-012-02 and RDP-001-05 for specific cover heights.

13. OUTLET PROTECTION (DR 1005-1, Energy Dissipater Guidelines):

		Froude Number	Comment
a.	Culvert with Headwall	≤ 1.5	Place 25' – 30' Riprap
		>1.5 (Pipe D < 48")	Place 25' – 30' Riprap
		>1.5 (Pipe D > 48")	Design Riprap Transition
b.	Protruding Culvert	≤ 1.5	Place 25' – 30' Riprap
		>1.5 (Pipe D < 48")	Place 25' – 30' Riprap
		1.5 – 3.0	Design Riprap - Lined Basin
		> 3.0	Design SAF Dissipater

14. HEADWALL TYPE (Table 606-1, KYTC Standard Culvert Headwalls):

		Standard Drawing	Culvert Shape	Size Ranges	Skew
a.	**Safety Headwalls:**				
	Sloped Box Outlet Type 1	RDB-100	Circular	15" to 24"	0°, 15°, 30°
	Sloped & Flared Box Inlet-Outlet	RDB-105	Circular	18" to 36"	0°, 15°, 30°
	Sloped Box Inlet Type 1	RDB-110	Elliptical, Pipe Arch	15" to 18"	0°
	Sloped Box Inlet Type 2	RDB-111	Pipe Arch	15"	0°
	Metal End Section Type 1 and 2	RDB-150	Circular, Elliptical, Pipe Arch	15" to 72"	0°
	Metal End Section Type 3 and 4	RDB-155	Circular, Elliptical, Pipe Arch	15" to 72"	0°
	Sloped & Parallel Headwalls	RDH-030	Circular, Elliptical, Pipe Arch	12" to 21"	0°
b.	**Non-Safety Headwalls:**				
	Concrete Headwall	RDH-005 RDH-010	Circular, Elliptical, Pipe Arch	12" to 27"	0°
	Sloped & Flared Headwall	RDH-020	Circular, Elliptical, Pipe Arch	12" to 27"	0°
	U-Type Headwall	RDH-050	Circular	12" to 36"	0°
	Pipe Culvert Headwalls	RDH-110 RDB-120	Circular, Elliptical, Pipe Arch	30" to 108"	0°, 15°, 30°, 45°
	Steel Pipe Arch Headwalls	RDH-400, RDH-405, RDH-410, RDH-415	Structural Plate Pipe Arch	See Std. Dwg.	0°, 15°, 30°, 45°
	Double & Triple Culvert Headwalls	RDH-500	Circular	18" and 24"	0°

Section A. Roadway Culverts – Continued

Double & Triple Pipe Culvert Headwalls	RDH-510, RDH-520, RDH-530	Circular	30" to 48"	0^o
Precast Box Culvert Headwalls	RDH-1000, RDH-1005, RDH-1010, RDH-1015	Box	See Std. Dwg.	0^o, 15^o, 30^o, 45^o

15. RESPONSIBILITIES:

a. See *Kentucky Drainage Guidance Manual*, DR-01.300, Pages 11-12.

16. SIZE LIMITS (DR-06.240, Culvert Pipe):

a. Cross Drain Pipes: <u>18" to 144"</u>

Pipes less than 30" shall not be used where fill heights over the top of the pipe are more than 30 feet. Larger sizes may be used in limited application after review by the Drainage Section and approval by the Director, Division of Highway Design.

b. Median Drain Pipes: <u>15" to 30"</u>

Section B. Storm Sewers

1. DESIGN STORM FREQUENCY (DR 706-1, Design and Check Storms):

a. Storm Sewer System <u>10 Year</u> Design Storm

b. Pipes located in Sags <u>25 Year</u> Design Storm

The 100-year storm is used as an aid in sizing pipe and to ensure that off-site impact is acceptable.

2. STORM SEWER HYDRAULICS (DR 707-7):

a. Convey the 10-year storm at a depth equal to or less than 80% of the diameter or rise for pipes not located in a sag condition. If project restrictions will not allow this, design the system for pressure flow and ensure that the resulting hydraulic grade line elevations will not surcharge into the roadway.

b. Convey the 25-year storm at a depth equal to or less than 80% of the diameter or rise for pipes located in sags which have no exit except through the pipe. If project restrictions will not allow this, design the system for pressure flow and ensure that the resulting hydraulic grade line elevations will not surcharge into the roadway.

c. Keep Hydraulic Grade Line elevations for the 100-year (check storm) below levels that will cause damage to adjacent property.

d. The above is based on a Manning's "n" pipe roughness of 0.012. See *Kentucky Standard Drawing RDI-035-01, "Coatings, Linings, and Pavings for Non-Structural Plate Pipe"* for pipe coating and paving requirements.

3. METHOD TO ESTIMATE DESIGN DISCHARGE (Q) (DR 704-2, Calculating Discharge to Inlets):

a. Rational Method

b. SCS Peak Flow Method

c. SCS Hydrographs Method

Section B. Storm Sewers - Continued

4. COEFFICIENT OF RUNOFF "C" FOR (DR-04.420, Table 4-2, Runoff Coefficients):

a.	All water-tight roof surfaces	0.75 – 0.95
b.	Bituminous or concrete pavement	0.80 – 0.95
c.	Traffic bound pavements	0.70 – 0.90
d.	Gravel pavements	0.35 – 0.70
e.	Impervious soils (heavy)	0.40 – 0.65
f.	Impervious soils, with turf	0.30 – 0.55
g.	Slightly pervious soils	0.15 – 0.40
h.	Slightly pervious soils, with turf	0.10 – 0.30
i.	Moderately pervious soils	0.05 – 0.20
j.	Moderately pervious soils, with turf	0.00 – 0.10

5. STORM SEWER OPEN CHANNEL DESIGN PROCEDURE:

   a. *Kentucky Drainage Guidance Manual*, DR 706-5, Pages 4-6.

6. MINIMUM TIME TO INLETS (DR 704-2, Calculating Discharge to Inlets): 8 minutes
   Inlet maximum spread is based on maximum intensity of 4 in/hr. 8 minutes is for storm sewer sizing.

7. MINIMUM COVER OVER SEWERS (DR 707-5, Physical Pipe Requirements):

   a. If under pavement: 12" from the tope of pipe to subgrade.

   b. If not under pavement: 12" from the top of pipe to the top of ground.

8. MINIMUM VELOCITY FOR DESIGN FLOW 2 f.p.s. (DR 707-7, Storm Sewer Hydraulics)

9. MAXIMUM ACCESS POINT SPACING (DR 707-4):

a.	12" – 24" pipe diameter:	300 ft.
b.	27" – 36" pipe diameter:	400 ft.
c.	42" – 54" pipe diameter:	500 ft.
d.	≥ 60" pipe diameter:	1000 ft.

10. MINIMUM PIPE SIZE (DR 707-5, Physical Pipe Requirements):

    a. Not Under Traffic, lengths <25': 12"

    b. Not Under Traffic, lengths ≥25': 15"

    c. Under Traffic, all lengths: 18", where flow from two or more curb or drop inlets is transported under the pavement to join the main trunk line on the opposite side of the road, or the inlet end of a pipe has a headwall or the pipe is projecting and subject to possible debris problems

Section C. Roadway Ditches

1. METHOD USED TO ESTIMATE DESIGN DISCHARGE (Q) (DR-05.220, Normal Roadway Ditches):

   a. Rational Method

2. DESIGN STORM FREQUENCY (DR-04.300, Table 4-1 Return Interval): 10 Year

3. DESIGN PROCEDURE:

   a. *Kentucky Drainage Guidance Manual*, DR-05.340, Pages 20 to 22.

4. PERMISSIBLE SHEAR STRESS FOR VARIOUS PROTECTION MEASURES (from proposed Chapter 5 of *KYTC Drainage Guidance Manual* (Culverts and Headwalls)). Chapter 5 is currently being revised and should be released by the end of the year. Check KYTC Drainage website for updates.

   a. Grass Lining (Seed or Sod)[1] 1.0 psf

   b. Turf Reinforcing Mat Type 1[2] 6.0 psf

   c. Turf Reinforcing Mat Type 2[2] 8.0 psf

   d. Turf Reinforcing Mat Type 3[2] 10.0 psf

   e. Channel Lining Class II[3] 2.5 psf

   f. Channel Lining Class III[3] 5.0 psf

   g. Channel Lining Class IV[3] 5.0 psf

   h. Channel Lining Class IA (Mattress Units)[3] 35.0 psf

   Notes:
   1. Assuming Class C vegetation.
   2. Assuming vegetated conditions.
   3. Alternate methods as described in HEC-15 and Hydrain HYCHL documentation are also acceptable.

   Turf Reinforcing Mat values are based on ECTC-FHWA Type 5A thru 5C and KYTC Design Memo 2-09. For Type IA linings, 35 psf is more appropriate for larger gabions and questionable for 6-inch D_{50} gabions. Based on HYCHL, 5 psf for Type IA linings is appropriate for 2-inch D_{50} gabions.

5. MANNING'S ROUGHNESS COEFFICIENTS "n" (DR-05.340, Table 5-4):

			Depth Ranges		
			0 – 0.5 ft.	0.5 – 2.0 ft.	> 2.0 ft.
a.	Rigid:	Concrete	0.015	0.013	0.013
		Grouted Riprap	0.040	0.030	0.028
		Stone Masonry	0.042	0.032	0.030
		Soil Cement	0.025	0.022	0.020
		Asphalt	0.018	0.016	0.016
b.	Unlined:	Bare Soil	0.023	0.020	0.020
		Rock Cut	0.045	0.035	0.025
c.	Temporary:	Woven Paper	0.016	0.015	0.015
		Jute Net	0.028	0.022	0.019
		Fiberglass Roving	0.028	0.022	0.019
d.	Straw w/ Net		0.065	0.033	0.025

Section C. Roadway Ditches – Continued

			Depth Ranges		
			0 – 0.5 ft.	0.5 – 2.0 ft.	> 2.0 ft.
e.	Curled Wood Mat		0.066	0.035	0.028
f.	Synthetic Mat		0.036	0.025	0.021
g.	Gravel	1-inch D_{50}	0.044	0.033	0.030
		2-inch D_{50}	0.066	0.041	0.034
h.	Riprap	6-inch D_{50}	0.104	0.069	0.035
		12-inch D_{50}	---	0.078	0.040

6. DITCH CONFIGURATION (DR-05, Channels and Ditches):

   a. The geometry of a normal roadway ditches is determined by the category of highway. Normal roadway ditch dimensions for Interstate Highways and projects designed with full safety shall be an 18 foot ditch on a 6:1 side slope from the edge of the shoulder. This provides a useable ditch depth of 18".

   b. A special ditch is designed to exceed the geometrics of a normal roadway ditch as described on a typical section. It may be deeper or wider or both deeper and wider than the prescribed geometrics for a roadway ditch.

   c. A surface ditch is cut into the original ground and, more or less, parallels the toe of a fill to protect the fill from the surface water washing against it. A surface ditches has a 2' minimum flat bottom with 2:1 or 3:1 side slopes. A berm extends from the roadway fill slope to the surface ditch for 10' for a surface ditch with 3:1 side slopes or for 15' for a surface ditch with 2:1 side slopes.

7. LOCATION OF DROP INLETS IN CHANNELS (DR 707-3, Inlets in Channels):

   a. Where the channel capacity is unable to contain the design storm due to either of the following situations:
   - Depth in channel becomes deep enough to violate freeboard criteria for roadside channels.
   - Depth in channel becomes deep enough to violate allowable shear stress criteria for the channel.

   b. In sag locations created by the surrounding grade.

   c. Where convenient outlet points are available to dispose of water.

   d. Other considerations include:
   - Locate inlets in channels in a manner that will maintain existing drainage patterns.
   - Check headwater elevations over grates and in channels for the 100-year check storm to ensure damage to surrounding property is not occurring.

   e. Types:
   - DBI Type 1: Located on rural projects where traversal by a pedestrian or bicyclist is not anticipated.
   - DBI Type 2: Wider version of Type 1 for 30" and 36" pipes.
   - DBI Type 3: Pedestrian and bicycle safe.
   - DBI Type 4: Wider version of Type 3 for 30" and 36" pipes.
   - DBI Type 7: For use with larger sized pipes.
   - DBI Type 10: For use as a valley gutter with a paved ditch.
   - DBI Type 14, DBI Type 15: Rural "yard drain" type inlets.

Section C. Roadway Ditches – Continued

8. MINIMUM LONGITUDINAL SLOPE (DR-05, Channels and Ditches): 0.50% desirable minimum

In areas where the surrounding terrain is flat enough to prevent the use of minimum grade, best engineering judgment should be used in determining the minimum slopes.

9. METHOD USED TO LOCATE EXISTING FARM TILE CROSSED BY HIGHWAYS? N/A

10. MINIMUM WIDTH OF DITCH LININGS:

a. Turf reinforcing mats min 4.0 ft. Refer to KYTC Design Memo 02-09

11. DESIGN FREQUENCY DEPTH (DR-05, Channels and Ditches):

a. Ditch shall be sufficient to carry the design flow without encroaching on the highway shoulder.

b. The depth of flow in surface ditches shall be further limited such that the design year discharge does not overtop the ditch bank.

Section D. Median Ditches

1. DITCH CONFIGURATIONS (DR-05.230, Median Ditches):

a. Median ditches are typically V-shaped.

2. WIDTH BETWEEN PAVEMENT EDGES (DR-05.230, Median Ditches):

a. Median ditch geometry is based on the median width established for the project.

3. SHEAR STRESS FOR VARIOUS PROTECTION MEASURES (DR-05.340, Table 5-3):

a.	Grass Lining (Seed or Sod)[1]	1.0 psf
b.	Turf Reinforcing Mat Type 1[2]	6.0 psf
c.	Turf Reinforcing Mat Type 2[2]	8.0 psf
d.	Turf Reinforcing Mat Type 3[2]	10.0 psf
e.	Channel Lining Class II[3]	2.5 psf
f.	Channel Lining Class III[3]	5.0 psf
g.	Channel Lining Class IV[3]	5.0 psf
h.	Channel Lining Class IA (Mattress Units)[3]	35.0 psf

Notes:
1. Assuming Class C vegetation.
2. Assuming vegetated conditions.
3. Alternate methods as described in HEC-15 and Hydrain HYCHL documentation are also acceptable.

Turf Reinforcing Mat values are based on ECTC-FHWA Type 5A thru 5C and KYTC Design Memo 2-09. For Type IA linings, 35 psf is more appropriate for larger gabions and questionable for 6-inch D_{50} gabions. Based on HYCHL, 5 psf for Type IA linings is appropriate for 2-inch D_{50} gabions.

Section D. Median Ditches – Continued

4. METHOD USED TO ESTIMATE DESIGN DISCHARGE (Q) (DR-05.230, Median Ditches):

   a. Rational Method

5. LOCATION OF DROP INLETS IN CHANNELS (DR 707-3, Inlets in Channels):

   a. Where the channel capacity is unable to contain the design storm due to either of the following situations:
   - Depth in channel becomes deep enough to violate freeboard criteria.
   - Depth in channel becomes deep enough to violate allowable shear stress criteria for the channel.

   b. In sag locations created by the surrounding grade.

   c. Where convenient outlet points are available to dispose of water.

   d. Maximum Access Point Spacing (DR 707-4):
   12" – 24" pipe diameter: 300 ft.
   27" – 36" pipe diameter: 400 ft.
   42" – 54" pipe diameter: 500 ft.
   ≥ 60" pipe diameter: 1000 ft.

6. TYPES OF MEDIAN INLETS (DR-702-6, Drop Box Inlets):

   a. Drop Box Inlet Type 5 on projects where pedestrian or bicycle traffic is not anticipated.

   b. Drop Box Inlet Type 6 on projects where pedestrian or bicycle traffic is anticipated.

7. MINIMUM LONGITUDINAL SLOPE (DR-05.230, Median Ditches): 0.50% desirable minimum
   In areas where the surrounding terrain is flat enough to prevent the use of minimum grade, best engineering judgment should be used in determining the minimum slopes.

Section E. Drainage for Curbed Pavements

1. CONTROLS TO DETERMINE INLET SPACING (DR 706-1, Design and Check Storms):

   a. Design inlet spacing for maximum spread based on maximum intensity of 4 in/hr.

   b. Design storm frequency 10 Year

   b. Check storm frequency 25 Year (where the storm sewer is the only outlet)

2. METHOD TO DETERMINE TIME TO FIRST INLET (DR 704-2, Calculating Discharge to Inlets):

   a. Sum of overland flow and gutter flow.

   b. Minimum time of 8 minutes shall be used for storm sewer pipe design.

3. ALLOWABLE SPREAD FOR PAVEMENT INLETS (DR-707-1, Table 707-1):

   a. Interstate or Parkway All Speeds 0 feet of encroachment into driving lane

   b. Non Interstate or Parkway (ADT>1500) >45 mph 3 feet of encroachment into driving lane
   <45 mph 6 feet of encroachment into driving lane

   c. Non Interstate or Parkway (ADT<1500) All Speeds 6 feet of encroachment into driving lane

Section E. Drainage for Curbed Pavements – Continued

4. MANNING'S "n" USED FOR (DR 705-4, Table 705-2 Manning's n Coefficients):

   a. Asphalt 0.013 – 0.017

   b. Brick 0.012 – 0.018

   c. Concrete 0.011 – 0.020

   The standard Manning's"n" used for design is 0.015.

5. TYPES OF INLETS (DR 702-5, Curb Box Inlets):

   a. Curb Box Inlet Type A (Includes Manhole Access) – Pipe vault expands away from center line.

   b. Curb Box Inlet Type B (Does Not Include Manhole Access) – Pipe vault expands toward center line. Typically 10' curb openings are used. Curb Box Inlets Type B are used for bridge end drainage, in urban areas where a narrow inlet is needed because of existing utilities and limited right of way behind the inlet, and in storage lanes of narrow raised medians.

   c. Curb Box Inlet Type F – used with standard curb shape in situations where very little capacity is needed or a lack of space prevents use of larger inlets.

   d. Median Barrier Box Inlet – used with median barrier

6. INLET DRAWDOWN BELOW NORMAL GUTTER:

   a. Curb Box Inlet Type A: 2" minimum

   b. Curb Box Inlet Type B: 4" minimum

   c. Median Barrier Box Inlet: 4" minimum

Form LD-35
Revised January 2006

GENERAL PROJECT INFORMATION

Hamilton County	I-71/I-75 Route	0.00/0.22 Section

(Attach Typical Section)

AFFECTED ROADWAYS:	Route	Average Daily Traffic	Rural / Urban
INTERSTATE OR OTHER L/A FACILITIES	I-71, I-75, U.S. 50	I-75 (Bridge to Ezzard Charles) 79,500 ADT (2035) I-75 (Ezzard Charles to Bank St) 89,160 ADT (2035) I-75 (Bank St. to Western Hills Via.) 118,840 ADT (2035) I-71 - 129,220 ADT (2035) U.S. 50 - 45,260 ADT (2035)	Urban
ARTERIALS AND COLLECTORS	West 3rd St., West 5th St., West 7th St., W 9th St., W 6th St. Viaduct , Western Ave., Winchell Ave., Western Hills Viaduct, Spring Grove Ave., Central Ave. Parkway	5th St. – 12,910 ADT (2035) 6th St. – 4,860 ADT (2035) 7th St. – 17,020 ADT (2035) 9th St. – 10,280 ADT (2035)	Urban
LOCALS	Linn St., Gest St., John St., Ezzard Charles, Bank St., Harrison Ave., Bank St., Findlay St.	Linn St. – 10,440 ADT (2035) Gest St. – 7,430 ADT (2035) Ezzard Charles – 3,500 ADT (2035) Findlay St. – 3,400 ADT (2035) Bank St. – 6,290 ADT (2035)	Urban
CLEAR ZONE	30 ft		

All Units are English:

PIPE POLICY:

The Pipe Policy of ODOT will be used for this project. (See Section 1002 for additional information)
If a policy other than ODOT's is being used, the following material types are permitted:
In addition to the ODOT policy, the City of Cincinnti "Supplement to State of Ohio Department of Transportation Construction and Material Specifications" (January 1, 2008) should be followed.

(Please attach a copy of the written pipe policy. In lieu of a written policy, documentation of locally funded construction practices may be provided)

POST CONSTRUCTION BMP POLICY:

The Post Construction BMP Policy of ODOT will be used for this project (*The BMP Criteria that is current and valid at the beginning of Step 7 shall be used. Later revisions may be applied in future steps).* In locations where the highway drainage is discharged directly to a combined sewer system operated by The Metropolitan Sewer District of Greater Cincinnati, detention design will be required per MSD's regulations in place at the beginning Step 7 of the PDP. Other BMP will not be required for the areas tributary to those outfalls.
If a policy other than ODOT's is being used, the following BMP's are permitted:
N/A

PROJECT SPECIFIC INFORMATION AFFECTING DRAINAGE:

The proposed work on I-71/I-75 consists of re-aligning the interstates to a new bridge to the West of the existing Brent Spence Bridge. Drainage impacts will be to the local roads and ramps which need to be re-aligned and/or widened to accommodate increased traffic.

Section A. Roadway Culverts (Type A Conduits)

1. DESIGN STORM FREQUENCY (1004.2):

   a. Mainline 50 Year

   b. Crossroads 25 & 10 Year

2. BANKFULL DESIGN Yes (No) (Circle yes if at least one culvert has bankfull design) *attach a list of culverts with bankfull designs*

3. FLOOD PLAIN CULVERT(S) NEEDED? Yes (No) (Circle yes if at least one culvert has flood plain culverts) *attach a list of culverts with flood plain culverts*

4. DURABILITY SERVICE LIFE 75 Year *attach a list of culverts with their durability service life if multiple culverts have different frequencies.*

5. ABRASIVE SITE? Yes (No) (Circle yes if at least one culvert has an abrasive site) *attach a list of culverts with their abrasive site assumptions if multiple culverts are different*

6. MAXIMUM ALLOWABLE HEADWATER FOR DESIGN STORM (1006.2):

   a. 2 feet below the near, low edge of the pavement for drainage areas 1000 acres or greater and 1 foot below for culverts draining less than 1000 acres.

   b. 2 feet above the inlet crown of the culvert or above a tailwater elevation that submerges the inlet crown in flat to rolling terrain.

   c. 4 feet above the inlet crown of a culvert in a deep ravine.

7. METHOD USED TO ESTIMATE DESIGN DISCHARGE (Q) (1003):

   a. Rational Method.

   b. USGS Water Resources Investigations Reports 93-135 (for ungaged small urban streams in Ohio) or 89-4126 (for rural unregulated streams in Ohio) should be used within the limits prescribed in each of the reports.

8. SCALE OF TOPOGRAPHIC MAPPING USED TO DELINEATE DRAINAGE AREAS (1101.1):

   a. USGS mapping (7.5 minute quadrangle).

   b. For smaller areas, or where using the rational method, use aerial topography (low-flight mapping), and smaller scale maps (1"=50' to 1"=800') may be more appropriate.

9. MANNING'S "n" USED FOR (1105.6.5):

   a. Smooth pipe 0.012

   b. Corrugated pipe:

2-$^{2}/_{3}$" x $^{1}/_{2}$":	Full flow	0.0250 to 0.0225
3" x 1":	Full flow	0.0281 to 0.0260
6" x 2":	Full flow	0.0332 to 0.0300

Section A. Roadway Culverts - Continued

10. ENTRANCE LOSS COEFFICIENT (k_e) (1105.6.6, table 1105-1):

    a. Corrugated pipe: HW-2.1 Headwall 0.9 Full Headwall 0.25 (beveled)

    b. Smooth Concrete pipe (grooved end) HW-2.2 Headwall 0.2 Full Headwall 0.2 .

    d. Box Shape Full Headwall 0.4 .

11. MINIMUM COVER (top of pipe to subgrade) FOR (1008):

    a. Rigid pipe: 9" from the top of pipe to top of sub-grade or finish grade for pipe not under pavements. Absolute minimum of 15" from top of pipe to pavement surface.

    b. Flexible pipe: 12" from the top of pipe to top of sub-grade, 18" from the top of pipe to top of sub-grade or finish grade for pipe not under pavements

12. MAXIMUM COVER FOR (1008):

    a. Rigid pipe: As per L&D Section 1008.2.2 & Figures 1008-10 to 1008-14.

    b. Flexible pipe: As per L&D Section 1008, Tables 1008-1 to 9 & 1008-15 to 21.

13. MAXIMUM ALLOWABLE CULVERT OUTLET VELOCITY (1002.2.2) :

    a. Bare earth channel 5 f.p.s.

    b. Rock channel protection 20 f.p.s.

    c. Use energy dissipaters for velocities in excess of 20 f.p.s.

14. HEADWALL TYPE (1106.2):

    a. Half height headwalls: HW-2.1 and HW-2.2

    b. Full height headwalls: HW-1.1

15. CONTACT WILL BE MADE WITH COUNTY ENGINEER TO ESTABLISH:

    a. Ditch cleanout grades and watersheds.

    b. County Engineer culvert approval form LD-33.

16. MINIMUM PIPE SIZE (1002.3.1, Figure 1002-1):

    a. Freeway or limited access facility: 24" to 42"

    b. Other highways: 15" to 36"

Section B. Storm Sewers (Type B & C Conduits)

1. DESIGN FREQUENCY (Just Full) 10 YEAR (1104.4.1)

2. HYDRAULIC GRADIENT SHALL NOT EXCEED (1104.4.2):

   a. 12" inches below edge of pavement for 25 year frequency storm.

   b. Pavement catch basin grate or lip of inlet for 25 year frequency storm.

   c. A point in a depressed pavement sag that would result in an impassible highway for a 50 year frequency storm.

   d. Other: Storm sewers for all highways shall satisfy a 50-year check to preclude flooding of buildings or extensive flooding of private property.

   e. The above is based on:

      i. A pipe roughness "n" = 0.015 for pipe sizes 60" and under and 0.013 for larger sizes.

      ii. The intensity "i" used to check discharge for a 25-year frequency shall be the same for all sewer runs as calculated for the last, or downstream run in a continuous sewer system.

3. METHOD USED TO ESTIMATE DESIGN DISCHARGE (Q) (1003):

   a. Rational Method

4. COEFFICIENT OF RUNOFF "C" FOR (1101.2.3):

   a. Pavement and paved shoulders 0.9

   b. Berms and slopes (4:1 and flatter) 0.5

   c. Berms and slopes (steeper than 4:1) 0.7

   d. Contributing areas:

      Residential 0.3-0.7 Woods 0.3 Cultivated 0.3-0.6

5. METHOD USED TO DETERMINE TIME TO FIRST CATCH BASIN OR PAVEMENT INLET (1101.2):

   a. *Location and Design Manual*, Volume II Section 1101.2.2

   b. *Location and Design Manual*, Volume II Figure 1101-1

6. MINIMUM TIME TO (1104.4.4):

   a. Ditch catch basin 15 minutes

   b. Pavement inlet or catch basin 10 minutes

Section B. Storm Sewers (Type B & C Conduits) - Continued

7. MINIMUM COVER OVER SEWERS (1104.2.1):

   a. Rigid pipe:

      i. Type B conduit (under pavement or paved shoulder): 9" from top of pipe to bottom of pavement sub-base. 15" from top of rigid pipe to pavement surface (absolute).

      ii. Type C conduit (beyond pavement or paved shoulder): 18"

   b. Flexible pipe:

      i. Type B conduit (under pavement or paved shoulder): 12" from top of pipe to bottom of pavement sub-base. 24" from top of flexible pipe to the pavement surface (absolute).

      ii. Type C conduit (beyond pavement or paved shoulder): 24"

8. DESIRABLE MINIMUM VELOCITY FOR DESIGN FLOW 3 f.p.s. (1104.2.1).

9. MAXIMUM LENGTH BETWEEN MANHOLES OR SUITABLE CLEANOUT POINTS (1104.2.2):

   a. Under 36"diameter: 300 ft.

   b. 36" - 60" diameter: 500 ft.

   c. Over 60" diameter: 750 ft. to 1000 ft.

10. MINIMUM PIPE SIZE UNDER PAVEMENT (1104.4.6):

    a. Freeway or limited access facility 15"

    b. Other highways 12"

11. PROCEDURE TO FOLLOW WHEN EXISTING PRIVATE DRAINS ARE CUT BY PROPOSED

    SEWERS OR DITCHES: Furnish District Deputy Director with names and addresses of affected property owners prior to drainage review so that appropriate provision of directive 22A can be followed.

Section C. Roadway Ditches

1. METHOD USED TO ESTIMATE DESIGN DISCHARGE (Q) (1003):

   a. Rational Method.

   b. USGS Method.

2. DESIGN FREQUENCY TO DETERMINE (1102.3.1 or 1102.4):

   ADT >2000:
   a. Depth of flow determination 10 year

   b. Shear Stress determination (for protection and width of protection) 5 year

   ADT <2000:
   c. Depth of flow determination 5 year

   d. Shear Stress determination (for protection and width of protection) 2 year

Section C. Roadway Ditches - Continued

3. METHOD USED TO DETERMINE TIME OF FLOW TO DITCH (1101.2):

   See *Location and Design*, Volume II. Section 1101.2.2 and Figure 1101-1. (15 minute minimum)

4. ALLOWABLE SHEAR STRESS FOR DITCH LINING (1102.3):

   Permanent Ditch Protection:

   a. Seed lining 0.40 psf.

   b. Sod or other temporary ditch protection 1.0 psf.

   c. Turf Reinforcing Mat (SS836), Type 1 2.0 psf.

   d. Turf Reinforcing Mat (SS836), Type 2 3.0 psf.

   e. Turf Reinforcing Mat (SS836), Type 3 5.0 psf.

   f. RCP, Type B 6.0 psf.

   g. RCP, Type C 4.0 psf.

   h. RCP, Type D 2.0 psf.

   Temporary Ditch Protection (Item 670):

   a. Mat, Type A 1.25 psf.

   b. Mat, Type B 1.50 psf.

   c. Mat, Type C 2.00 psf.

   d. Mat, Type E 2.25 psf.

   e. Mat, Type F 0.45 psf.

   f. Mat, Type G 1.75 psf.

   Tied Concrete Block Mat (Item 601)

   a. Type 1 3.0 psf.

   b. Type 2 5.0 psf.

   c. Type 3 7.0 psf.

5. MANNING'S "n" USED FOR (1102.3):

   a. Seed lining 0.03

   b. Sod, jute, or other temporary linings 0.04

   c. Turf reinforcing mats 0.04

   d. Tied Concrete Block Matting 0.03

Section C. Roadway Ditches - Continued

e. Rock channel protection 0.06 (ditches), 0.04 (large channels)

6. DITCH CONFIGURATION (1102.2):

a. 20' radius for roadway, with 16" inch minimum depth

b. 20' radius for toe of embankment, with 12" inch minimum depth

7. TYPE OF DITCH CATCH BASIN (1102.3.4):

a. CB-4, CB-5, CB-8

b. CB 2-2-A located in rural areas, outside of the clear zone or behind the guardrail.

c. CB 2-2-B used where minor, non-clogging flows are involved such as yard sections and small triangular areas at bridge terminals.

8. MINIMUM LONGITUDINAL SLOPE OF DITCHES IN CUT SECTIONS (1102.1):

a. 0.50% desirable minimum

b. 0.25% absolute minimum

9. METHOD USED TO LOCATE EXISTING FARM TILE CROSSED BY HIGHWAYS?

a. Field inspection / aerial photos.

b. Inquiry of property owners.

c. County and District Engineers.

d. Department of Natural Resources / Soil Conservation Service.

10. MINIMUM WIDTH OF DITCH LININGS (1102.3.1):

a. Sod 7.5 ft. ft.

b. Temporary linings 7.5 ft. ft.

c. Turf reinforcing mats 7.5 ft. ft.

11. DESIGN FREQUENCY DEPTH SHALL NOT EXCEED (1102.3.1):

a. An elevation of 1' below the edge of pavement for the design discharge.

b. The depth of flow in toe of slope ditches shall be further limited such that the design year discharge does not overtop the ditch bank.

Section D. Median Ditches

1. DITCH CONFIGURATIONS (1102.2.3):

   a. Depressed Median: 8' or 4' rounding, depending on the width of the median.

   b. Type of barrier: B, B1, C1, D

2. WIDTH BETWEEN PAVEMENT EDGES 21 to 50 ft.

3. ALLOWABLE SHEAR STRESS FOR DITCH LINING (1102.3):

   Permanent Ditch Protection:

   a. Seed lining 0.40 psf.

   b. Sod or other temporary ditch protection 1.0 psf.

   c. Turf Reinforcing Mat (SS836), Type 1 2.0 psf.

   d. Turf Reinforcing Mat (SS836), Type 2 3.0 psf.

   e. Turf Reinforcing Mat (SS836), Type 3 5.0 psf.

   Temporary Ditch Protection (Item 670):

   a. Mat, Type A 1.25 psf.

   b. Mat, Type B 1.50 psf.

   c. Mat, Type C 2.0 psf.

   d. Mat, Type E 2.25 psf.

   e. Mat, Type F 0.45 psf.

   f. Mat, Type G 1.75 psf.

   Tied Concrete Block Mat (Item 601)

   a. Type 1 3.0 psf.

   b. Type 2 5.0 psf.

   c. Type 3 7.0 psf.

4. METHOD USED TO ESTIMATE DESIGN DISCHARGE (Q) (1101.2):

   a. Rational Method

5. CATCH BASIN SPACING WILL BE DETERMINED BY HYDRAULIC ANALYSIS USING (1102.3.4):

   a. 5 year frequency and "n" = 0.03 for velocity

   b. 10 year frequency and "n" = 0.03 for depth

   c. Controls:
      i. Design frequency depth shall not exceed:

Section D. Median Ditches - Continued

(1) An elevation of 1' below the edge of pavement for the design discharge.

d. Catch basin spacing, depressed median, fill section:

	Median Width	84'	60'	40'
i.	Desirable maximum	1250 ft.	1000 ft.	800 ft.
ii.	Absolute maximum	1500 ft.	1250 ft.	1000 ft.

6. TYPE OF MEDIAN CATCH BASIN OR INLET (1102.3.4):

a. Standard CB No. 4 for depressed medians wider than 40'.

7. MINIMUM LONGITUDINAL SLOPE OF DEPRESSED EARTH MEDIAN:

a. Slope at 0.50% desired minimum 0.25% absolute minimum.

Section E. Drainage for Curbed Pavements

1. CONTROLS FOR THE DETERMINATION OF INLET OR CATCH BASIN SPACING (1103):

a. Design storm frequency 10 year

b. Check storm frequency 50 year (for underpasses or depressed roadways where the storm sewer is the only outlet)

c. METHOD USED TO DETERMINE TIME TO FIRST CATCH BASIN OR PAVEMENT INLET:

i. Overland flow and Gutter Flow.

ii. Absolute minimum time of 10 minutes shall be used.

d. Maximum spread of flow into traveled lane: 0-8 ft. (table 1103-1)

Outside lane width greater than 12 feet: 0-8 ft. (table 1103-1)

Total allowable spread on pavement: 0-8 ft. (table 1103-1)

e. Maximum depth of flow at curb 5 in.

f. Manning's "n" for:

i. Reinforced concrete pavement 0.015

ii. Asphaltic concrete pavement 0.015

iii. Paved shoulders 0.015

2. TYPE OF INLET OR CATCH BASIN PROPOSED FOR (1103):

a. Continuous grades: Inlet No. 3, CB. No. 3, 3A, CB-2A-XX (where XX is length of opening), CB-6.

Section E. Drainage for Curbed Pavements - Continued

b. Sags: Inlet No. 3, CB No. 3, 3A .

3. INLET LIP OF CURB OPENING INLET WILL BE DEPRESSED 2 INCHES BELOW NORMAL GUTTER.

a. A local depression of 2 inches will be used to determine spacing of combination grate and curb opening catch basins or pavement inlets for a curb pavement section.

b. A local depression of ½ inches will be used to determine spacing of combination grate and curb opening catch basins for a combination curb and gutter section.

Appendix E
Utility Coordination

Rick Anton/RealEstate/D08/ODOT

06/05/2009 10:49 AM

To "Jeffrey Ballinger" <jballinger2@cinci.rr.com>, Stefan Spinosa/Contracts/D08/ODOT

cc Brenda Russell/Construction/D08/ODOT

Subject Re: HAM-71/75-0.00/0.22 PID75119Link

Thanks Jeff, for now we are looking for an estimate.

Stefan, Please see the below email from AT&T Fiber Optic.

Rick Anton, TTS
ODOT, District 8 Utility Coordinator
505 South State Route 741
Lebanon, Ohio 45036-9518
Direct Phone Line: 513.933.6624
Fax: 513.933.8252
_/

"Jeffrey Ballinger" <jballinger2@cinci.rr.com>

06/01/2009 03:28 PM

To <Rick.Anton@dot.state.oh.us>

cc

Subject HAM-71/75-0.00/0.22 PID75119

Rick
at&t is located at 358 Gest Street Part of the impacted Line went over the at&t office location
at&t has a lease at this location for 20 Years broken down by 5 year renewable They think the next renew date 12/21/11
at&t fiber on the property are covered under the lease The fiber in the road right of way are there by permit The majority of the core cable in this area was just placed in 2007 and 2008 areas was placed joint with the water main the city was placing
Did not know if at this time if you needed this on a 75-1 or just a estimate for a budget
at&t is looking into replacement of the existing core cables placed in 1988 so if this goes I will be in contact with you to work around these projects
The total is $33,685,000
If you need anything else just call 614-216-1160
Thanks Jeff

Capital Driver	20XX	Burden	Totals	Comments
Building Purchase	$1,500	$0	**$1,500**	Replaces the current POP building.
Building Renovation	$750	$0	**$750**	Capital to renovate the new building to meet network central office standards.
DC Power/Alarms	$700	$27	**$727**	DC power and alarm equipment.
Telemetry	$90	$3	**$93**	Telemetry equipment.
NSDNET	$80	$3	**$83**	NSDNET equipment.
Sync	$160	$6	**$166**	Sync equipment.
Signaling	$120	$5	**$125**	SS7 signaling equipment.
Core Transport	$16,017	$610	**$16,627**	Core transport in support of ULH and etc.
Core STE/MUX	$394	$15	**$409**	Core multiplex and service terminating equipment in support of POP function.
Core OSP	$750	$29	**$779**	Core OSP in support of ULH migration and POP to POP network architecture.
Metro Titan/COE	$2,000	$76	**$2,076**	Metro COE equipment in support of local services.
Metro Switch	$2,000	$76	**$2,076**	Metro switch in support of local services.
Metro OSP	$2,170	$83	**$2,253**	Metro OSP in support of local rings .
Metro Transport	$5,800	$221	**$6,021**	Metro electronics to support fiber/rings
	$0	$0	**$0**	
	$0	$0	**$0**	
	$0	$0	**$0**	
	$0	$0	**$0**	
Totals	**$32,531**	**$1,154**	**$33,685**	

All numbers x1000

RECEIVED AUG 1 0 2009

Cincinnati Bell℠

221 E. Fourth St.
P.O. Box 2301
Cincinnati, Ohio 45201-2301

August 4, 2009

Mr. Rick Anton
District 8 Utility Coordinator
Ohio Department of Transportation
505 South S.R. 741
Lebanon, Ohio 45036

TO Stefan 8/10/09

Dear Mr. Anton:

This letter is in regards to your letter dated March 2, 2009 concerning the potential utility impacts for the HAM-71/75-0.00/0.22 PID 75119 project. I have determined the cost of each item number based on our current structures in the field. The following costs are for structures only, and include conduit, manholes and pull-boxes. Item number 2-20 would require us to place 2 new duct systems along 3rd Street from Vine Street to west of I-75 (**Cost $1,175,000**). Item number 2-24 would require us to place a new duct system under I-75 from W. 8th Street to W. Court Street (**Cost $87,000**). Item 2-27 would require us to place a new duct system under I-75 from the intersection of W. Court and Linn Street over to Freeman Avenue (**Cost $284,000**). Item 3-2 would require us to place a new duct system under I-75 from Winchell Avenue (near old manhole 335) headed west to Wade Avenue west of Western Avenue (near manhole 9389), then north to the intersection of Dalton Street and Western Avenue (**Cost $442,000**). Item number 3-5 would require us to place a new duct system from Poplar and Winchell under I-75 over Western Avenue north of Poplar (**Cost $82,000**). Item 3-12 would require us to place a new duct system from the intersection of Spring Grove and Queen City under I-75 over to McMillian south of Rush Street (near manhole 6635), (**Cost $159,000**). All facilities for our main duct system are there by permit.

The aforementioned costs are estimated and do not include any fieldwork or intensive records research to determine exactly what is required. Costs could change once preliminary plans are issued.

A copy of this letter has been sent to John Webster (566-8055) of our West District Office to determine the cable and splicing costs.

Sincerely,

Mark Conner
Specialist - Conduit Engineering

cc: John Webster
File

West End Substation Project Scope

West End Substation Replace the East Yard Jan. 2012

Civil Scope:

Install 30 tower foundations for the new East yard

Install 9 breaker foundations in the new East yard

Install 2 breaker foundations in the West yard for CB 947 and CB 953

Install ground mat in the new substation area

Install crushed stone surface in the new substation area

Install foundation for a new building addition extending 30ft north of the existing building running from column row 3 to column row 11

Install a steel support structure and the new building addition floor which will be at elevation 522'-0"

Install the new steel building approximately 30ft x 144ft

Structural Scope:

Install 30 - 4ft x 4ft x 65ft tower columns

Install 44 - 4ft x 4ft x 36ft beams

Install 42 - 2ft x 4ft x 36ft beams

Install 5 - 4ft x 4ft x 16ft beams

Install 22 - 2000A 115kV breaker line and bus disconnect switches

Install 2 motor operated line disconnects with a manual ground switches for F1385 & F1389

Install 11 - 138kV CCVTs (F1286, F1587, bus 1,2 & 4, TB12 & 13)

Install wave traps for F1286 and F1587

Install 15 surge arresters for the overhead and cable circuits

Install 11 structures for CBs similar to the structure for CB 949

Install 11 - 3000A 138kV 40kA CBs with 6 sets of 2000/5 CT's

Install a stairs and platforms to provide access to CBs and equipment

Install bundled 954MCM AL cable from the East tower to the West tower for a bus ties

Install 5in. AL tube main bus and 4in. AL tube bus between breakers

Install cap and pin equivalent high creep insulators for the buses

Install a cable tray system to run new control cable from the sub to the new 138kV relay room

Electrical Scope:

Install dual PVD bus differential packages for 138kV bus 2, 3, 4 and 5

Install 4 - 138kV bus 4 and bus 5 differential test switch cabinets

Install SEL451 control and breaker failure relays for the 11 new breakers and 5 existing breakers

Install 3 dual SEL421 relay packages for F1286, F1587 and F5985

Install 2 SEL421/SEL311L relay packages for F1385 and F1389

Install an annunciator for the new 138kV relay room

Install a synchronizing panel

Install a RuggedCom switch

Install a D20 RTU for the transmission substation

Install a DFR for the transmission substation

Install 2 new dc distribution panels in the new 138kV relay room; connect 1 to each existing battery

Install control cable from the new substation equipment to the new 138kV relay room

Remove the existing 138kV line relays and the bus 1 and 2 relays located in the existing control room

West End Substation Reconnect the 13kV Transformers and Buses

Civil Scope:

Install 3 new transformer foundations to elevation 513'-0" that incorporate oil containment and foundations for steel deadend structures and masonry firewalls (similar to existing at bank 7 & 8) including foundations for grounding banks and low voltage bus

Install foundations for 15kV cable bus from the 3 new transformers to the new switchgear

Install oil containment and foundations for steel deadend structure and masonry firewalls for old TB9 now new TB11

Structural Scope:

Install 2 - 138kV motor operated air break switches for new TB 12 and TB13

Relocate ABS950 for TB 10

Install 4 deadend towers for TB10, TB11, TB12 and TB14

Relocate TB10 and GRD TB 10 to the new foundation

Remove TB9 and Grd TBs 9-1 and 9-2

Install 3 new 132-13.0kV 67MVA LTC transformers TB11, TB12 and TB14 with new GRD banks

Install 3000 amp 15kV cable bus from the 4 - 67MVA transformers to the new switchgear

Install new switchgear in the new building; re-use the 3000 amp 15kV drawout breakers from buses 11, 21, 31 and 41 in the new cells

Install 2000 amp 15kV cable bus from the new switchgear to the top floor switch house for bus ties 10-12-17, 20-22-16, 30-32-19 and 40-42-15

Install 2000 amp cable bus and re-use the cable tray from CB 106 and CB 305 for new cable for bus ties 10-19 and 17-30

Install 2000 amp cable bus and re-use the cable tray from CB 206 and CB 405 for new cable for bus ties 17-20 and 19-40

Install 2000 amp cable bus for bus ties 12-16, 16-42, 15-22 and 15-32

Install control cable from the transformers to the new 138kV relay room

Remove the reactors from the old 12-22 bus tie and the 32-42 bus tie

Remove the equipment for buses 11, 21, 31 and 41 in the West switch house and the tie cables to the upper floor switch house

Electrical Scope:

Install 4 dual TPU relay packages for the 4 - 67MVA transformers

Install 4 SEL551 protection packages for the 4 GRD transformers

Install PVD differential and SEL487 differential bus relays packages for the 4 new switchgear buses

Install PVD differential and SEL487 differential bus relay packages for the 10-19, 12-16, 15-22, 15-32, 16-42, 17-20, 17-30, and the 19-40 bus ties

Re-connect and re-use the CO-7/ CO-8 CO-11 relays for the 10-12-17, 15-40-42, 16-20-22, and 19-30-32 bus ties

Install a PLC to control the LTCs and the capacitor breakers

West End Substation Reconfigure the 13kV System

Demolish the West switch house after removing the 12kV breakers and disconnecting banks 9 and 10

Reroute circuit 1385 and 1389 to the new East yard

Build a manhole around F1385 and F1389 in Augusta St East of the existing Brent Spence bridge

Install 1600ft. of 8in. pipe from the manhole to the new East yard cable termination locations

Install 2000MCM cable and cable terminations for each circuit

Join the existing cable and pipe to the new cable and pipe in the new manhole

Perform HV acceptance testing of the cable circuits

Reroute circuit 1286 and 1587 to the new East yard

Remove tower 101 for the new bridge, Erect (2) double-circuit heavy-angle structures to reroute F1286 and F1587. Routes are over and about buildings. Conductors are similar to existing conductor. Estimate: (2) structures, (2) foundations, (2000')-159kCM ACSR 12/7static, (6000') - 795kCM ACSR 45/7.

Charles Substation Replace Circuit 1385 and 1389 Relays

Replace the F1385 HCB/LCB relay schemes with a SEL421/SEL311L relay package

Replace the F1389 dual LCB relay package with a SEL421/SEL311L relay package

Mitchell Ave Substation Replace Circuit 1286 Relays

Replace the F1286 relays and carrier equipment with a standard dual SEL421/SEL451 relay package

Crescent Substation Replace Circuit 1587 Relays

Replace the F1587 relays and carrier equipment with a standard dual SEL421/SEL451 relay package

Wilder Substation Replace Circuit 5985 Relays

Replace the F5985 relays and carrier equipment with a standard dual SEL421/SEL451 relay package

West End Substation Remove the 138kV East Yard

Remove the oil from the equipment

Remove the existing East 138kV substation equipment and structures, including TB's 7 & 8 and the 138kV breakers

Abandon the foundations in place; they will be removed as part of the site remediation

preliminary Est. - will do separate PER

West End Substation Replace the East Yard	**$12,000,000**
West End Substation Reconnect the 13kV Transformers and Buses	**$13,500,000**
West End Substation Reconfigure the 13kV System	**$ 250,000**
Reroute circuit 1385 and 1389 to the new East yard	**$ 2,750,000**
Reroute circuit 1286 and 1587 to the new East yard	**$ 1,050,000**
Charles Substation Replace Circuit 1385 and 1389 Relays	**$ 500,000**
Mitchell Ave Substation Replace Circuit 1286 Relays	**$ 250,000**
Crescent Substation Replace Circuit 1587 Relays	**$ 250,000**
Wilder Substation Replace Circuit 5985 Relays	**$ 250,000**
West End Substation Remove the 138kV East Yard	**$ 350,000**
	$31,150,000

set aside funds for this.

As PE Estimate - that incurred summer 2011
Last Invoice - 2013
will be a separate work order for PE costs.

"Schwiers, Thomas"
<Thomas.Schwiers@cincinnati-oh.gov>

03/09/2009 11:46 AM

To <Rick.Anton@dot.state.oh.us>
cc "Franklin, Rob" <Rob.Franklin@cincinnati-oh.gov>
bcc
Subject HAM_ 71/75-0.00/0.22 PID 75119

Rick:
After receiving your letter of March 2, 2009 I put together some cost per foot to relocate some of our sewer lines. I thought this might be the best way to go given that there is no definite alignment set which would tell us the footage we need to relocate along with the manholes. In many cases we may be able to relocate a manhole to provide access to our sewer rather than relocating the line.

Tom Schwiers

244-5187 I 75&71 Widening.doc

MSD

Response for HAM -71/75-0.00/0.22 PID 75119

In general, it may be easier to modify the existing manholes leaving the sewers were they are than to try and relocate them. Using Table 30 provided in your letter of March 2, 2009 I wish to offer the following:

Item 2-9: The 72 inch sewer is our Mill Creek East Branch Interceptor sewer which runs 75% full on dry days. Originally this sewer was installed by tunneling. To relocate this sewer would cost $3000.00 per lineal foot with shafts costing $750,000.00 per shaft. The sewer in located in City Street R/W or if we cross private property it is in an easement. The 66 inch is an outfall sewer to the river to relocate this sewer could involve the relocation of a CSO. Estimated cost of sewer relocation would be $1600.00 per foot with manholes costing $25,000.00

Item 2-17: In addition to the three sewers mentioned there is a 24 inch sanitary and a 66 inch combined along the east side of Central Ave. in an easement. The 48 inch is in the street R/w and the 60 inches are in an easement. Relocation Cost for 24 inch is $650.00 per foot, 60 inch is $1500.00, 66 inch $1600.00 with manholes costing $20,000 to $25,000 each.

Item 2-22; To relocate this sewer would cost $1100.00 per foot. It might be easier to relocate manholes out of the widening.

Item 2-25: To relocate this line you would be looking at $2400.00 per foot with manholes costing $20,000.00. Sewer is in easement.

Item 2-29: With this line we may get by with adjusting manholes.

Item 2-30: The 60 inch sewer is in street R/W, Relocation cost would be $1600.00 per foot with manholes costing $18,000.00. As for the 72 inch it appears this line was abandoned when 75 was built.

Item 3-1: The 30 inch sewer is in street R/W and to relocate the sewer would require the sewer to be jacked and bored under the expressway at a cost of $1100.00 per foot with manholes $12,000 to $15,000.00

Item 3-8: The 30 inch sewer is in street R/w cost to relocate similar to Item 3-1.

OHIO DEPARTMENT OF TRANSPORTATION
DISTRICT 8 • 505 S. ST. RT. 741 • LEBANON, OH 45036 • (800) 831-2142

James G. Beasley, P.E., P.S.
Director

Ted Strickland
Governor

Hans R. Jindal, P.E.
District 8 Deputy Director

March 2, 2009

Mr. Mark Conner
Cincinnati Bell Telephone
201 East 4th Street, Bldg 343
Cincinnati, Ohio 45202

Subject: Potential Utility Impacts

Reference: HAM-71/75-0.00/0.22 PID 75119

Dear Mr. Conner:

ODOT is requesting that Cincinnati Bell Telephone look over the enclosed material to give us an estimate of the cost to relocate your facilities using today's dollars. Also, please indicate if your facilities are there by permit or on your own easement.

Enclosed is a map showing the potential impacts with Cincinnati Bell Telephone and our project. Using Table 30 (Utility Impacts in Ohio) and map sheets 5, 6 & 7 of 7, you will find the potential impacts to Cincinnati Bell Telephone Facilities.

I am also sending the above enclosed material to Dick Selm.

Any questions please call 513-933-6624 or email me at rick.anton@dot.state.oh.us.

Respectfully,

Rick Anton

Rick Anton
District 8 Utility Coordinator

OHIO DEPARTMENT OF TRANSPORTATION
DISTRICT 8 • 505 S. STATE RT. 741 • LEBANON, OH 45036 • (800) 831-2142

James G. Beasley, P.E., P.S.
Director

Ted Strickland
Governor

Hans R. Jindal, P.E.
District 8 Deputy Director

March 2, 2009

Mr. Dick Selm
Cincinnati Bell Telephone
201 East 4th Street, Bldg 343
Cincinnati, Ohio 45202

Subject: Potential Utility Impacts

Reference: HAM-71/75-0.00/0.22 PID 75119

Dear Mr. Selm:

ODOT is requesting that Cincinnati Bell Telephone look over the enclosed material to give us an estimate of the cost to relocate your facilities using today's dollars. Also, please indicate if your facilities are there by permit or on your own easement.

Enclosed is a map showing the potential impacts with Cincinnati Bell Telephone and our project. Using Table 30 (Utility Impacts in Ohio) and map sheets 5, 6 & 7 of 7, you will find the potential impacts to Cincinnati Bell Telephone Facilities.

I am also sending the above enclosed material to Mark Conner.

Any questions please call 513-933-6624 or email me at rick.anton@dot.state.oh.us.

Respectfully,

Rick Anton

Rick Anton
District 8 Utility Coordinator

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James G. Beasley, P.E., P.S.
Director

Ted Strickland
Governor

Hans R. Jindal, P.E.
District 8 Deputy Director

March 2, 2009

Mr. Jeff Ballinger
AT&T Fiber
4435 Aicholtz Road, Suite 300
Cincinnati, Ohio 45245

Subject: Potential Utility Impacts

Reference: HAM-71/75-0.00/0.22 PID 75119

Dear Mr. Ballinger:

ODOT is requesting that AT&T Fiber look over the enclosed material to give us an estimate of the cost to relocate your facilities using today's dollars. Also, please indicate if your facilities are there by permit or on your own easement.

Enclosed is a map showing the potential impacts with AT&T Fiber and our project. Using Table 30 (Utility Impacts in Ohio) and map sheets 5, 6 & 7 of 7, you will find the potential impacts to AT&T Fibers Facilities.

Any questions please call 513-933-6624 or email me at rick.anton@dot.state.oh.us.

Respectfully,

Rick Anton

Rick Anton
District 8 Utility Coordinator

OHIO DEPARTMENT OF TRANSPORTATION
DISTRICT 8 • 505 S. ST. RT. 741 • LEBANON, OH 45036 • (800) 831-2142

James G. Beasley, P.E., P.S.
Director

Ted Strickland
Governor

Hans R. Jindal, P.E.
District 8 Deputy Director

March 2, 2009

Mr. Al Guest
MCI/Verizon
120 Ravine Street
Akron, Ohio 44303

Subject: Potential Utility Impacts

Reference: HAM-71/75-0.00/0.22 PID 75119

Dear Mr. Guest:

ODOT is requesting that MCI/Verizon look over the enclosed material to give us an estimate of the cost to relocate your facilities using today's dollars. Also, please indicate if your facilities are there by permit or on your own easement.

Enclosed is a map showing the potential impacts with MCI/Verizon and our project. Using Table 30 (Utility Impacts in Ohio) and map sheets 5, 6 & 7 of 7, you will find the potential impacts to MCI/Verizon Facilities.

Any questions please call 513-933-6624 or email me at rick.anton@dot.state.oh.us.

Respectfully,

Rick Anton

Rick Anton
District 8 Utility Coordinator

OHIO DEPARTMENT OF TRANSPORTATION
DISTRICT 8 * 505 S. ST. RT. 741 * LEBANON, OH 45036 * (800) 831-2142

James G. Beasley, P.E., P.S.
Director

Ted Strickland
Governor

Hans R. Jindal, P.E.
District 8 Deputy Director

March 2, 2009

Mr. Tim Taylor
Level 3 Communications
400 Pike Street, Suite 300
Cincinnati, Ohio 45202

Subject: Potential Utility Impacts

Reference: HAM-71/75-0.00/0.22 PID 75119

Dear Mr. Taylor:

ODOT is requesting that Level 3 Communications look over the enclosed material to give us an estimate of the cost to relocate your facilities using today's dollars. Also, please indicate if your facilities are there by permit or on your own easement.

Enclosed is a map showing the potential impacts with Level 3 Communications and our project. Using Table 30 (Utility Impacts in Ohio) and map sheets 5, 6 & 7 of 7, you will find the potential impacts to Level 3 Communications Facilities.

I am also sending the above enclosed material to Keith Osborn.

Any questions please call 513-933-6624 or email me at rick.anton@dot.state.oh.us.

Respectfully,

Rick Anton

Rick Anton
District 8 Utility Coordinator

OHIO DEPARTMENT OF TRANSPORTATION
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James G. Beasley, P.E., P.S.
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Governor

Hans R. Jindal, P.E.
District 8 Deputy Director

March 2, 2009

Mr. Keith Osborn
Level 3 Communications, LLC
1025 Eldorado Blvd, Suite 33A-524
Broomfield, CO 80021

Subject: Potential Utility Impacts

Reference: HAM-71/75-0.00/0.22 PID 75119

Dear Mr. Osborn:

ODOT is requesting that Level 3 Communications look over the enclosed material to give us an estimate of the cost to relocate your facilities using today's dollars. Also, please indicate if your facilities are there by permit or on your own easement.

Enclosed is a map showing the potential impacts with Level 3 Communications and our project. Using Table 30 (Utility Impacts in Ohio) and map sheets 5, 6 & 7 of 7, you will find the potential impacts to Level 3 Communications Facilities.

I am also sending the above enclosed material to Tim Taylor.

Any questions please call 513-933-6624 or email me at rick.anton@dot.state.oh.us.

Respectfully,

Rick Anton

Rick Anton
District 8 Utility Coordinator

OHIO DEPARTMENT OF TRANSPORTATION
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James G. Beasley, P.E., P.S.
Director

Ted Strickland
Governor

Hans R. Jindal, P.E.
District 8 Deputy Director

March 2, 2009

Mr. Rob Franklin
Metropolitan Sewer District
1600 Gest Street
Cincinnati, Ohio 45204

Subject: Potential Utility Impacts

Reference: HAM-71/75-0.00/0.22 PID 75119

Dear Mr. Franklin:

ODOT is requesting that Metropolitan Sewer District look over the enclosed material to give us an estimate of the cost to relocate your facilities using today's dollars. Also, please indicate if your facilities are there by permit or on your own easement.

Enclosed is a map showing the potential impacts with Metropolitan Sewer District and our project. Using Table 30 (Utility Impacts in Ohio) and map sheets 5, 6 & 7 of 7, you will find the potential impacts to Metropolitan Sewer District Facilities.

I am also sending the above enclosed material to Tom Schwiers.

Any questions please call 513-933-6624 or email me at rick.anton@dot.state.oh.us.

Respectfully,

Rick Anton

Rick Anton
District 8 Utility Coordinator

OHIO DEPARTMENT OF TRANSPORTATION
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James G. Beasley, P.E., P.S.
Director

Ted Strickland
Governor

Hans R. Jindal, P.E.
District 8 Deputy Director

March 2, 2009

Mr. Tom Schwiers
Metropolitan Sewer District
1600 Gest Street
Cincinnati, Ohio 45204

Subject: Potential Utility Impacts

Reference: HAM-71/75-0.00/0.22 PID 75119

Dear Mr. Schwiers:

ODOT is requesting that Metropolitan Sewer District look over the enclosed material to give us an estimate of the cost to relocate your facilities using today's dollars. Also, please indicate if your facilities are there by permit or on your own easement.

Enclosed is a map showing the potential impacts with Metropolitan Sewer District and our project. Using Table 30 (Utility Impacts in Ohio) and map sheets 5, 6 & 7 of 7, you will find the potential impacts to Metropolitan Sewer District Facilities.

I am also sending the above enclosed material to Rob Franklin.

Any questions please call 513-933-6624 or email me at rick.anton@dot.state.oh.us.

Respectfully,

Rick Anton

Rick Anton
District 8 Utility Coordinator

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James G. Beasley, P.E., P.S.
Director

Ted Strickland
Governor

Hans R. Jindal, P.E.
District 8 Deputy Director

March 2, 2009

Mr. Jason DeLaet
Cincinnati Water Works
4747 Spring Grove Ave
Cincinnati, Ohio 45232

Subject: Potential Utility Impacts

Reference: HAM-71/75-0.00/0.22 PID 75119

Dear Mr. DeLaet:

ODOT is requesting that Cincinnati Water Works look over the enclosed material to give us an estimate of the cost to relocate your facilities using today's dollars. Also, please indicate if your facilities are there by permit or on your own easement.

Enclosed is a map showing the potential impacts with Cincinnati Water Works and our project. Using Table 30 (Utility Impacts in Ohio) and map sheets 5, 6 & 7 of 7, you will find the potential impacts to Cincinnati Water Works Facilities.

I am also sending the above enclosed material to Russell Weber.

Any questions please call 513-933-6624 or email me at rick.anton@dot.state.oh.us.

Respectfully,

Rick Anton

Rick Anton
District 8 Utility Coordinator

OHIO DEPARTMENT OF TRANSPORTATION
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James G. Beasley, P.E., P.S.
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Ted Strickland
Governor

Hans R. Jindal, P.E.
District 8 Deputy Director

March 2, 2009

Mr. Russell Weber
Cincinnati Water Works
4747 Spring Grove Ave
Cincinnati, Ohio 45232

Subject: Potential Utility Impacts

Reference: HAM-71/75-0.00/0.22 PID 75119

Dear Mr. Weber:

ODOT is requesting that Cincinnati Water Works look over the enclosed material to give us an estimate of the cost to relocate your facilities using today's dollars. Also, please indicate if your facilities are there by permit or on your own easement.

Enclosed is a map showing the potential impacts with Cincinnati Water Works and our project. Using Table 30 (Utility Impacts in Ohio) and map sheets 5, 6 & 7 of 7, you will find the potential impacts to Cincinnati Water Works Facilities.

I am also sending the above enclosed material to Jason DeLaet.

Any questions please call 513-933-6624 or email me at rick.anton@dot.state.oh.us.

Respectfully,

Rick Anton

Rick Anton
District 8 Utility Coordinator

OHIO DEPARTMENT OF TRANSPORTATION
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James G. Beasley, P.E., P.S.
Director

Ted Strickland
Governor

Hans R. Jindal, P.E.
District 8 Deputy Director

March 2, 2009

Mr. Gary Hebbler
Duke Gas
139 East 4th Street, Room 460A
Cincinnati, Ohio 45202

Subject: Potential Utility Impacts

Reference: HAM-71/75-0.00/0.22 PID 75119

Dear Mr. Hebbeler:

ODOT is requesting that Duke Gas look over the enclosed material to give us an estimate of the cost to relocate your facilities using today's dollars. Also, please indicate if your facilities are there by permit or on your own easement.

Enclosed is a map showing the potential impacts with Duke Gas and our project. Using Table 30 (Utility Impacts in Ohio) and map sheets 5, 6 & 7 of 7, you will find the potential impacts to Duke Gas Facilities.

I am also sending the above enclosed material to Laura Mate'.

Any questions please call 513-933-6624 or email me at rick.anton@dot.state.oh.us.

Respectfully,

Rick Anton

Rick Anton
District 8 Utility Coordinator

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James G. Beasley, P.E., P.S.
Director

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Governor

Hans R. Jindal, P.E.
District 8 Deputy Director

March 2, 2009

Ms. Laura Mate'
Duke Gas
139 East 4th Street, Room 460A
Cincinnati, Ohio 45202

Subject: Potential Utility Impacts

Reference: HAM-71/75-0.00/0.22 PID 75119

Dear Ms. Mate':

ODOT is requesting that Duke Gas look over the enclosed material to give us an estimate of the cost to relocate your facilities using today's dollars. Also, please indicate if your facilities are there by permit or on your own easement.

Enclosed is a map showing the potential impacts with Duke Gas and our project. Using Table 30 (Utility Impacts in Ohio) and map sheets 5, 6 & 7 of 7, you will find the potential impacts to Duke Gas Facilities.

I am also sending the above enclosed material to Gary Hebbler.

Any questions please call 513-933-6624 or email me at rick.anton@dot.state.oh.us.

Respectfully,

Rick Anton

Rick Anton
District 8 Utility Coordinator

OHIO DEPARTMENT OF TRANSPORTATION
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James G. Beasley, P.E., P.S.
Director

Ted Strickland
Governor

Hans R. Jindal, P.E.
District 8 Deputy Director

March 2, 2009

Mr. Jim Farley
Duke Electric
139 East 4th Street, 5th Floor Main
Cincinnati, Ohio 45202

Subject: Potential Utility Impacts

Reference: HAM-71/75-0.00/0.22 PID 75119

Dear Mr. Farley:

ODOT is requesting that Duke Electric look over the enclosed material to give us an estimate of the cost to relocate your facilities using today's dollars. Also, please indicate if your facilities are there by permit or on your own easement.

Enclosed is a map showing the potential impacts with Duke Electric and our project. Using Table 30 (Utility Impacts in Ohio) and map sheets 5, 6 & 7 of 7, you will find the potential impacts to Duke Electric's Facilities.

I am also sending the above enclosed material to Tom Birkenhauer and Aaron Wright.

Any questions please call 513-933-6624 or email me at rick.anton@dot.state.oh.us.

Respectfully,

Rick Anton

Rick Anton
District 8 Utility Coordinator

OHIO DEPARTMENT OF TRANSPORTATION
DISTRICT 8 • 505 S. ST. RT. 741 • LEBANON, OH 45036 • (800) 831-2142

James G. Beasley, P.E., P.S.
Director

Ted Strickland
Governor

Hans R. Jindal, P.E.
District 8 Deputy Director

March 2, 2009

Mr. Aaron Wright
Duke Electric
139 East 4th Street, Room 467A
Cincinnati, Ohio 45202

Subject: Potential Utility Impacts

Reference: HAM-71/75-0.00/0.22 PID 75119

Dear Mr. Wright:

ODOT is requesting that Duke Electric look over the enclosed material to give us an estimate of the cost to relocate your facilities using today's dollars. Also, please indicate if your facilities are there by permit or on your own easement.

Enclosed is a map showing the potential impacts with Duke Electric and our project. Using Table 30 (Utility Impacts in Ohio) and map sheets 5, 6 & 7 of 7, you will find the potential impacts to Duke Electric's Facilities.

I am also sending the above enclosed material to Tom Birkenhauer and Jim Farley.

Any questions please call 513-933-6624 or email me at rick.anton@dot.state.oh.us.

Respectfully,

Rick Anton

Rick Anton
District 8 Utility Coordinator

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James G. Beasley, P.E., P.S.
Director

Ted Strickland
Governor

Hans R. Jindal, P.E.
District 8 Deputy Director

March 2, 2009

Mr. Tom Birkenhauer
Duke Electric
139 East 4th Street, Room 467A
Cincinnati, Ohio 45202

Subject: Potential Utility Impacts

Reference: HAM-71/75-0.00/0.22 PID 75119

Dear Mr. Birkenhauer:

ODOT is requesting that Duke Electric look over the enclosed material to give us an estimate of the cost to relocate your facilities using today's dollars. Also, please indicate if your facilities are there by permit or on your own easement.

Enclosed is a map showing the potential impacts with Duke Electric and our project. Using Table 30 (Utility Impacts in Ohio) and map sheets 5, 6 & 7 of 7, you will find the potential impacts to Duke Electric's Facilities.

I am also sending the above enclosed material to Aaron Wright and Jim Farley.

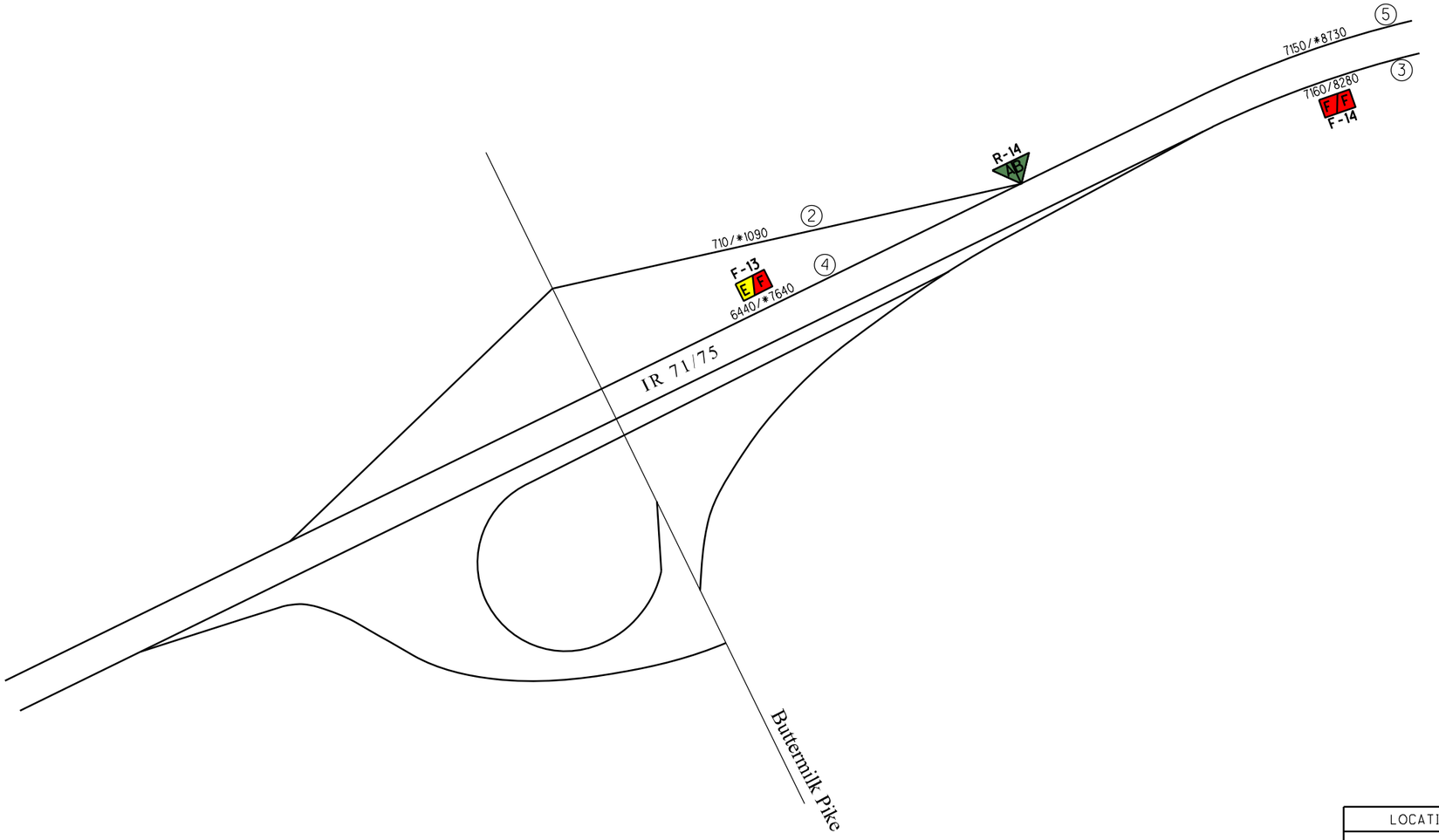
Any questions please call 513-933-6624 or email me at rick.anton@dot.state.oh.us.

Respectfully,

Rick Anton

Rick Anton
District 8 Utility Coordinator

Appendix F
Highway Capacity Analysis

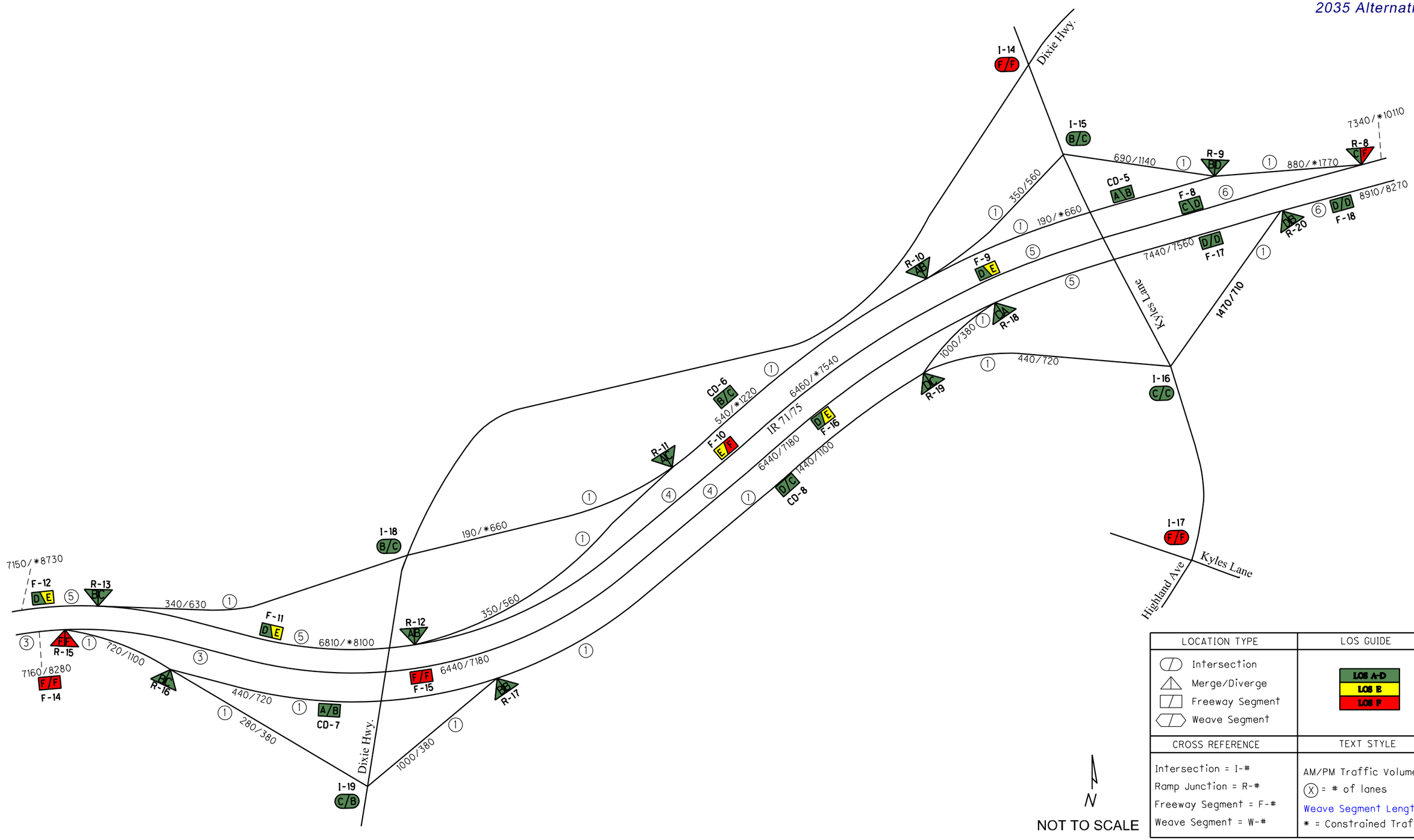


LOCATION TYPE	LOS GUIDE
Intersection Merge/Diverge Freeway Segment Weave Segment	LOS A-D LOS E LOS F
CROSS REFERENCE	**TEXT STYLE**
Intersection = I-# Ramp Junction = R-# Freeway Segment = F-# Weave Segment = W-#	AM/PM Traffic Volumes (X) = # of lanes Weave Segment Length * = Constrained Traffic

N

NOT TO SCALE

2035 Alternative E



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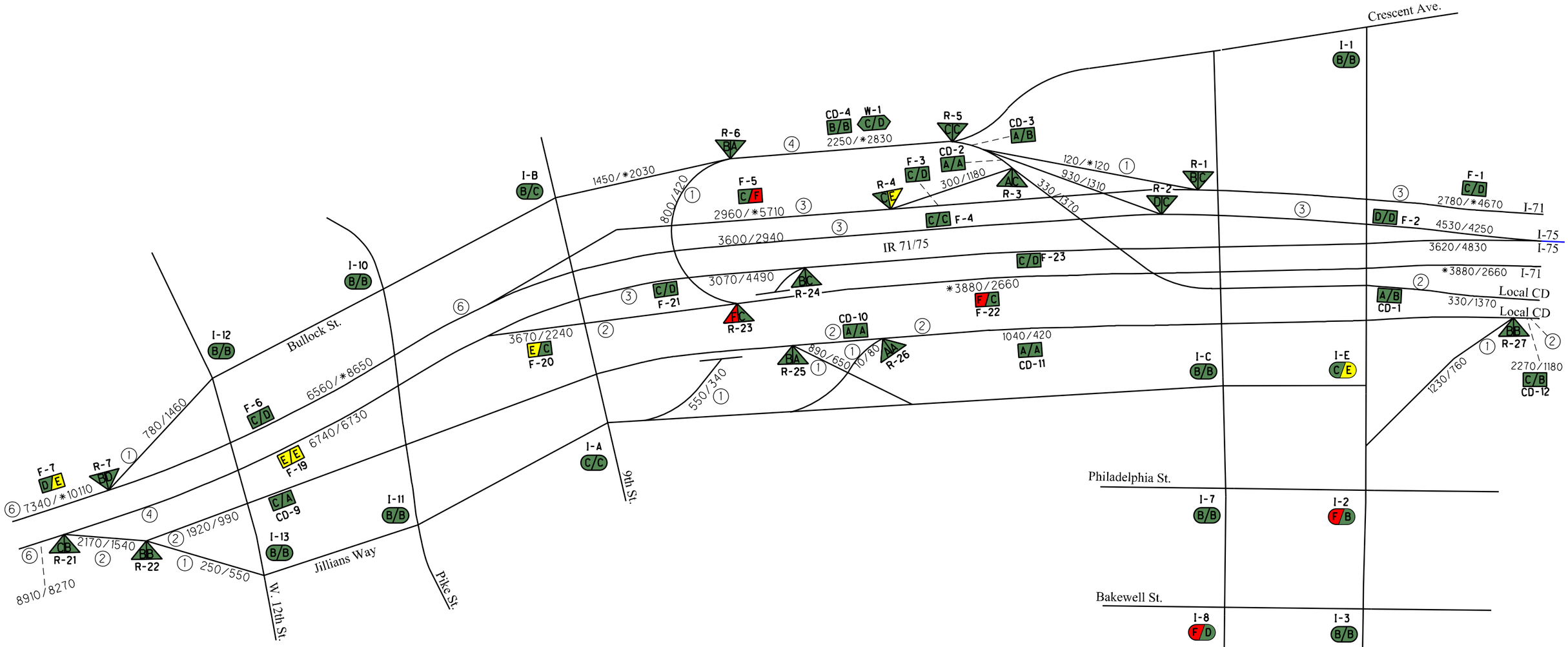

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NOT TO SCALE

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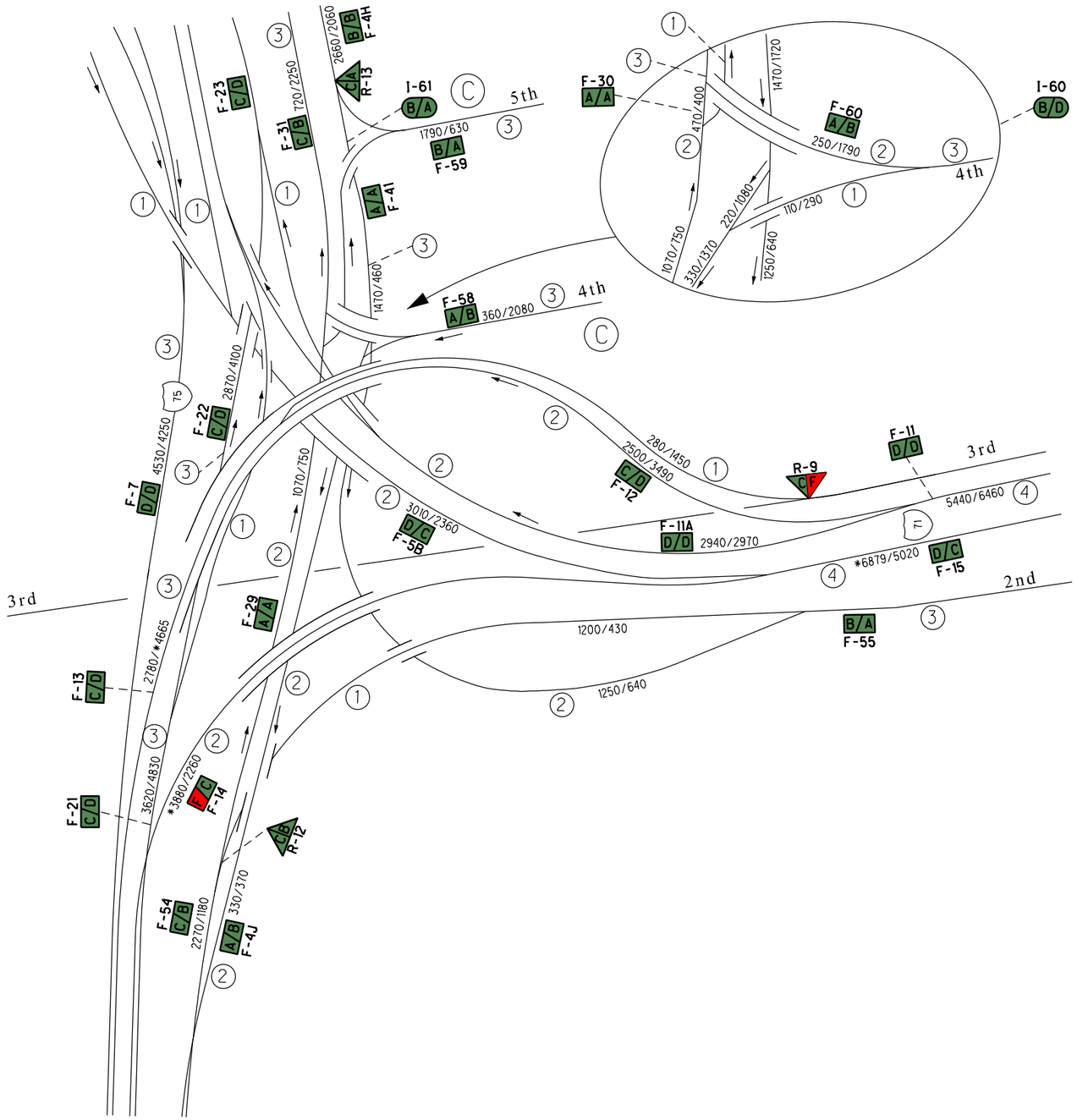
NOT TO SCALE



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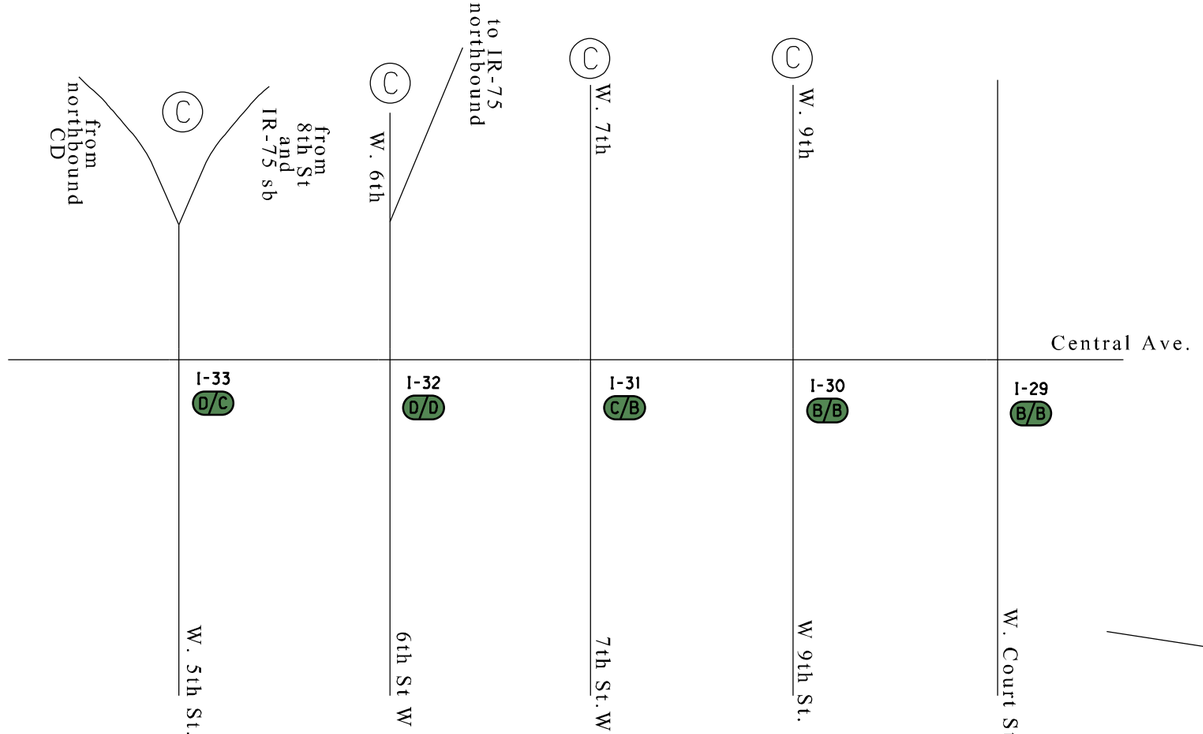

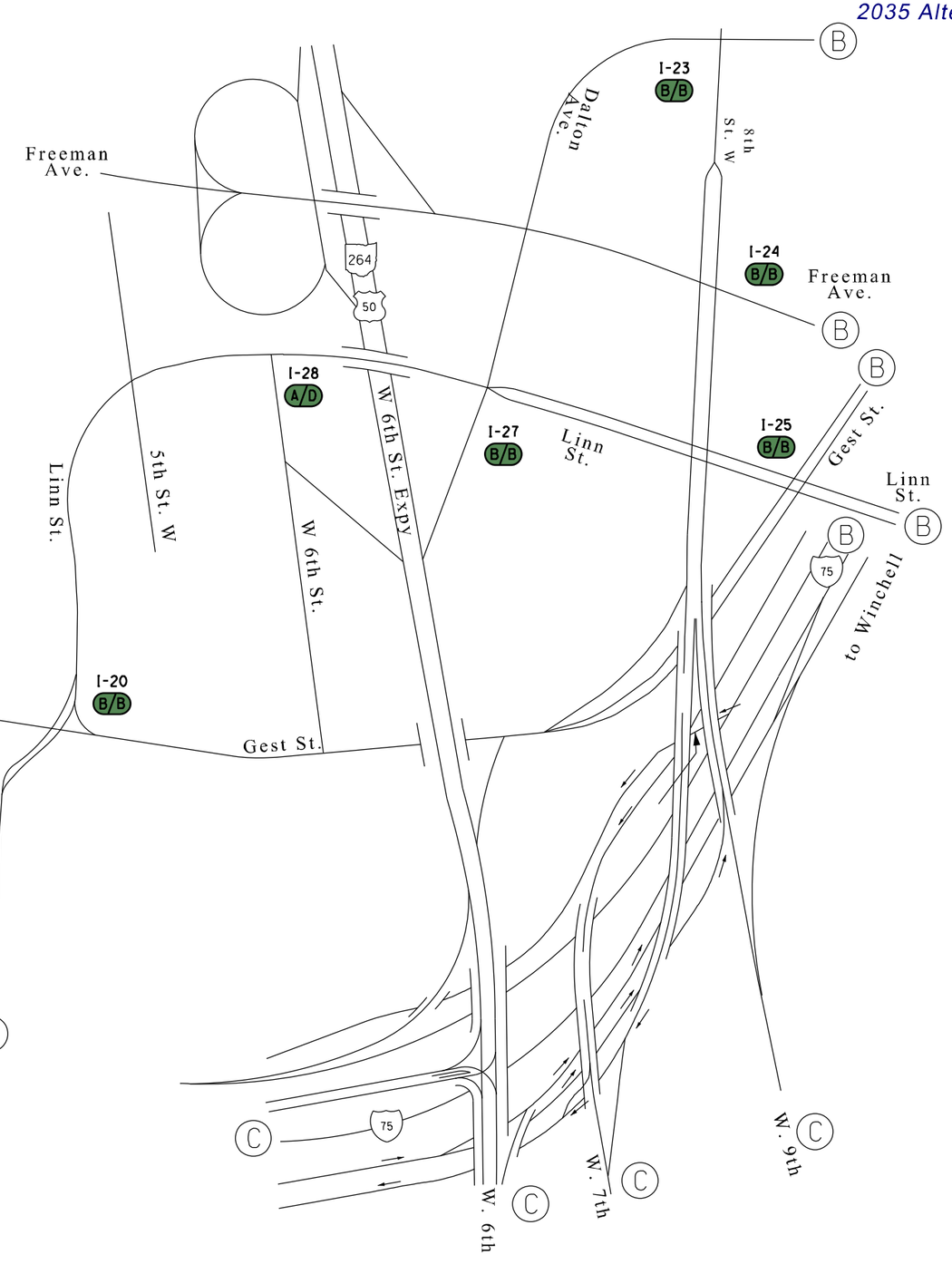

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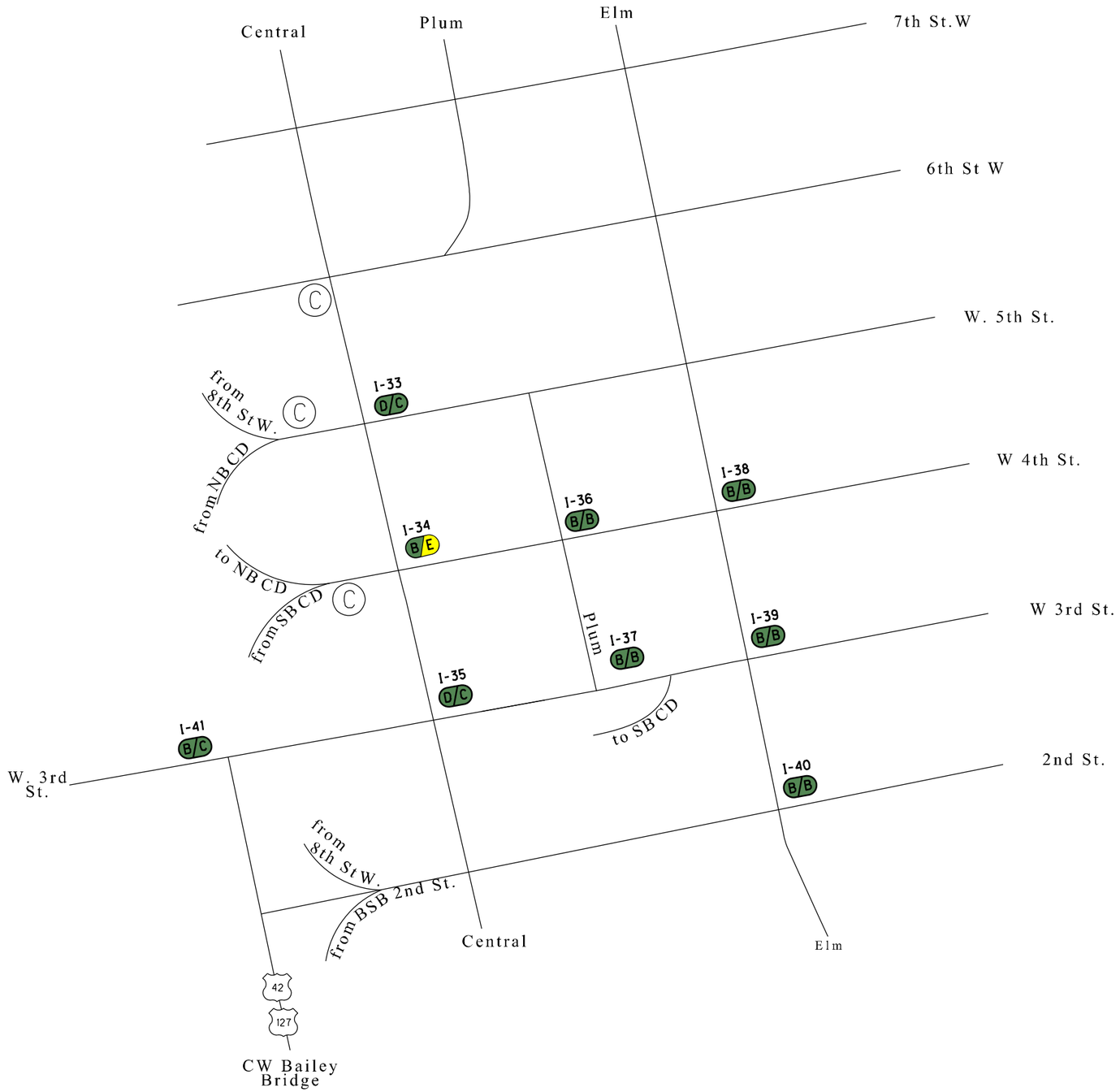

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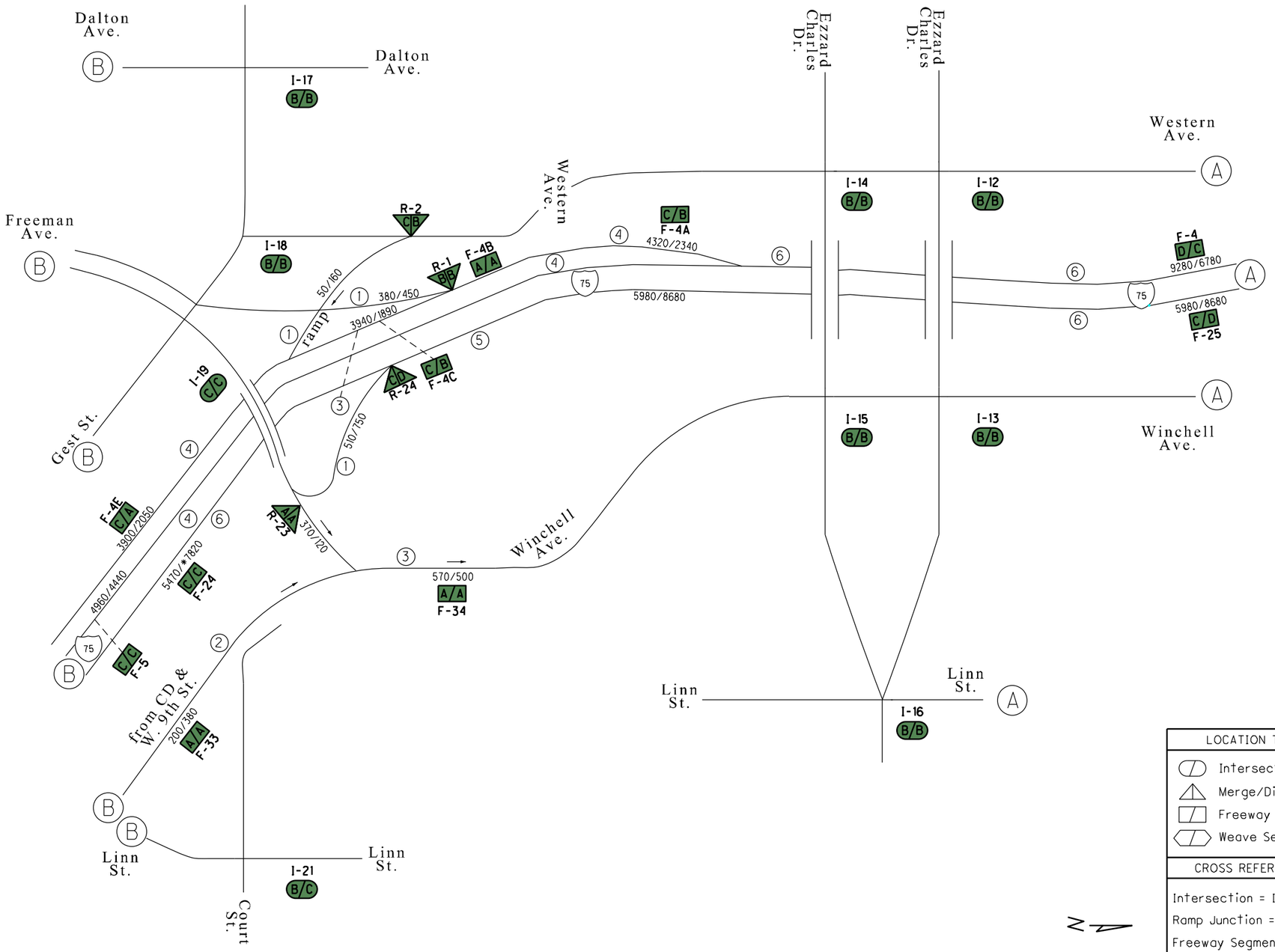

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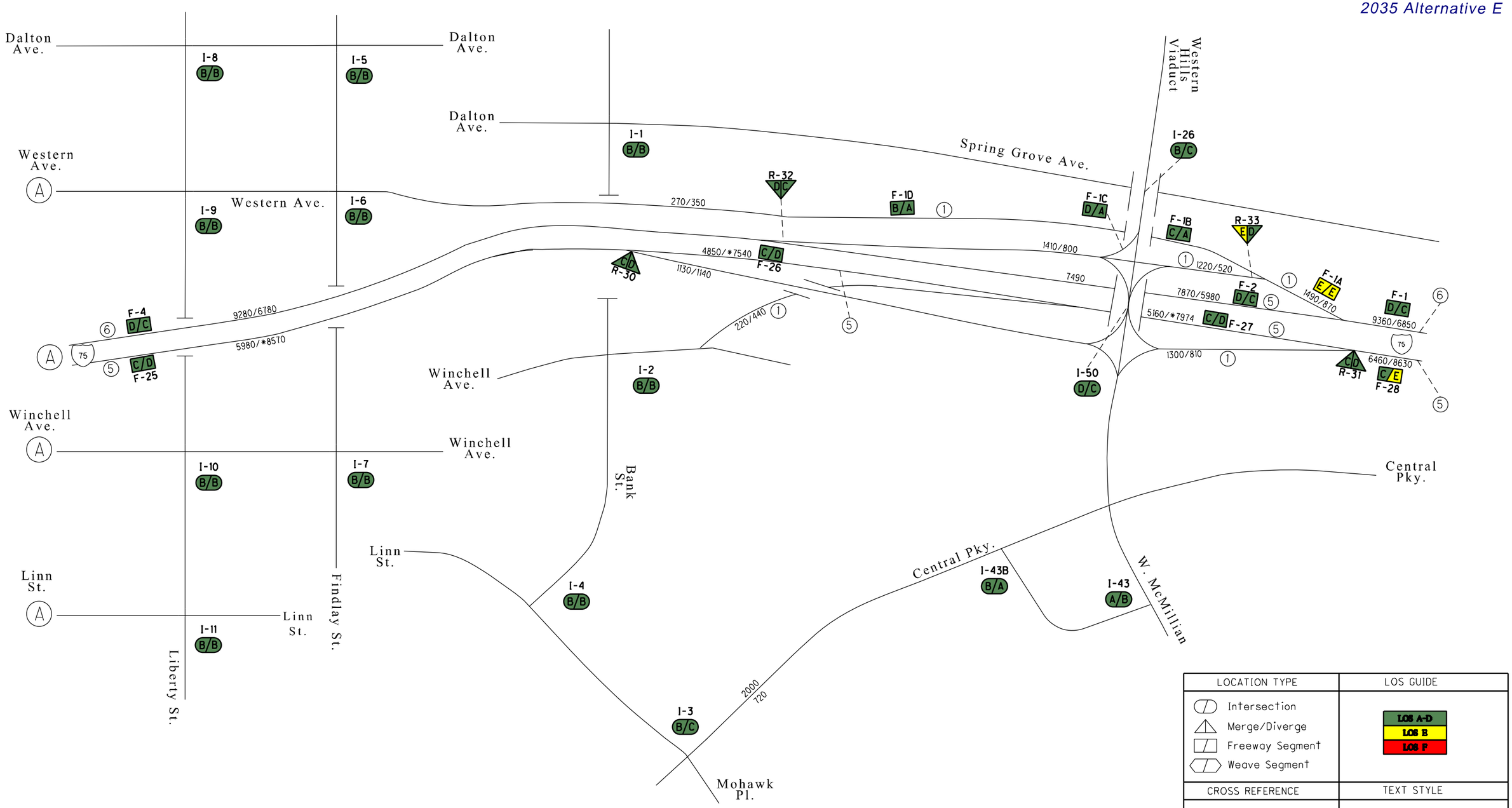
NOT TO SCALE

2035 Alternative E



NOT TO SCALE

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Intersection Merge/Diverge Freeway Segment Weave Segment	LOS A-D LOS E LOS F
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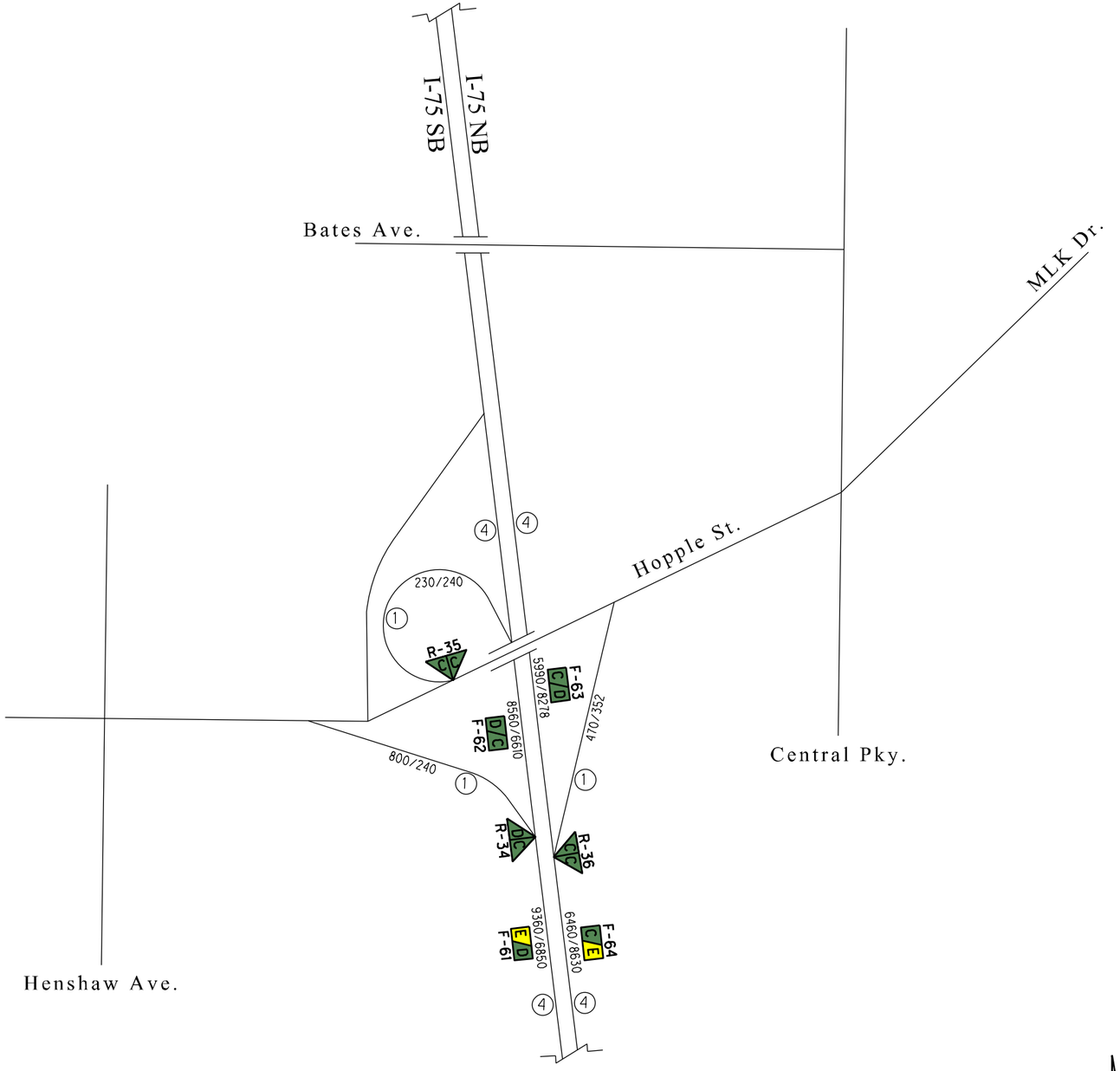
U.S. Department of Transportation
Federal Highway Administration

HCS RESULTS
2035 ALTERNATIVE E

EXHIBIT
10 of 11

Prepared by:
PARSONS BRINCKERHOFF



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N

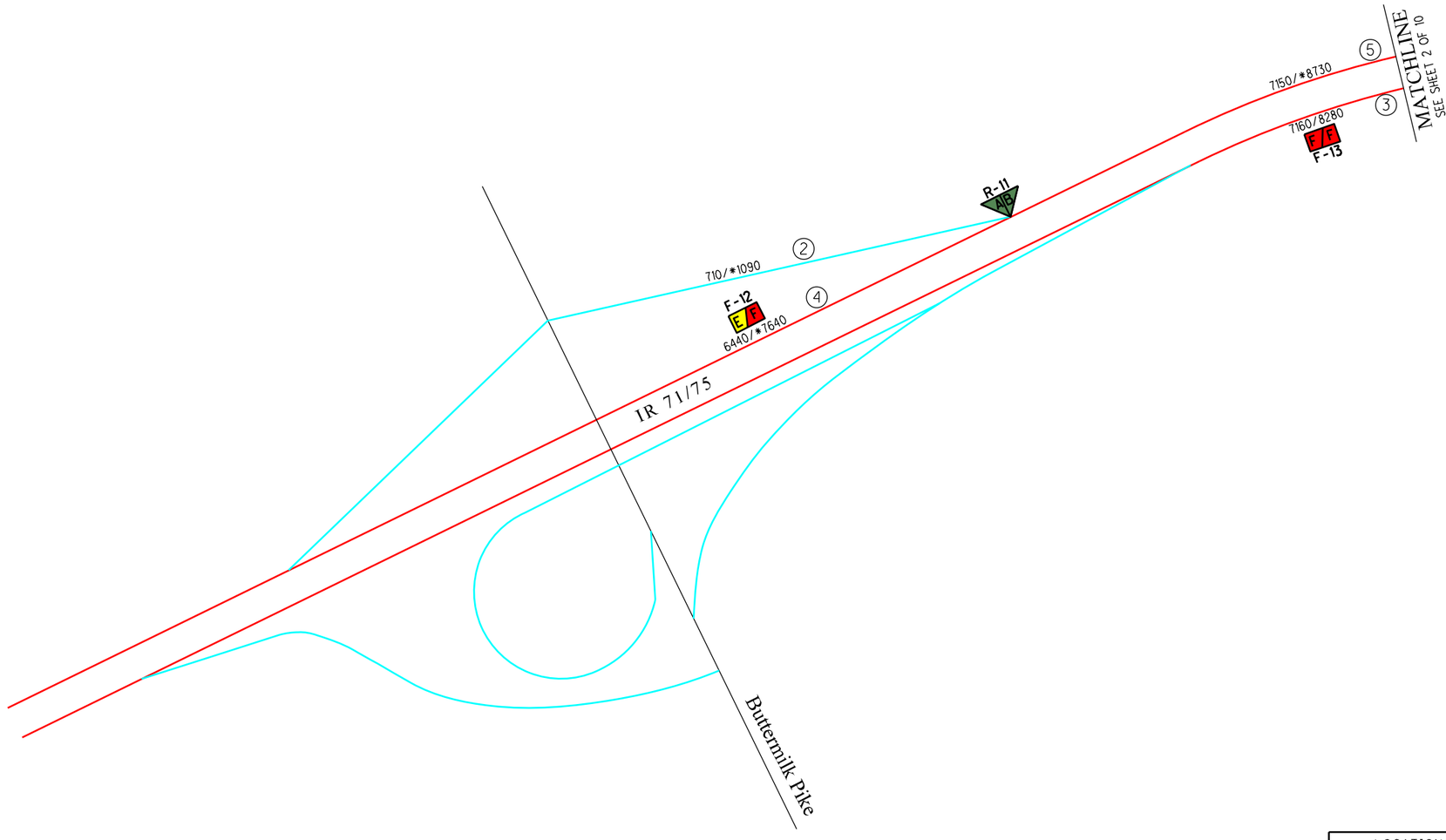
NOT TO SCALE

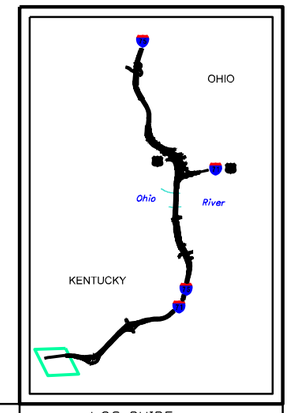
U.S. Department of Transportation
Federal Highway Administration

HCS RESULTS
2035 ALTERNATIVE E

EXHIBIT
11 of 11

Prepared by:
PB PARSONS BRINCKERHOFF





LOCATION TYPE	LOS GUIDE
Intersection Merge/Diverge Freeway Segment Weave Segment	LOS A-D LOS E LOS F

LEGEND	CROSS REFERENCE	TEXT STYLE
Interstate 71 Interstate 75 Collector-Distributor US 50 Local Road	Intersection = I-# Ramp Junction = R-# Freeway Segment = F-# Weave Segment = W-#	AM/PM Traffic Volumes (X) = # of lanes Weave Segment Length * = Constrained Traffic

N

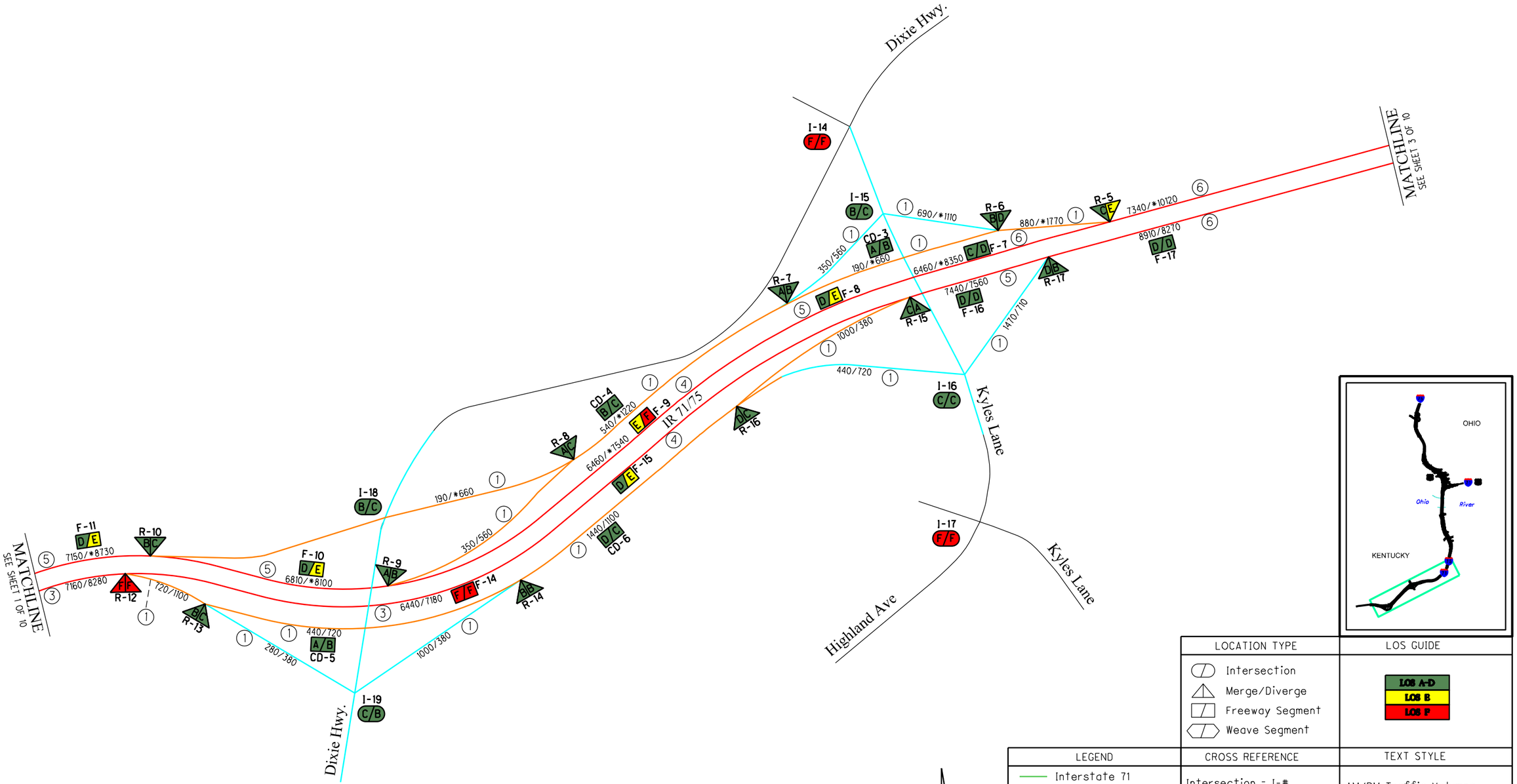
NOT TO SCALE

U.S. Department of Transportation
Federal Highway Administration

HCS RESULTS
2035 ALTERNATIVE I

EXHIBIT
1 of 10

Prepared by:
PARSONS BRINCKERHOFF



LOCATION TYPE	LOS GUIDE
Intersection	LOS A-D
Merge/Diverge	LOS E
Freeway Segment	LOS F
Weave Segment	

LEGEND	CROSS REFERENCE	TEXT STYLE
Interstate 71	Intersection = I-#	AM/PM Traffic Volumes
Interstate 75	Ramp Junction = R-#	(X) = # of lanes
Collector-Distributor	Freeway Segment = F-#	Weave Segment Length
US 50	Weave Segment = W-#	* = Constrained Traffic
Local Road		

N

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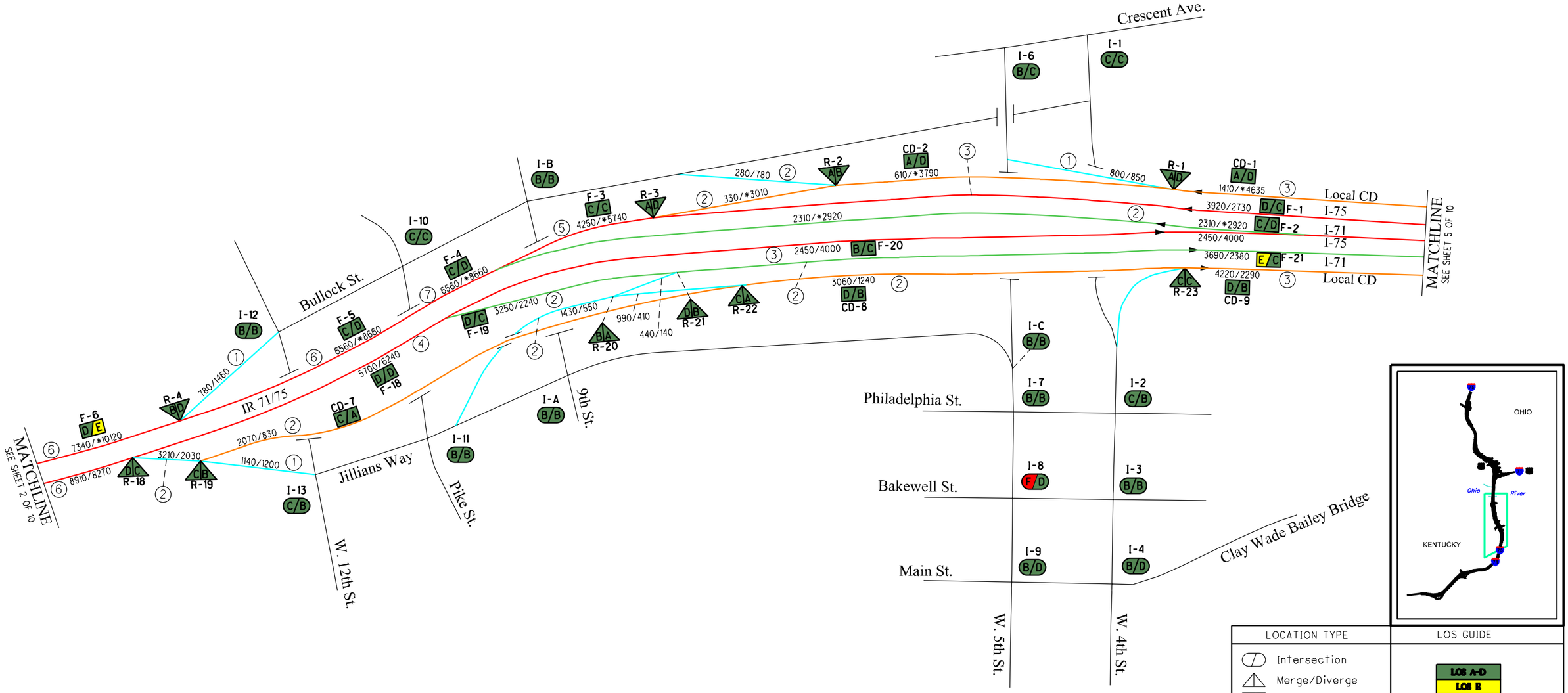
HCS RESULTS
2035 ALTERNATIVE I

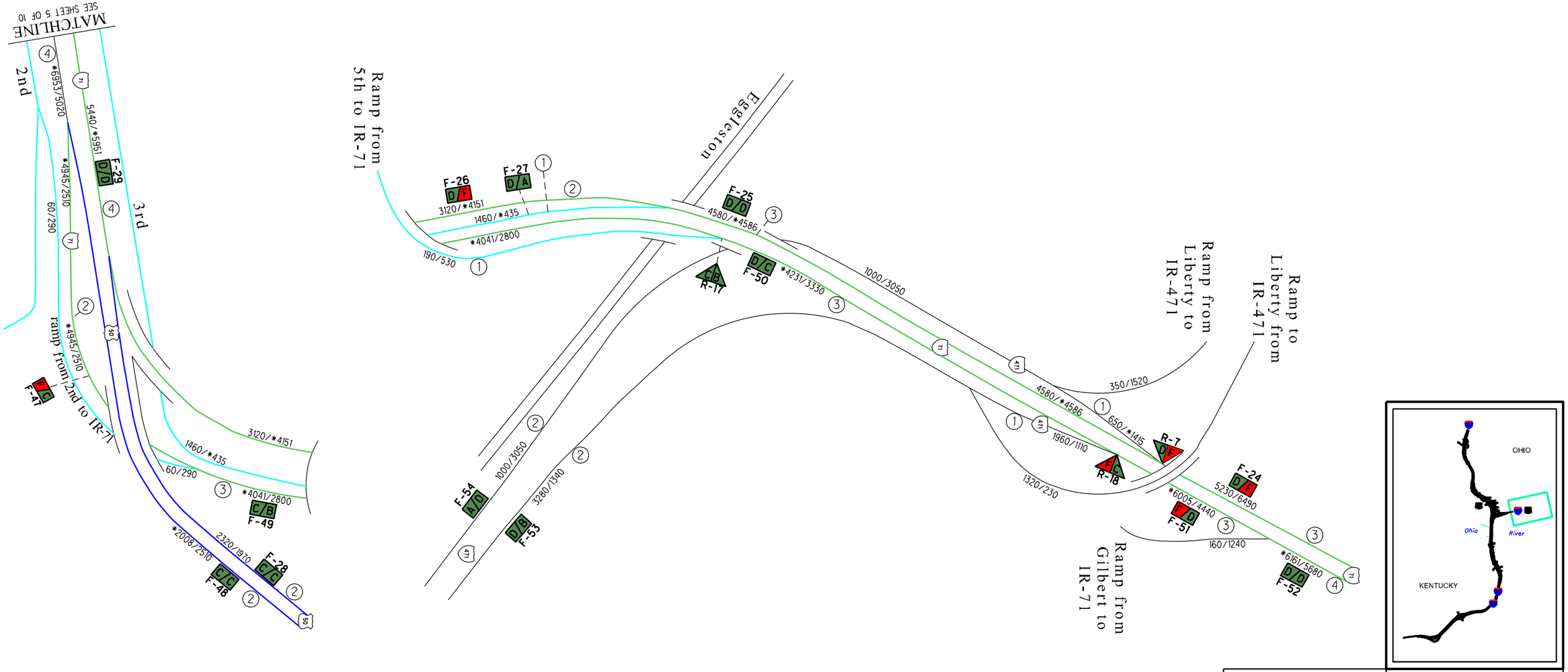
EXHIBIT
2 of 10

Prepared by:
PARSONS BRINCKERHOFF



LOCATION TYPE	LOS GUIDE
Intersection Merge/Diverge Freeway Segment Weave Segment	LOS A-D LOS E LOS F

LEGEND	CROSS REFERENCE	TEXT STYLE
Interstate 71 Interstate 75 Collector-Distributor US 50 Local Road	Intersection = I-# Ramp Junction = R-# Freeway Segment = F-# Weave Segment = W-#	AM/PM Traffic Volumes (X) = # of lanes Weave Segment Length * = Constrained Traffic



LOCATION TYPE	LOS GUIDE
Intersection	LOS A-D
Merge/Diverge	LOS B
Freeway Segment	LOS F
Weave Segment	

LEGEND	CROSS REFERENCE	TEXT STYLE
Interstate 71	Intersection = I-#	AM/PM Traffic Volumes
Interstate 75	Ramp Junction = R-#	(X) = # of lanes
Collector-Distributor	Freeway Segment = F-#	Weave Segment Length
US 50	Weave Segment = W-#	* = Constrained Traffic
Local Road		

N

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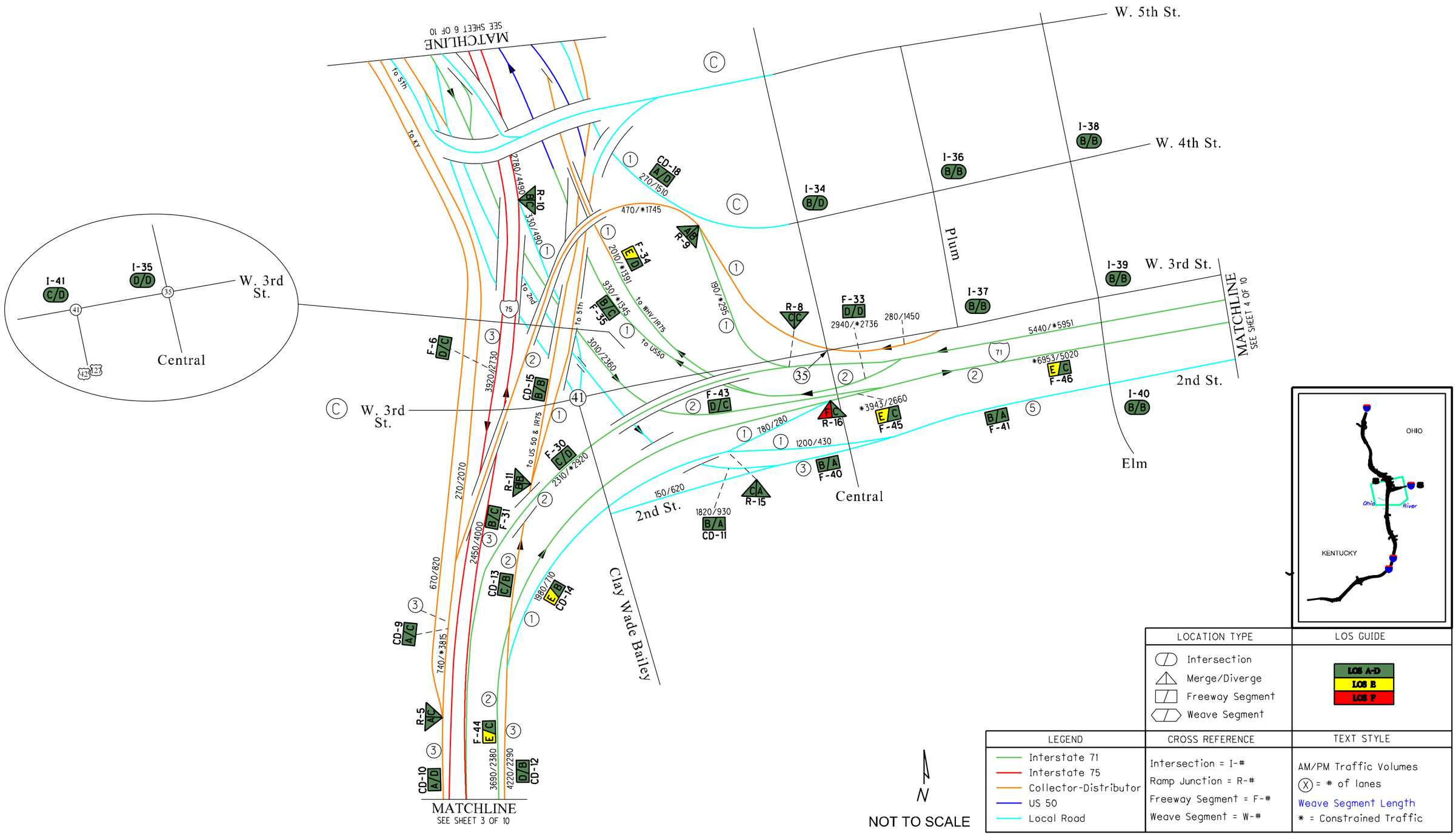
HCS RESULTS
2035 ALTERNATIVE I

EXHIBIT
4 of 10

Prepared by:
PARSONS BRINCKERHOFF



LOCATION TYPE	LOS GUIDE
Intersection	LOS A-D
Merge/Diverge	LOS B
Freeway Segment	LOS F
Weave Segment	

LEGEND	CROSS REFERENCE	TEXT STYLE
Interstate 71	Intersection = I-#	AM/PM Traffic Volumes
Interstate 75	Ramp Junction = R-#	(X) = # of lanes
Collector-Distributor	Freeway Segment = F-#	Weave Segment Length
US 50	Weave Segment = W-#	* = Constrained Traffic
Local Road		

U.S. Department of Transportation
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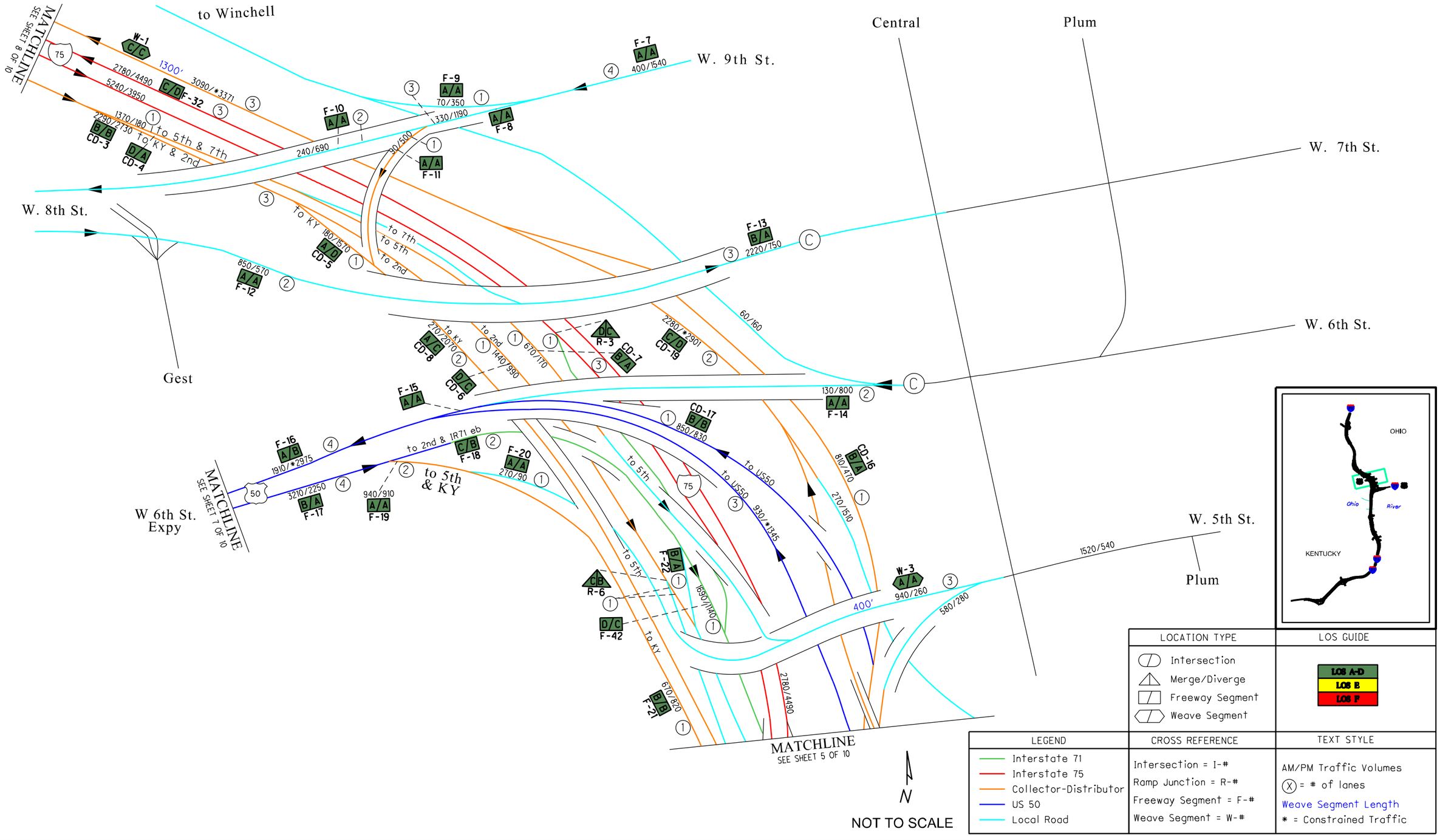
HCS RESULTS
2035 ALTERNATIVE I

EXHIBIT
5 of 10

Prepared by:
PB PARSONS BRINCKERHOFF



LOCATION TYPE	LOS GUIDE
Intersection	LOS A-D
Merge/Diverge	LOS E
Freeway Segment	LOS F
Weave Segment	

LEGEND	CROSS REFERENCE	TEXT STYLE
Interstate 71	Intersection = I-#	AM/PM Traffic Volumes
Interstate 75	Ramp Junction = R-#	(X) = # of lanes
Collector-Distributor	Freeway Segment = F-#	Weave Segment Length
US 50	Weave Segment = W-#	* = Constrained Traffic
Local Road		

U.S. Department of Transportation
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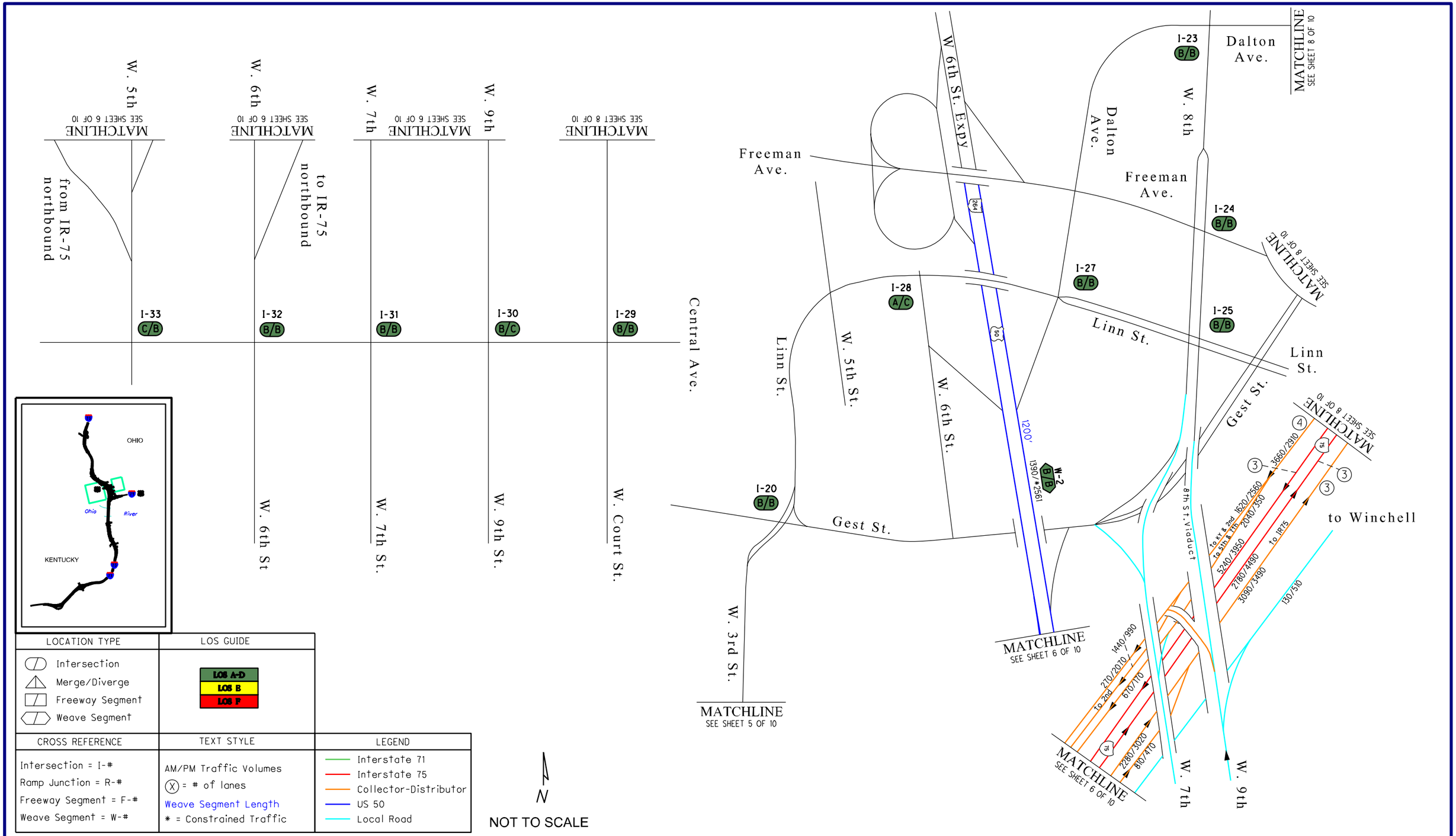
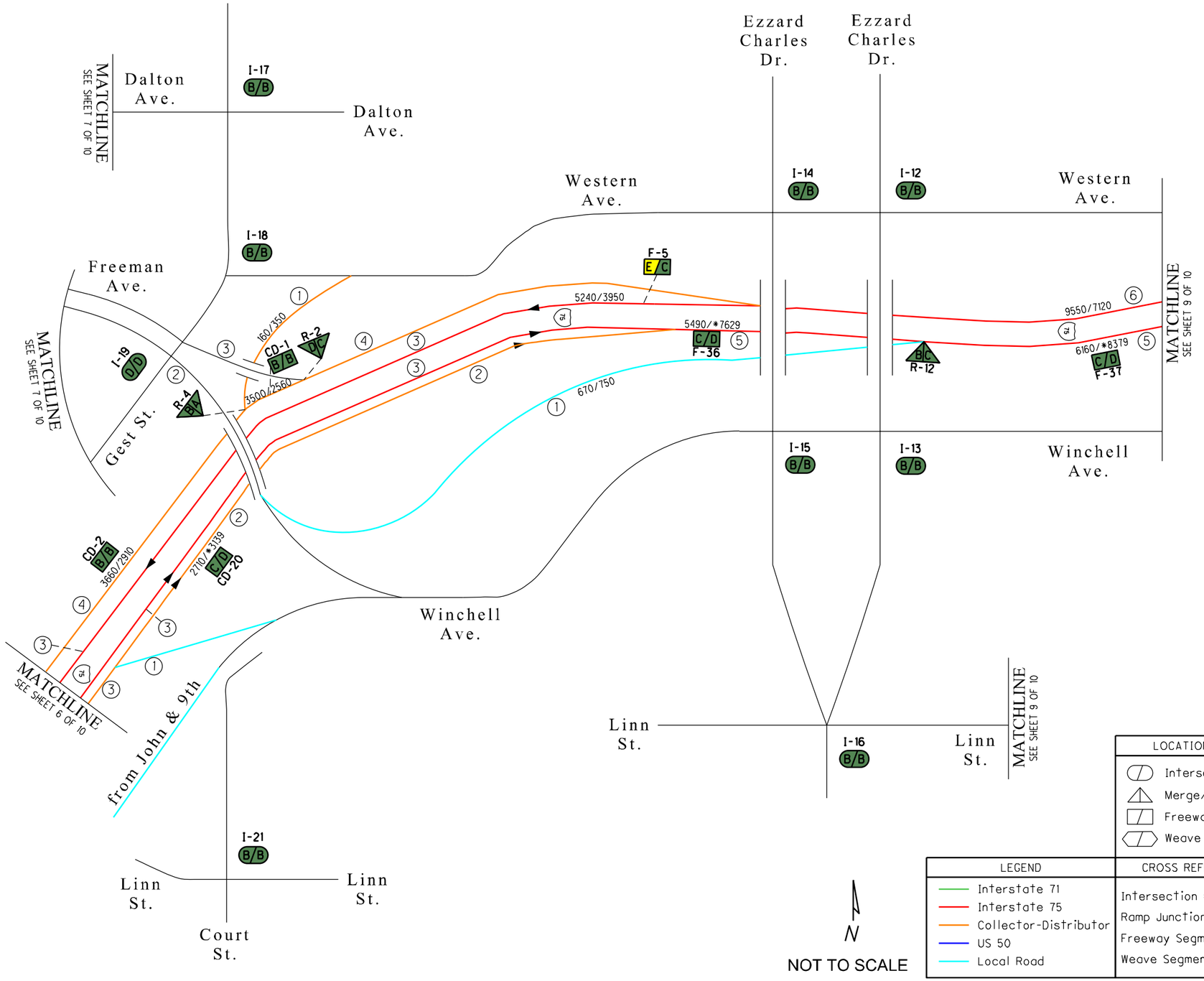
HCS RESULTS
2035 ALTERNATIVE I

EXHIBIT
6 of 10

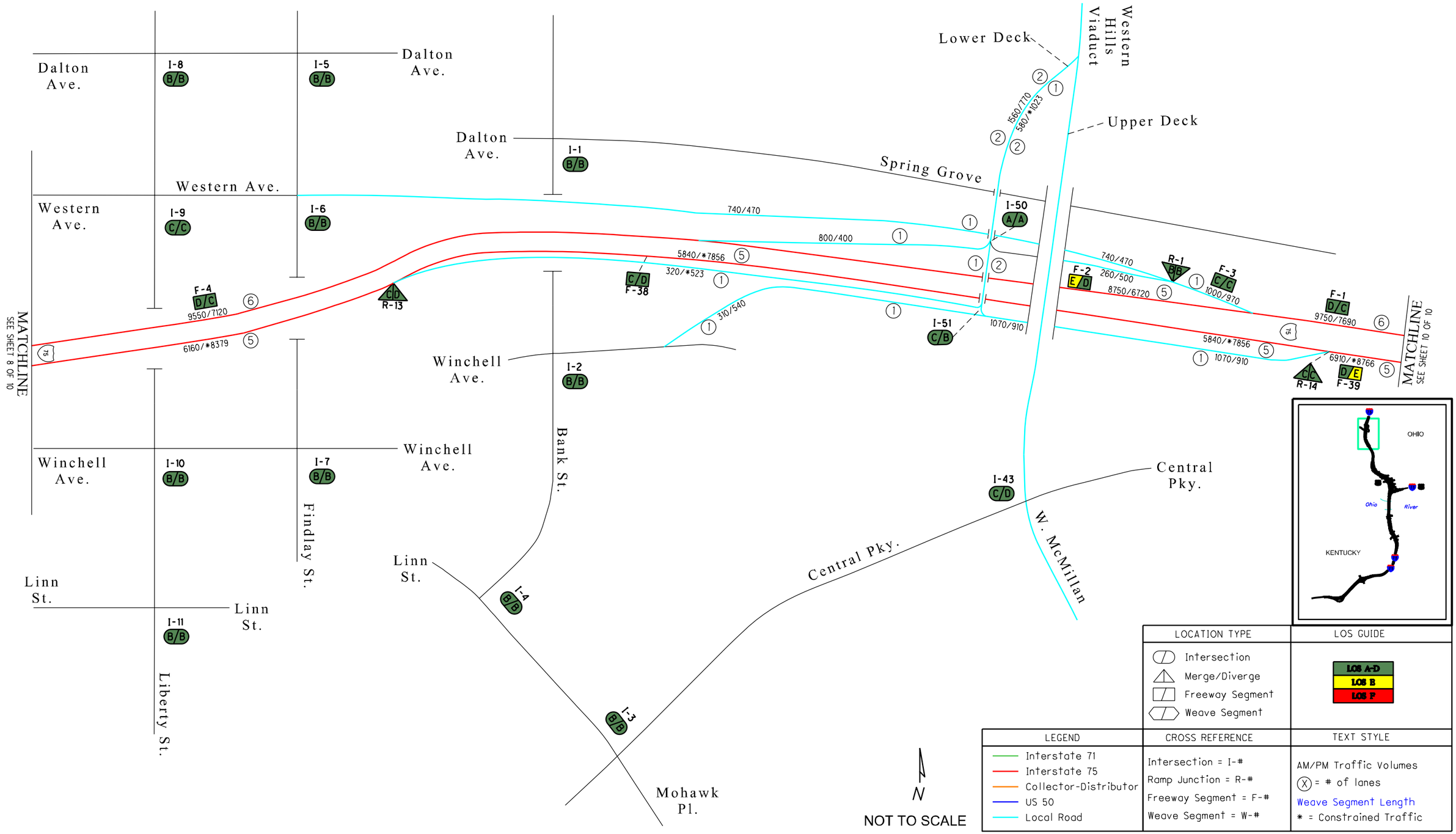
Prepared by:
PARSONS BRINCKERHOFF


W. 5th
SEE SHEET 6 OF 10
MATCHLINE
from IR-75 northbound
W. 6th
SEE SHEET 6 OF 10
MATCHLINE
to IR-75 northbound
W. 7th
SEE SHEET 6 OF 10
MATCHLINE
W. 9th
SEE SHEET 8 OF 10
MATCHLINE
Central Ave.
I-33 C/B
I-32 B/B
I-31 B/B
I-30 B/C
I-29 B/B
W. 6th St
W. 7th St.
W. 9th St.
W. Court St.
OHIO
Ohio River
KENTUCKY
W. 6th St. Expy
Dalton Ave.
W. 8th
MATCHLINE
SEE SHEET 8 OF 10
I-23 B/B
Freeman Ave.
I-24 B/B
I-27 B/B
I-28 A/C
I-25 B/B
Linn St.
W. 5th St.
W. 6th St.
Gest St.
264
50
1200'
1390/*2561
W-2 B/B
I-20 B/B
W. 3rd St.
MATCHLINE
SEE SHEET 5 OF 10
MATCHLINE
SEE SHEET 6 OF 10
8th St. Viaduct
to Winchell
3660/2910
1620/2560
2040/3350
5240/3950
2180/4490
3090/3490
130/510
1440/990
2710/2010
to 2nd
610/110
2280/3020
810/410
W. 7th
W. 9th
LOCATION TYPE
Intersection
Merge/Diverge
Freeway Segment
Weave Segment
LOS GUIDE
LOS A-D
LOS B
LOS F
CROSS REFERENCE
Intersection = I-#
Ramp Junction = R-#
Freeway Segment = F-#
Weave Segment = W-#
TEXT STYLE
AM/PM Traffic Volumes
(X) = # of lanes
Weave Segment Length
* = Constrained Traffic
LEGEND
Interstate 71
Interstate 75
Collector-Distributor
US 50
Local Road
N
NOT TO SCALE



LOCATION TYPE	LOS GUIDE
Intersection	LOS A-D
Merge/Diverge	LOS B
Freeway Segment	LOS F
Weave Segment	

LEGEND	CROSS REFERENCE	TEXT STYLE
Interstate 71	Intersection = I-#	AM/PM Traffic Volumes
Interstate 75	Ramp Junction = R-#	(X) = # of lanes
Collector-Distributor	Freeway Segment = F-#	Weave Segment Length
US 50	Weave Segment = W-#	* = Constrained Traffic
Local Road		



LOCATION TYPE	LOS GUIDE
Intersection	LOS A-D
Merge/Diverge	LOS B
Freeway Segment	LOS F
Weave Segment	

LEGEND	CROSS REFERENCE	TEXT STYLE
Interstate 71	Intersection = I-#	AM/PM Traffic Volumes
Interstate 75	Ramp Junction = R-#	(X) = # of lanes
Collector-Distributor	Freeway Segment = F-#	Weave Segment Length
US 50	Weave Segment = W-#	* = Constrained Traffic
Local Road		

U.S. Department of Transportation
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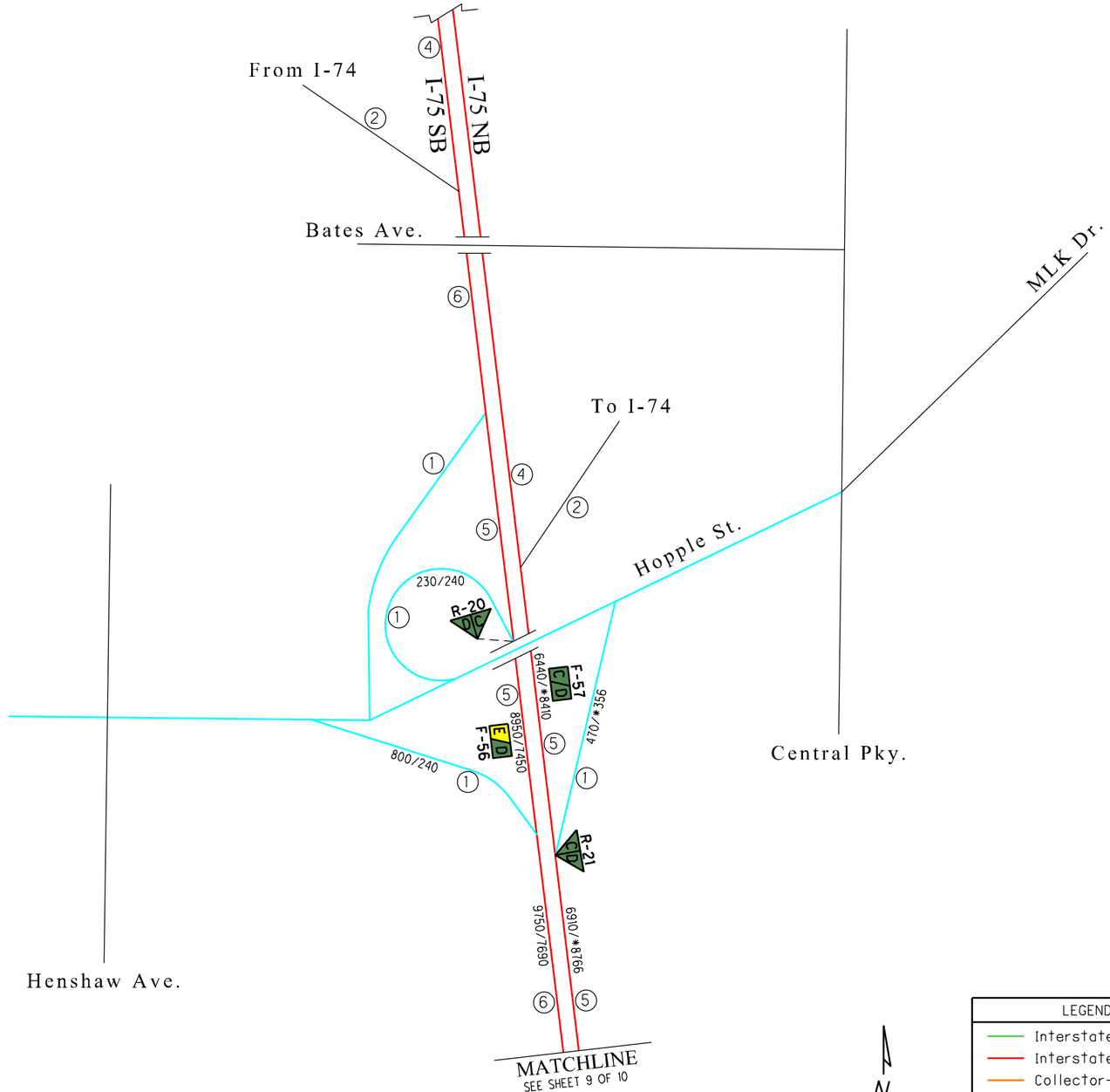
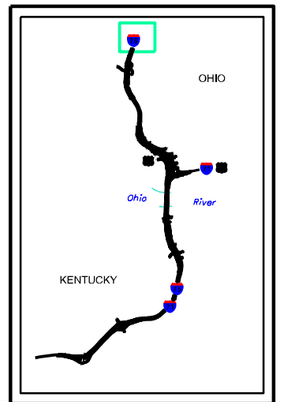
HCS RESULTS
2035 ALTERNATIVE I

EXHIBIT
9 of 10

Prepared by:
PARSONS BRINCKERHOFF



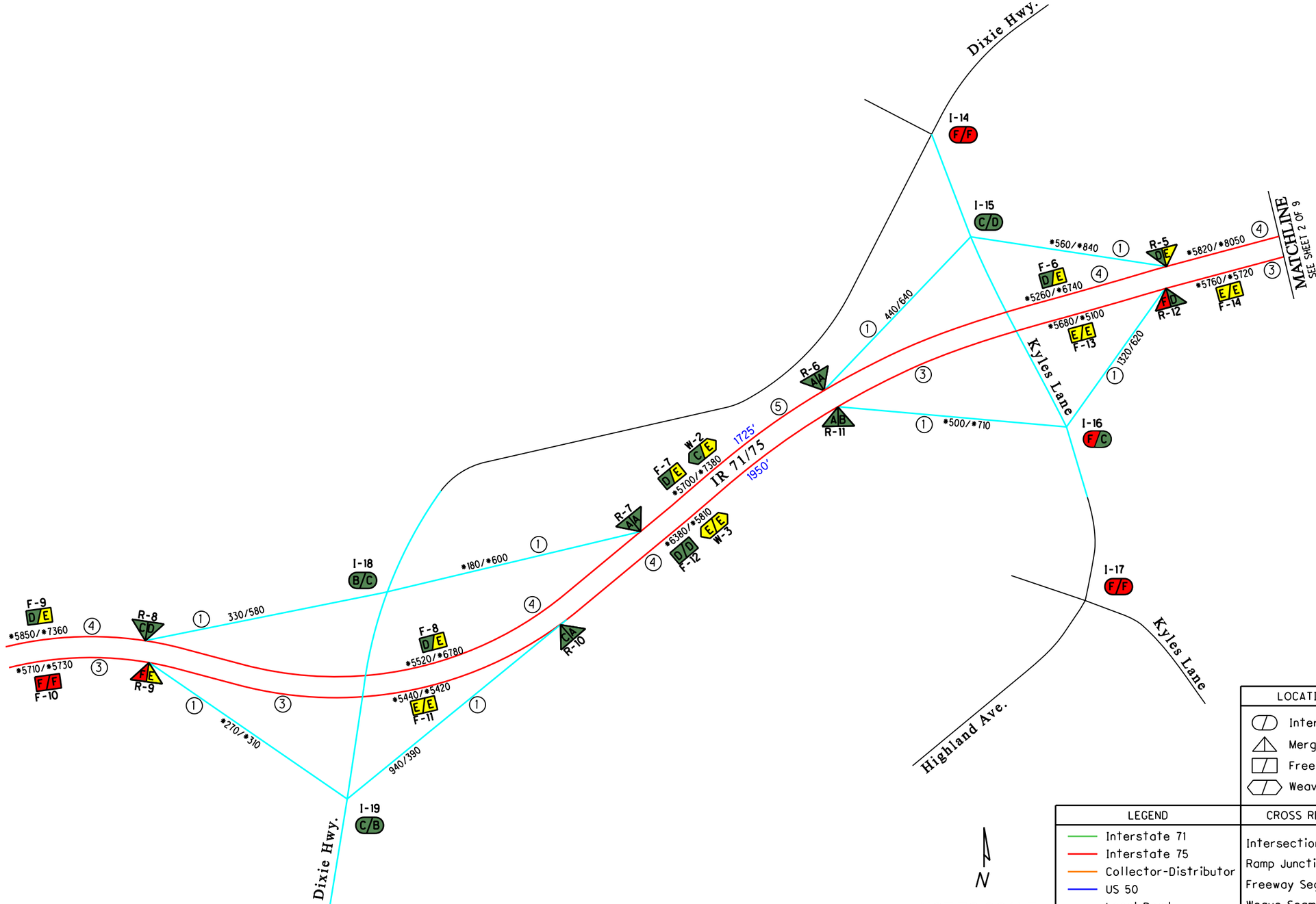


N

NOT TO SCALE

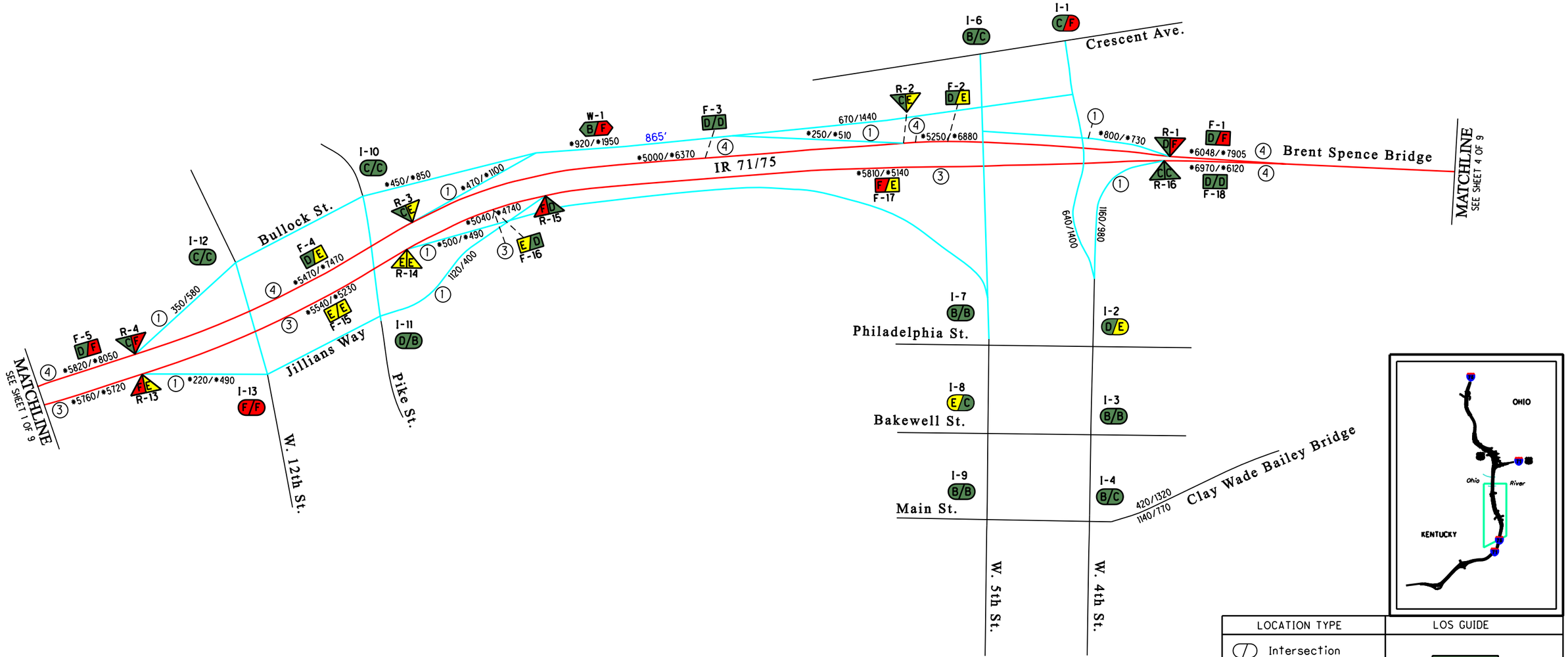
LOCATION TYPE	LOS GUIDE
Intersection	LOS A-D
Merge/Diverge	LOS B
Freeway Segment	LOS F
Weave Segment	

LEGEND	CROSS REFERENCE	TEXT STYLE
Interstate 71	Intersection = I-#	AM/PM Traffic Volumes
Interstate 75	Ramp Junction = R-#	(X) = # of lanes
Collector-Distributor	Freeway Segment = F-#	Weave Segment Length
US 50	Weave Segment = W-#	* = Constrained Traffic
Local Road		



LOCATION TYPE	LOS GUIDE
Intersection	LOS A-D
Merge/Diverge	LOS E
Freeway Segment	LOS F
Weave Segment	

LEGEND	CROSS REFERENCE	TEXT STYLE
Interstate 71	Intersection = I-#	AM/PM Traffic Volumes
Interstate 75	Ramp Junction = R-#	(X) = # of lanes
Collector-Distributor	Freeway Segment = F-#	Weave Segment Length
US 50	Weave Segment = W-#	* = Constrained Traffic
Local Road		



LOCATION TYPE	LOS GUIDE
Intersection Merge/Diverge Freeway Segment Weave Segment	LOS A-D LOS E LOS F

LEGEND	CROSS REFERENCE	TEXT STYLE
Interstate 71 Interstate 75 Collector-Distributor US 50 Local Road	Intersection = I-# Ramp Junction = R-# Freeway Segment = F-# Weave Segment = W-#	AM/PM Traffic Volumes (X) = # of lanes Weave Segment Length * = Constrained Traffic

N

NOT TO SCALE

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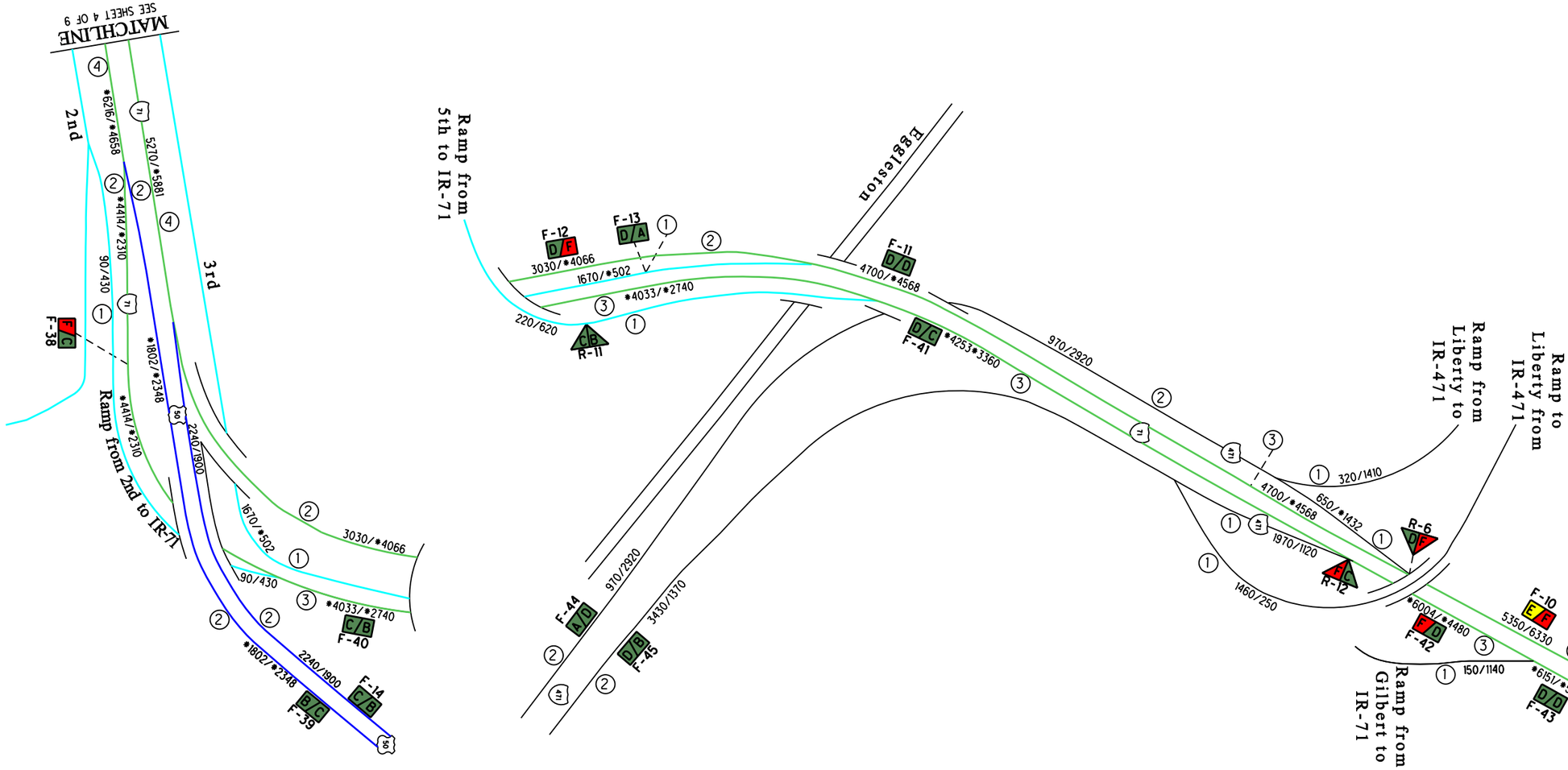
HCS RESULTS
2035 NO BUILD

EXHIBIT
2 of 9

Prepared by:
PARSONS BRINCKERHOFF

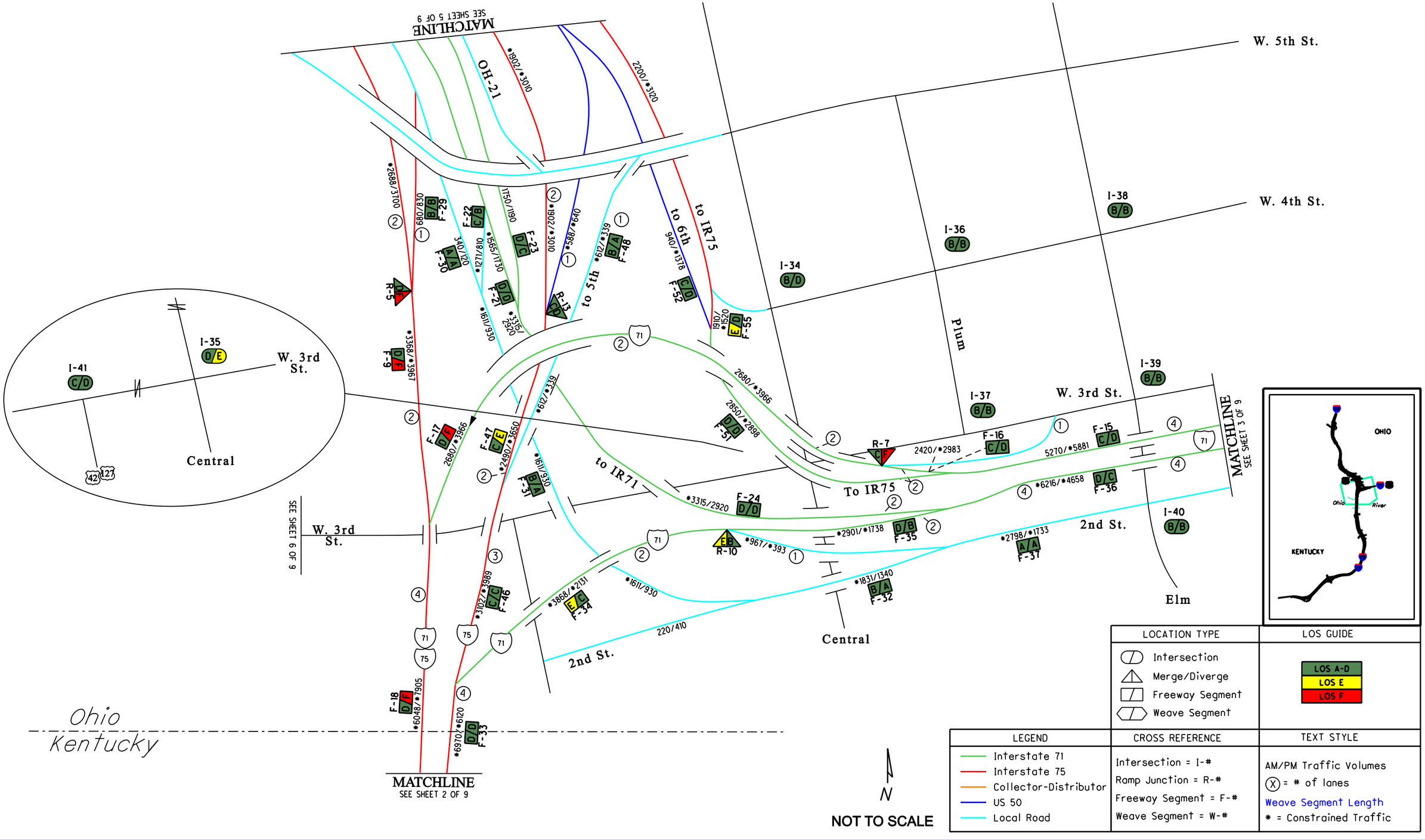


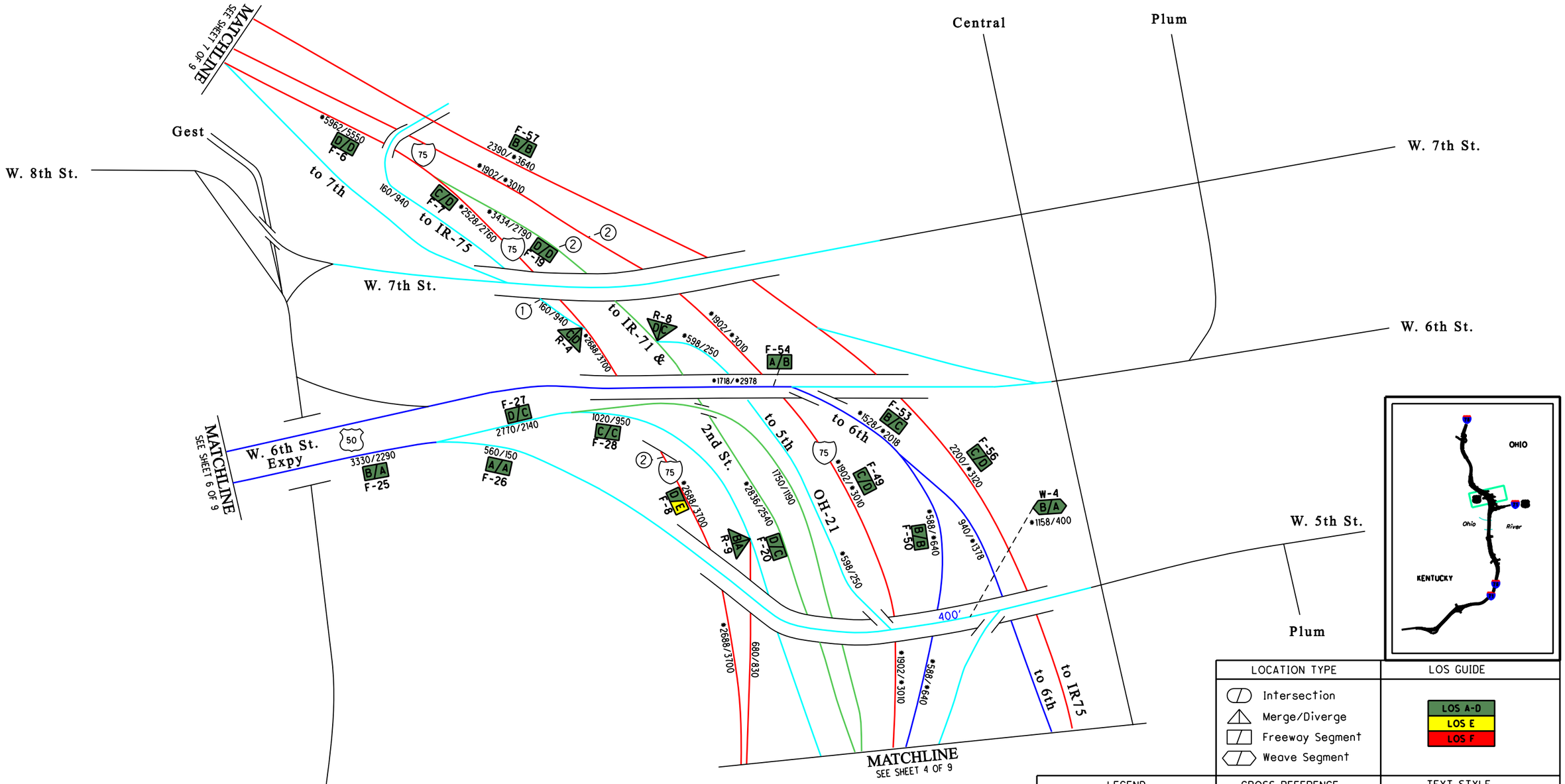
LOCATION TYPE	LOS GUIDE
Intersection Merge/Diverge Freeway Segment Weave Segment	LOS A-D LOS E LOS F

LEGEND	CROSS REFERENCE	TEXT STYLE
Interstate 71 Interstate 75 Collector-Distributor US 50 Local Road	Intersection = I-* Ramp Junction = R-* Freeway Segment = F-* Weave Segment = W-*	AM/PM Traffic Volumes (X) = # of lanes Weave Segment Length * = Constrained Traffic

N

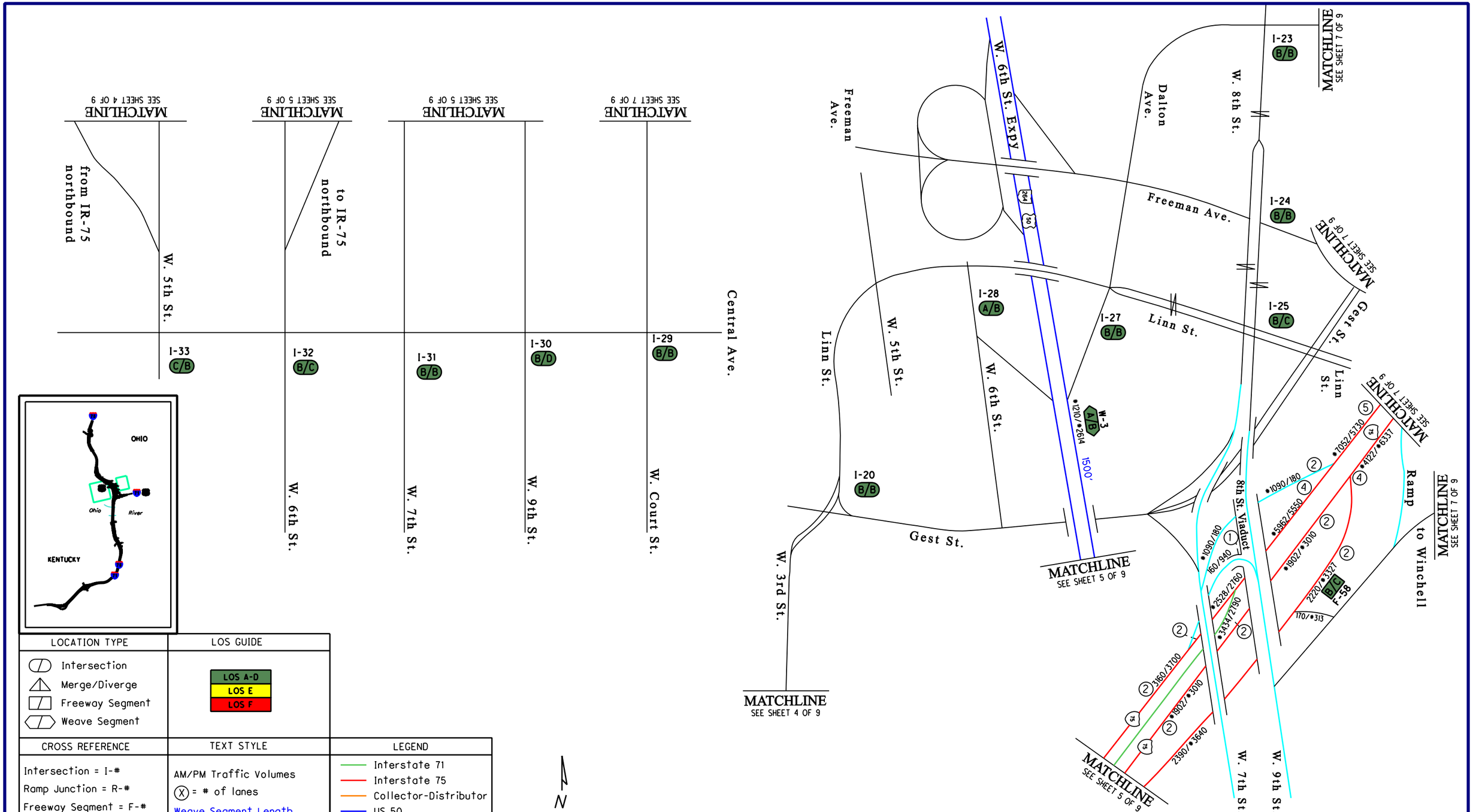
NOT TO SCALE


MATCHLINE
SEE SHEET 5 OF 9
OH-21
W. 5th St.
W. 4th St.
W. 3rd St.
2nd St.
Plum
Elm
Central
to IR75
to 6th
to 5th
to IR71
To IR75
I-34 B/D
I-35 D/E
I-36 B/B
I-37 B/B
I-38 B/B
I-39 B/B
I-40 B/B
I-41 C/D
R-5 D/A
R-7 C/F
R-10 E/B
R-13 C/D
F-9 D/F
F-15 C/D
F-16 C/D
F-17 D/F
F-18 D/F
F-21 D/D
F-22 C/B
F-23 D/C
F-24 D/D
F-29 B/B
F-30 A/A
F-31 B/A
F-32 B/A
F-33 D/D
F-34 E/C
F-35 D/B
F-36 D/C
F-37 A/A
F-46 C/C
F-47 C/E
F-48 B/A
F-51 D/D
F-52 C/D
F-55 E/D
2680/*3966
2850/*2898
2420/*2983
5270/*5881
*6216/*4658
*2901/*1738
*2798/*1733
*967/*393
*1831/1340
*3868/*2131
*1611/930
220/410
*3315/2920
*3102/*3989
*6048/*7905
*6970/*6120
*2490/*3650
*6122/*339
*1611/930
*3368/*3967
*1611/930
*3356/2920
*1271/810
1750/1190
*1565/1730
*1902/*3010
*588/*640
*612/*339
940/*1378
1910/*1520
*2688/3700
680/830
340/120
2200/*3120
*1902/*3010
SEE SHEET 6 OF 9
MATCHLINE
SEE SHEET 2 OF 9
SEE SHEET 3 OF 9
Ohio
Kentucky
N
NOT TO SCALE
OHIO
KENTUCKY
Ohio River
LOCATION TYPE
Intersection
Merge/Diverge
Freeway Segment
Weave Segment
LOS GUIDE
LOS A-D
LOS E
LOS F
LEGEND
Interstate 71
Interstate 75
Collector-Distributor
US 50
Local Road
CROSS REFERENCE
Intersection = I-*
Ramp Junction = R-*
Freeway Segment = F-*
Weave Segment = W-*
TEXT STYLE
AM/PM Traffic Volumes
(X) = * of lanes
Weave Segment Length
* = Constrained Traffic



LOCATION TYPE	LOS GUIDE
Intersection	LOS A-D
Merge/Diverge	LOS E
Freeway Segment	LOS F
Weave Segment	

LEGEND	CROSS REFERENCE	TEXT STYLE
Interstate 71	Intersection = I-*	AM/PM Traffic Volumes
Interstate 75	Ramp Junction = R-*	(X) = * of lanes
Collector-Distributor	Freeway Segment = F-*	Weave Segment Length
US 50	Weave Segment = W-*	* = Constrained Traffic
Local Road		



LOCATION TYPE	LOS GUIDE
Intersection Merge/Diverge Freeway Segment Weave Segment	LOS A-D LOS E LOS F

CROSS REFERENCE	TEXT STYLE	LEGEND
Intersection = I-# Ramp Junction = R-# Freeway Segment = F-# Weave Segment = W-#	AM/PM Traffic Volumes (X) = # of lanes Weave Segment Length * = Constrained Traffic	Interstate 71 Interstate 75 Collector-Distributor US 50 Local Road

N

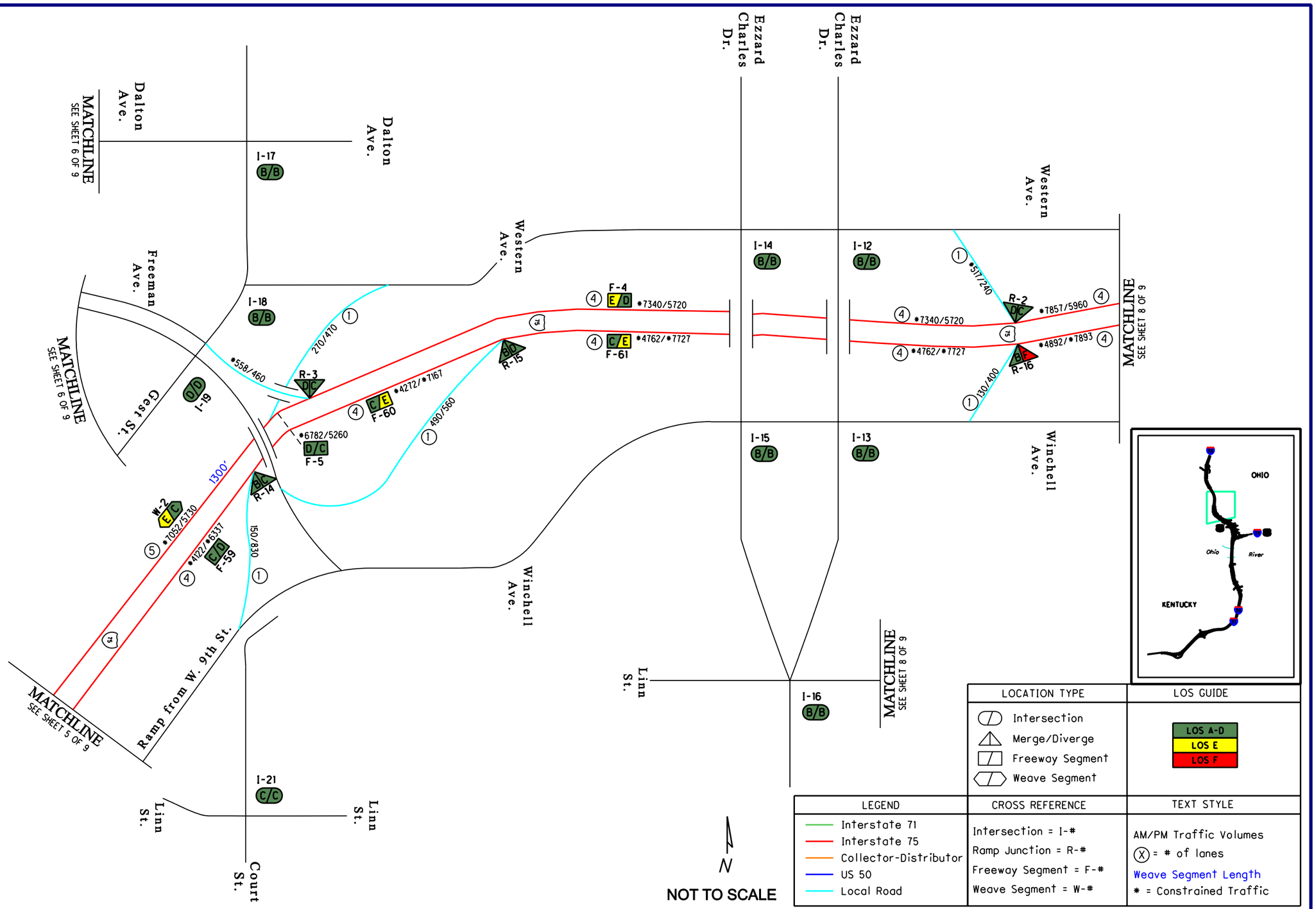
NOT TO SCALE

U.S. Department of Transportation
Federal Highway Administration

HCS RESULTS
2035 NO BUILD

EXHIBIT
6 of 9

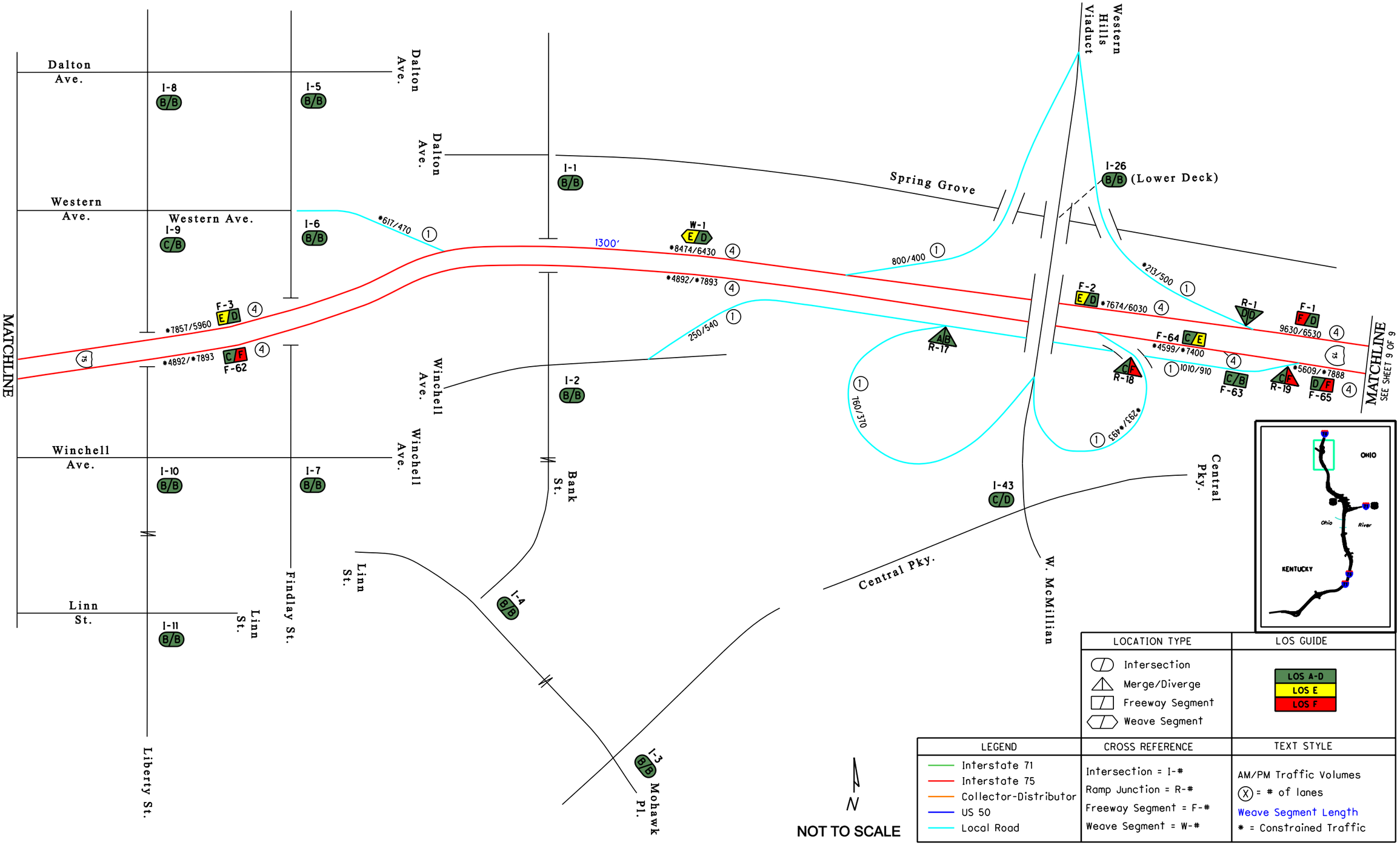
Prepared by:
PARSONS BRINCKERHOFF



LOCATION TYPE	LOS GUIDE
Intersection	LOS A-D
Merge/Diverge	LOS E
Freeway Segment	LOS F
Weave Segment	

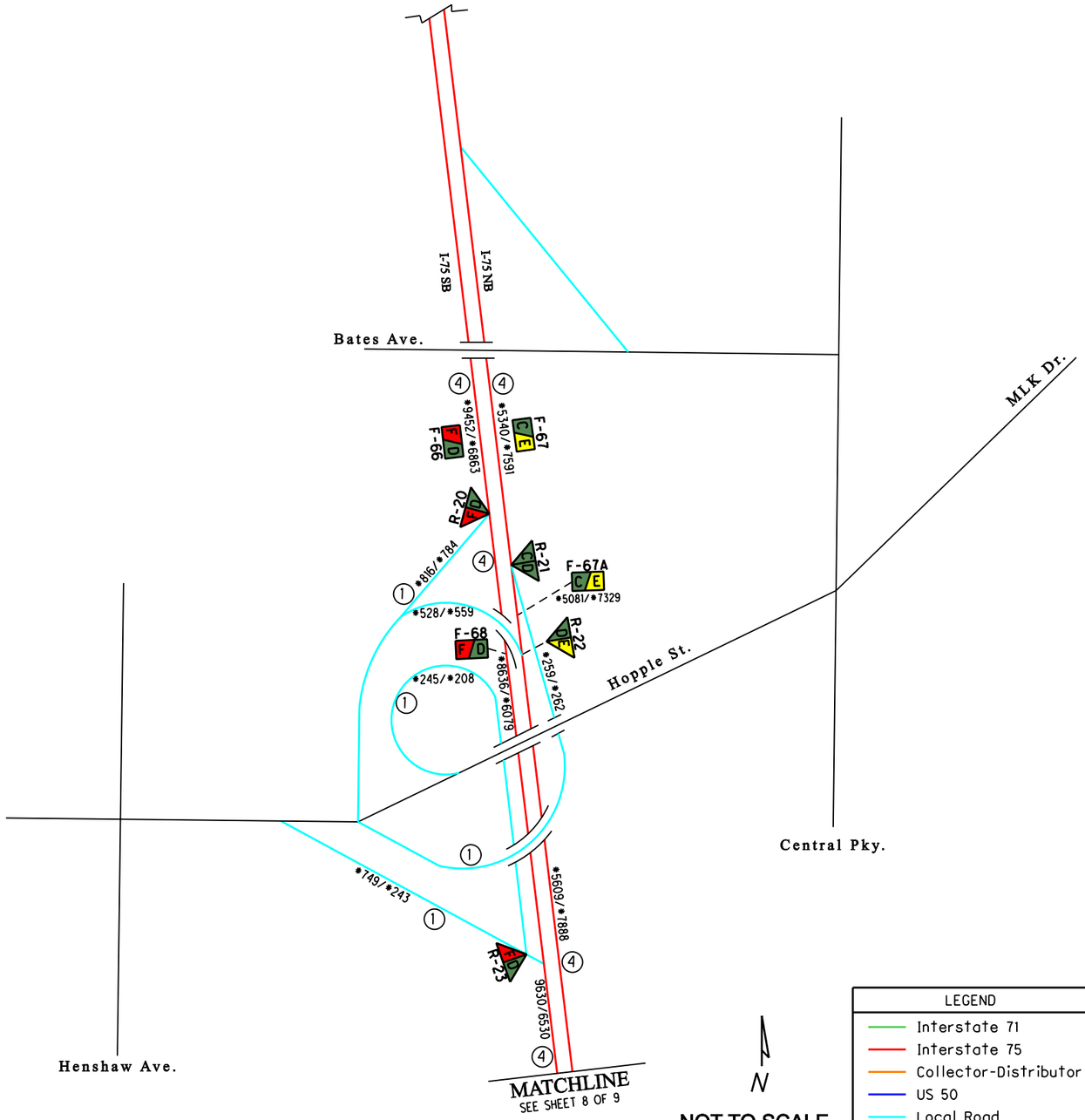
LEGEND	CROSS REFERENCE	TEXT STYLE
Interstate 71	Intersection = I-#	AM/PM Traffic Volumes
Interstate 75	Ramp Junction = R-#	(X) = # of lanes
Collector-Distributor	Freeway Segment = F-#	Weave Segment Length
US 50	Weave Segment = W-#	# = Constrained Traffic
Local Road		

Prepared by:
PARSONS BRINCKERHOFF



LOCATION TYPE	LOS GUIDE
Intersection	LOS A-D
Merge/Diverge	LOS E
Freeway Segment	LOS F
Weave Segment	

LEGEND	CROSS REFERENCE	TEXT STYLE
Interstate 71	Intersection = I-*	AM/PM Traffic Volumes
Interstate 75	Ramp Junction = R-*	(X) = * of lanes
Collector-Distributor	Freeway Segment = F-*	Weave Segment Length
US 50	Weave Segment = W-*	* = Constrained Traffic
Local Road		



LOCATION TYPE	LOS GUIDE
Intersection Merge/Diverge Freeway Segment Weave Segment	LOS A-D LOS E LOS F

LEGEND	CROSS REFERENCE	TEXT STYLE
Interstate 71 Interstate 75 Collector-Distributor US 50 Local Road	Intersection = I-# Ramp Junction = R-# Freeway Segment = F-# Weave Segment = W-#	AM/PM Traffic Volumes (X) = # of lanes Weave Segment Length * = Constrained Traffic

Prepared by:
PARSONS BRINCKERHOFF

Appendix G
Signal Warrants

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Dixie Highway and I-71/75 NB Ramps

City/State: Covington, KY

Date: 7/8/2010 Performed By: AMW

	Minor (EB/NB) Approach	Minor (WB/SB) Approach	Major(EB/NB) Approach	Major(WB/SB) Approach	Total	Minor	Total Major
12:00 - 1:00 AM					0	0	0
1:00 - 2:00 AM					0	0	0
2:00 - 3:00 AM					0	0	0
3:00 - 4:00 AM					0	0	0
4:00 - 5:00 AM					0	0	0
5:00 - 6:00 AM					0	0	0
6:00 - 7:00 AM					0	0	0
7:00 - 8:00 AM	180		440	1820	2440	180	2260
8:00 - 9:00 AM	155		505	902	1562	155	1407
9:00 - 10:00AM	155		505	902	1562	155	1407
10:00 - 11:00 AM	155		505	902	1562	155	1407
11:00 - 12:00 PM	155		505	902	1562	155	1407
12:00 - 1:00 PM	155		505	902	1562	155	1407
1:00 - 2:00 PM	155		505	902	1562	155	1407
2:00 - 3:00 PM	155		505	902	1562	155	1407
3:00 - 4:00 PM	155		505	902	1562	155	1407
4:00 - 5:00 PM	270		1100	750	2120	270	1850
5:00 - 6:00 PM					0	0	0
6:00 - 7:00 PM					0	0	0
7:00 - 8:00 PM					0	0	0
8:00 - 9:00 PM					0	0	0
9:00 - 10:00PM					0	0	0
10:00 - 11:00 PM					0	0	0
11:00 - 12:00 PM					0	0	0
Total	**1690**	**0**	**5580**	**9786**	**17056**	**1690**	**15366**

Does the 85th Percentile Speed/Posted Speed Limit exceed 40 mph on the major street? No

Does the intersection lie within a built-up area of an isolated community having a population of less than 10,000? No

Your intersection **CANNOT** use the 70% option for this warrant, do you want to use it? No

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Dixie Highway and I-71/75 NB Ramps
City/State: Covington, KY
Date 7/8/2010 Performed by: AMW

Warrant 1 - Eight-Hour Vehicular Volume

Number of lanes of moving traffic for moving traffic on each approach:
Major Street: 2 Minor Street: 2

Vehicles per hour on major street (total of both approaches):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	1407
1:00 - 2:00 AM	0	1:00 - 2:00 PM	1407
2:00 - 3:00 AM	0	2:00 - 3:00 PM	1407
3:00 - 4:00 AM	0	3:00 - 4:00 PM	1407
4:00 - 5:00 AM	0	4:00 - 5:00 PM	1850
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	2260	7:00 - 8:00 PM	0
8:00 - 9:00 AM	1407	8:00 - 9:00 PM	0
9:00 - 10:00AM	1407	9:00 - 10:00PM	0
10:00 - 11:00 AM	1407	10:00 - 11:00 PM	0
11:00 - 12:00 PM	1407	11:00 - 12:00 PM	0

Vehicles per hour on higher-volume minor street approach (one direction only):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	155
1:00 - 2:00 AM	0	1:00 - 2:00 PM	155
2:00 - 3:00 AM	0	2:00 - 3:00 PM	155
3:00 - 4:00 AM	0	3:00 - 4:00 PM	155
4:00 - 5:00 AM	0	4:00 - 5:00 PM	270
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	180	7:00 - 8:00 PM	0
8:00 - 9:00 AM	155	8:00 - 9:00 PM	0
9:00 - 10:00AM	155	9:00 - 10:00PM	0
10:00 - 11:00 AM	155	10:00 - 11:00 PM	0
11:00 - 12:00 PM	155	11:00 - 12:00 PM	0

Is the intersection using the reduced volume criteria based on speed or population? No

A. Is the Minimum Vehicular Volume Warrant Met? No

B. Is the Interruption of Continuous Traffic Met? Yes

Combination of Warrants A and B Criteria Met? No
(Use only when Conditions A and B are both not satisified)

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Dixie Highway and I-71/75 NB Ramps
City/State: Covington, KY

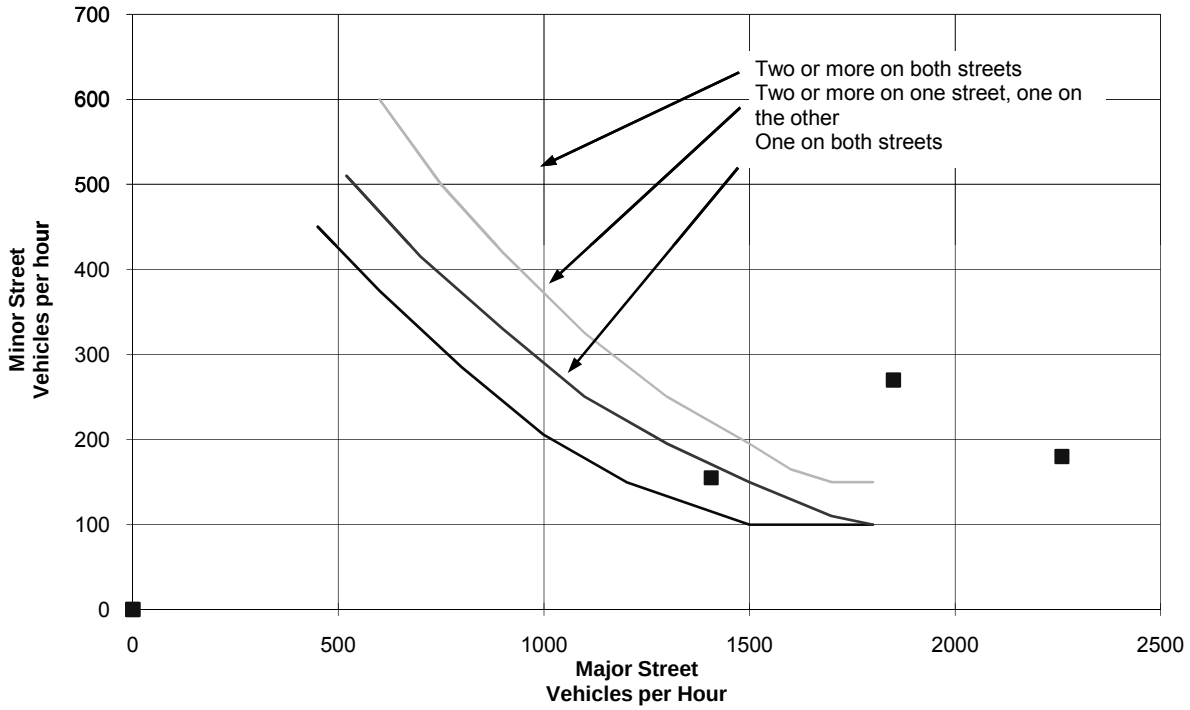
Warrant 3B - Peak Hour

The peak hour volume warrant is also intended for application when traffic conditions are such that for one hour of the day minor street traffic suffers undue traffic delay in entering or crossing the main street.

The peak hour volume warrant is satisfied when the plotted point representing vehicles per hour on the higher volume minor street for one hour falls above the curve in Figure 4C-3.

Figure 4C-4 may be used if the 85th percentile speed of the major street exceeds 40 mph or when the intersection lies within a built-up area of an isolated community having a population less than 10,000.

Peak Hour volume warrant - Major and Minor Streets for Urban Locations - Warrant 3B



Is Peak Hour Volume Warrant Met? **Yes**

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: W. 5th Street and Crescent Avenue

City/State: Covington, KY

Date: 7/8/2010 Performed By: AMW

	Minor (EB/NB) Approach	Minor (WB/SB) Approach	Major(EB/NB) Approach	Major(WB/SB) Approach	Total	Minor	Total Major
12:00 - 1:00 AM					0	0	0
1:00 - 2:00 AM					0	0	0
2:00 - 3:00 AM					0	0	0
3:00 - 4:00 AM					0	0	0
4:00 - 5:00 AM					0	0	0
5:00 - 6:00 AM					0	0	0
6:00 - 7:00 AM					0	0	0
7:00 - 8:00 AM	250		50	150	450	250	200
8:00 - 9:00 AM	244		46	107	397	244	153
9:00 - 10:00AM	244		46	107	397	244	153
10:00 - 11:00 AM	244		46	107	397	244	153
11:00 - 12:00 PM	244		46	107	397	244	153
12:00 - 1:00 PM	244		46	107	397	244	153
1:00 - 2:00 PM	244		46	107	397	244	153
2:00 - 3:00 PM	244		46	107	397	244	153
3:00 - 4:00 PM	244		46	107	397	244	153
4:00 - 5:00 PM	400		70	150	620	400	220
5:00 - 6:00 PM					0	0	0
6:00 - 7:00 PM					0	0	0
7:00 - 8:00 PM					0	0	0
8:00 - 9:00 PM					0	0	0
9:00 - 10:00PM					0	0	0
10:00 - 11:00 PM					0	0	0
11:00 - 12:00 PM					0	0	0
Total	**2602**	**0**	**488**	**1156**	**4246**	**2602**	**1644**

Does the 85th Percentile Speed/Posted Speed Limit exceed 40 mph on the major street? No

Does the intersection lie within a built-up area of an isolated community having a population of less than 10,000? No

Your intersection **CANNOT** use the 70% option for this warrant, do you want to use it? No

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: W. 5th Street and Crescent Avenue
City/State: Covington, KY
Date 7/8/2010 Performed by: AMW

Warrant 1 - Eight-Hour Vehicular Volume

Number of lanes of moving traffic for moving traffic on each approach:
Major Street: 1 Minor Street: 1

Vehicles per hour on major street (total of both approaches):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	153
1:00 - 2:00 AM	0	1:00 - 2:00 PM	153
2:00 - 3:00 AM	0	2:00 - 3:00 PM	153
3:00 - 4:00 AM	0	3:00 - 4:00 PM	153
4:00 - 5:00 AM	0	4:00 - 5:00 PM	220
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	200	7:00 - 8:00 PM	0
8:00 - 9:00 AM	153	8:00 - 9:00 PM	0
9:00 - 10:00AM	153	9:00 - 10:00PM	0
10:00 - 11:00 AM	153	10:00 - 11:00 PM	0
11:00 - 12:00 PM	153	11:00 - 12:00 PM	0

Vehicles per hour on higher-volume minor street approach (one direction only):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	244
1:00 - 2:00 AM	0	1:00 - 2:00 PM	244
2:00 - 3:00 AM	0	2:00 - 3:00 PM	244
3:00 - 4:00 AM	0	3:00 - 4:00 PM	244
4:00 - 5:00 AM	0	4:00 - 5:00 PM	400
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	250	7:00 - 8:00 PM	0
8:00 - 9:00 AM	244	8:00 - 9:00 PM	0
9:00 - 10:00AM	244	9:00 - 10:00PM	0
10:00 - 11:00 AM	244	10:00 - 11:00 PM	0
11:00 - 12:00 PM	244	11:00 - 12:00 PM	0

Is the intersection using the reduced volume criteria based on speed or population? No

A. Is the Minimum Vehicular Volume Warrant Met? No

B. Is the Interruption of Continuous Traffic Met? No

Combination of Warrants A and B Criteria Met? No
(Use only when Conditions A and B are both not satisified)

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: W. 5th Street and Crescent Avenue
City/State: Covington, KY

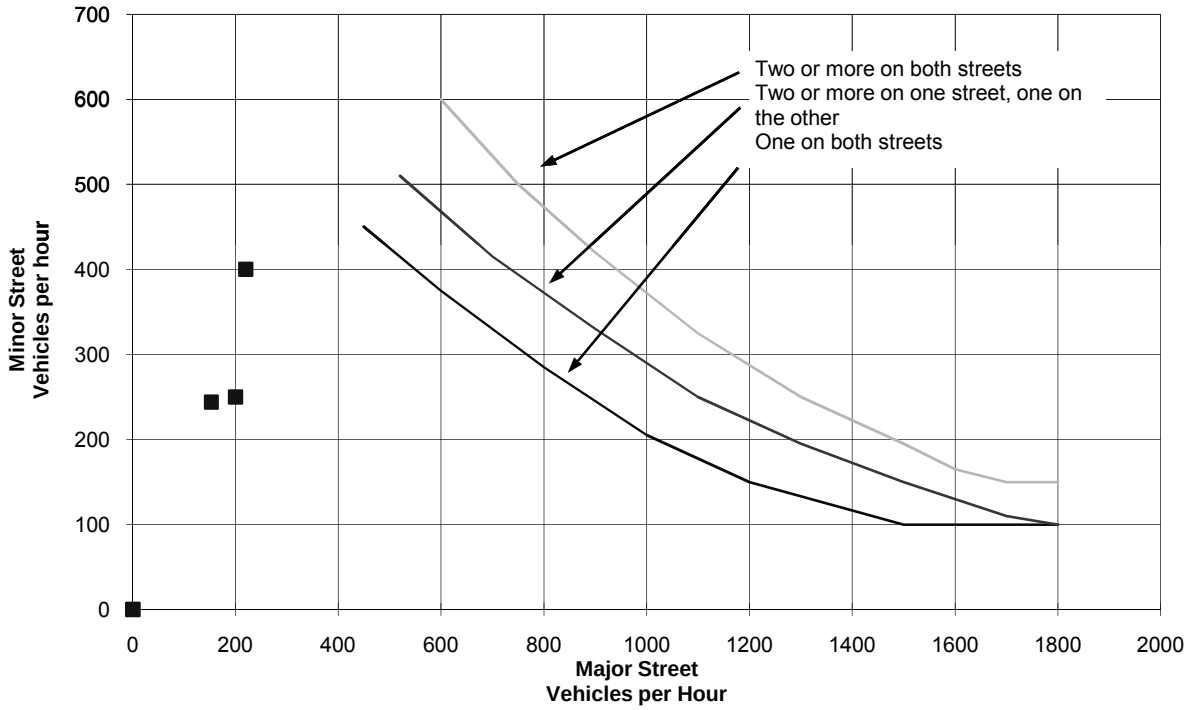
Warrant 3B - Peak Hour

The peak hour volume warrant is also intended for application when traffic conditions are such that for one hour of the day minor street traffic suffers undue traffic delay in entering or crossing the main street.

The peak hour volume warrant is satisfied when the plotted point representing vehicles per hour on the higher volume minor street for one hour falls above the curve in Figure 4C-3.

Figure 4C-4 may be used if the 85th percentile speed of the major street exceeds 40 mph or when the intersection lies within a built-up area of an isolated community having a population less than 10,000.

Peak Hour volume warrant - Major and Minor Streets for Urban Locations - Warrant 3B



Is Peak Hour Volume Warrant Met? **No**

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Pike Street and Bullock Street

City/State: Covington, KY

Date: 7/8/2010 Performed By: AMW

	Minor (EB/NB) Approach	Minor (WB/SB) Approach	Major(EB/NB) Approach	Major(WB/SB) Approach	Total	Minor	Total Major
12:00 - 1:00 AM					0	0	0
1:00 - 2:00 AM					0	0	0
2:00 - 3:00 AM					0	0	0
3:00 - 4:00 AM					0	0	0
4:00 - 5:00 AM					0	0	0
5:00 - 6:00 AM					0	0	0
6:00 - 7:00 AM					0	0	0
7:00 - 8:00 AM		410	1240	280	1930	410	1520
8:00 - 9:00 AM		379	257	311	947	379	568
9:00 - 10:00AM		379	257	311	947	379	568
10:00 - 11:00 AM		379	257	311	947	379	568
11:00 - 12:00 PM		379	257	311	947	379	568
12:00 - 1:00 PM		379	257	311	947	379	568
1:00 - 2:00 PM		379	257	311	947	379	568
2:00 - 3:00 PM		379	257	311	947	379	568
3:00 - 4:00 PM		379	257	311	947	379	568
4:00 - 5:00 PM		780	290	680	1750	780	970
5:00 - 6:00 PM					0	0	0
6:00 - 7:00 PM					0	0	0
7:00 - 8:00 PM					0	0	0
8:00 - 9:00 PM					0	0	0
9:00 - 10:00PM					0	0	0
10:00 - 11:00 PM					0	0	0
11:00 - 12:00 PM					0	0	0
Total	**0**	**4222**	**3586**	**3448**	**11256**	**4222**	**7034**

Does the 85th Percentile Speed/Posted Speed Limit exceed 40 mph on the major street? No

Does the intersection lie within a built-up area of an isolated community having a population of less than 10,000? No

Your intersection **CANNOT** use the 70% option for this warrant, do you want to use it? No

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Pike Street and Bullock Street
City/State: Covington, KY
Date 7/8/2010 Performed by: AMW

Warrant 1 - Eight-Hour Vehicular Volume

Number of lanes of moving traffic for moving traffic on each approach:
Major Street: 2 Minor Street: 2

Vehicles per hour on major street (total of both approaches):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	568
1:00 - 2:00 AM	0	1:00 - 2:00 PM	568
2:00 - 3:00 AM	0	2:00 - 3:00 PM	568
3:00 - 4:00 AM	0	3:00 - 4:00 PM	568
4:00 - 5:00 AM	0	4:00 - 5:00 PM	970
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	1520	7:00 - 8:00 PM	0
8:00 - 9:00 AM	568	8:00 - 9:00 PM	0
9:00 - 10:00AM	568	9:00 - 10:00PM	0
10:00 - 11:00 AM	568	10:00 - 11:00 PM	0
11:00 - 12:00 PM	568	11:00 - 12:00 PM	0

Vehicles per hour on higher-volume minor street approach (one direction only):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	379
1:00 - 2:00 AM	0	1:00 - 2:00 PM	379
2:00 - 3:00 AM	0	2:00 - 3:00 PM	379
3:00 - 4:00 AM	0	3:00 - 4:00 PM	379
4:00 - 5:00 AM	0	4:00 - 5:00 PM	780
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	410	7:00 - 8:00 PM	0
8:00 - 9:00 AM	379	8:00 - 9:00 PM	0
9:00 - 10:00AM	379	9:00 - 10:00PM	0
10:00 - 11:00 AM	379	10:00 - 11:00 PM	0
11:00 - 12:00 PM	379	11:00 - 12:00 PM	0

Is the intersection using the reduced volume criteria based on speed or population? No

A. Is the Minimum Vehicular Volume Warrant Met? No

B. Is the Interruption of Continuous Traffic Met? No

Combination of Warrants A and B Criteria Met? No
(Use only when Conditions A and B are both not satisified)

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Pike Street and Bullock Street
City/State: Covington, KY

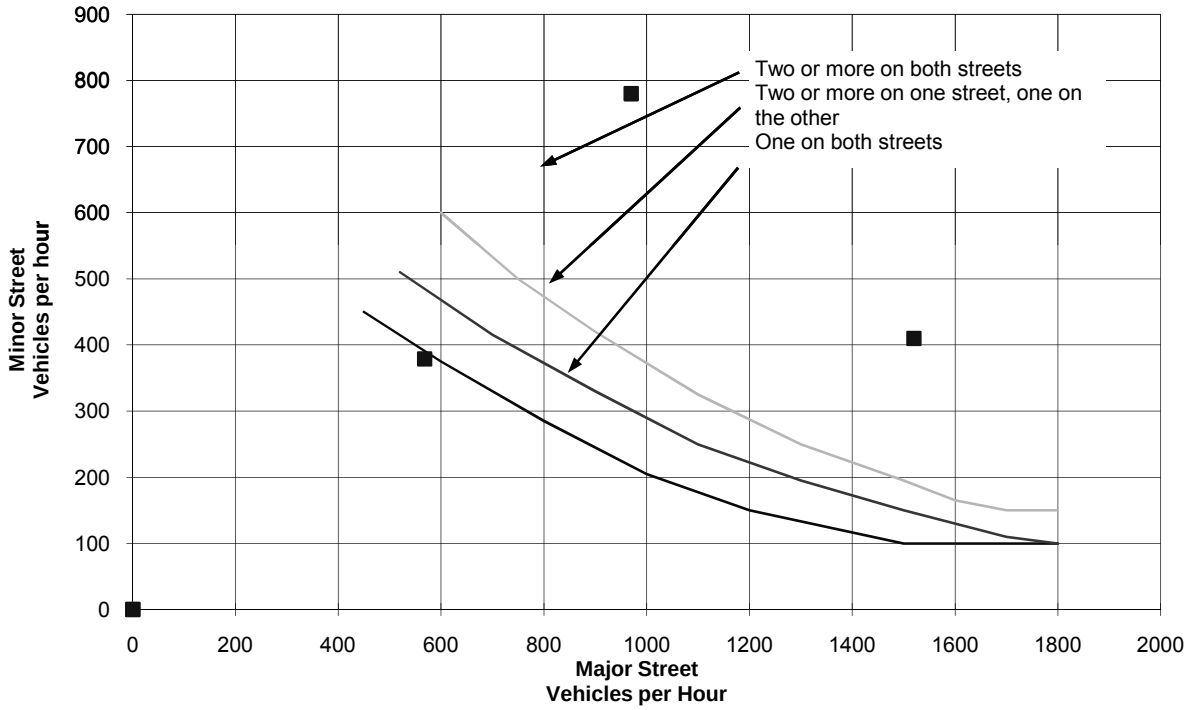
Warrant 3B - Peak Hour

The peak hour volume warrant is also intended for application when traffic conditions are such that for one hour of the day minor street traffic suffers undue traffic delay in entering or crossing the main street.

The peak hour volume warrant is satisfied when the plotted point representing vehicles per hour on the higher volume minor street for one hour falls above the curve in Figure 4C-3.

Figure 4C-4 may be used if the 85th percentile speed of the major street exceeds 40 mph or when the intersection lies within a built-up area of an isolated community having a population less than 10,000.

Peak Hour volume warrant - Major and Minor Streets for Urban Locations - Warrant 3B



Is Peak Hour Volume Warrant Met? **Yes**

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Pike Street and Jillians Way

City/State: Covington, KY

Date: 7/8/2010 Performed By: AMW

	Minor (EB/NB) Approach	Minor (WB/SB) Approach	Major(EB/NB) Approach	Major(WB/SB) Approach	Total	Minor	Total Major
12:00 - 1:00 AM					0	0	0
1:00 - 2:00 AM					0	0	0
2:00 - 3:00 AM					0	0	0
3:00 - 4:00 AM					0	0	0
4:00 - 5:00 AM					0	0	0
5:00 - 6:00 AM					0	0	0
6:00 - 7:00 AM					0	0	0
7:00 - 8:00 AM	590		1260	280	2130	590	1540
8:00 - 9:00 AM	307		298	295	900	307	593
9:00 - 10:00AM	307		298	295	900	307	593
10:00 - 11:00 AM	307		298	295	900	307	593
11:00 - 12:00 PM	307		298	295	900	307	593
12:00 - 1:00 PM	307		298	295	900	307	593
1:00 - 2:00 PM	307		298	295	900	307	593
2:00 - 3:00 PM	307		298	295	900	307	593
3:00 - 4:00 PM	307		298	295	900	307	593
4:00 - 5:00 PM	410		400	640	1450	410	1040
5:00 - 6:00 PM					0	0	0
6:00 - 7:00 PM					0	0	0
7:00 - 8:00 PM					0	0	0
8:00 - 9:00 PM					0	0	0
9:00 - 10:00PM					0	0	0
10:00 - 11:00 PM					0	0	0
11:00 - 12:00 PM					0	0	0
Total	**3456**	**0**	**4044**	**3280**	**10780**	**3456**	**7324**

Does the 85th Percentile Speed/Posted Speed Limit exceed 40 mph on the major street? No

Does the intersection lie within a built-up area of an isolated community having a population of less than 10,000? No

Your intersection **CANNOT** use the 70% option for this warrant, do you want to use it? No

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Pike Street and Jillians Way
City/State: Covington, KY
Date 7/8/2010 Performed by: AMW

Warrant 1 - Eight-Hour Vehicular Volume

Number of lanes of moving traffic for moving traffic on each approach:
Major Street: 2 Minor Street: 1

Vehicles per hour on major street (total of both approaches):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	593
1:00 - 2:00 AM	0	1:00 - 2:00 PM	593
2:00 - 3:00 AM	0	2:00 - 3:00 PM	593
3:00 - 4:00 AM	0	3:00 - 4:00 PM	593
4:00 - 5:00 AM	0	4:00 - 5:00 PM	1040
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	1540	7:00 - 8:00 PM	0
8:00 - 9:00 AM	593	8:00 - 9:00 PM	0
9:00 - 10:00AM	593	9:00 - 10:00PM	0
10:00 - 11:00 AM	593	10:00 - 11:00 PM	0
11:00 - 12:00 PM	593	11:00 - 12:00 PM	0

Vehicles per hour on higher-volume minor street approach (one direction only):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	307
1:00 - 2:00 AM	0	1:00 - 2:00 PM	307
2:00 - 3:00 AM	0	2:00 - 3:00 PM	307
3:00 - 4:00 AM	0	3:00 - 4:00 PM	307
4:00 - 5:00 AM	0	4:00 - 5:00 PM	410
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	590	7:00 - 8:00 PM	0
8:00 - 9:00 AM	307	8:00 - 9:00 PM	0
9:00 - 10:00AM	307	9:00 - 10:00PM	0
10:00 - 11:00 AM	307	10:00 - 11:00 PM	0
11:00 - 12:00 PM	307	11:00 - 12:00 PM	0

Is the intersection using the reduced volume criteria based on speed or population? No

A. Is the Minimum Vehicular Volume Warrant Met? No

B. Is the Interruption of Continuous Traffic Met? No

Combination of Warrants A and B Criteria Met? No
(Use only when Conditions A and B are both not satisified)

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Pike Street and Jillians Way
City/State: Covington, KY

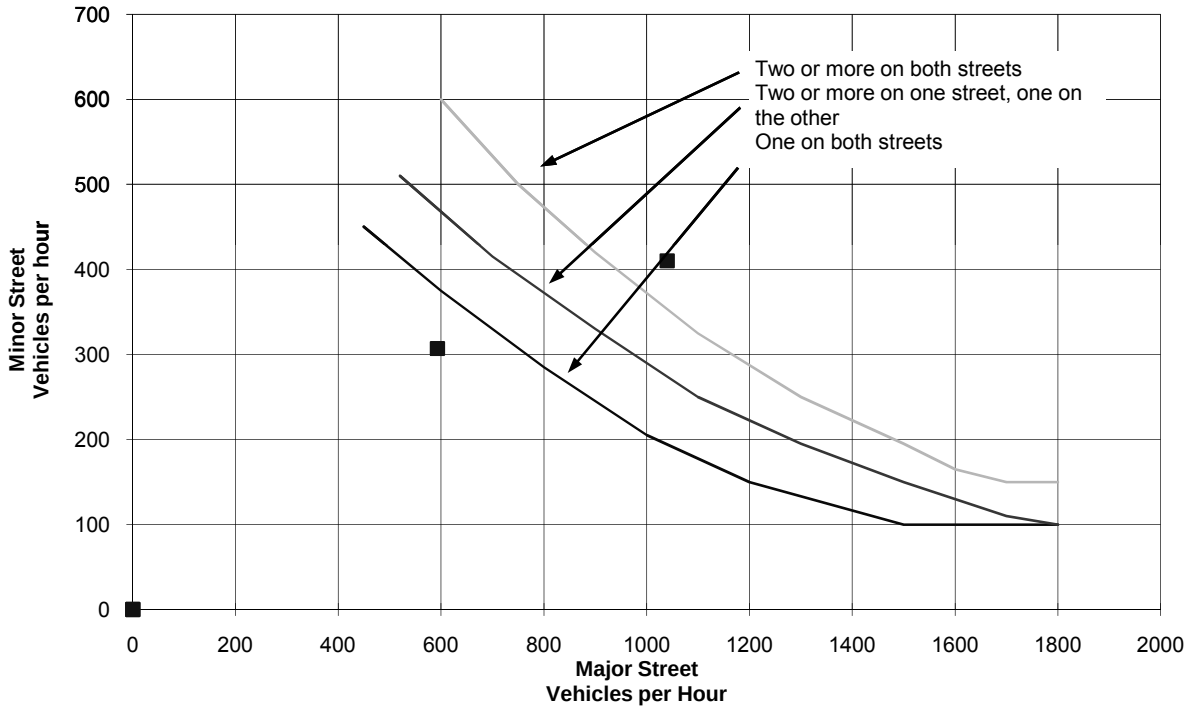
Warrant 3B - Peak Hour

The peak hour volume warrant is also intended for application when traffic conditions are such that for one hour of the day minor street traffic suffers undue traffic delay in entering or crossing the main street.

The peak hour volume warrant is satisfied when the plotted point representing vehicles per hour on the higher volume minor street for one hour falls above the curve in Figure 4C-3.

Figure 4C-4 may be used if the 85th percentile speed of the major street exceeds 40 mph or when the intersection lies within a built-up area of an isolated community having a population less than 10,000.

Peak Hour volume warrant - Major and Minor Streets for Urban Locations - Warrant 3B



Is Peak Hour Volume Warrant Met? **Yes**

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: W. 12th Street and Bullock Street

City/State: Covington, KY

Date: 7/8/2010 Performed By: AMW

	Minor (EB/NB) Approach	Minor (WB/SB) Approach	Major(EB/NB) Approach	Major(WB/SB) Approach	Total	Minor	Total Major
12:00 - 1:00 AM					0	0	0
1:00 - 2:00 AM					0	0	0
2:00 - 3:00 AM					0	0	0
3:00 - 4:00 AM					0	0	0
4:00 - 5:00 AM					0	0	0
5:00 - 6:00 AM					0	0	0
6:00 - 7:00 AM					0	0	0
7:00 - 8:00 AM		380	220	230	830	380	450
8:00 - 9:00 AM		327	107	188	622	327	295
9:00 - 10:00AM		327	107	188	622	327	295
10:00 - 11:00 AM		327	107	188	622	327	295
11:00 - 12:00 PM		327	107	188	622	327	295
12:00 - 1:00 PM		327	107	188	622	327	295
1:00 - 2:00 PM		327	107	188	622	327	295
2:00 - 3:00 PM		327	107	188	622	327	295
3:00 - 4:00 PM		327	107	188	622	327	295
4:00 - 5:00 PM		550	90	290	930	550	380
5:00 - 6:00 PM					0	0	0
6:00 - 7:00 PM					0	0	0
7:00 - 8:00 PM					0	0	0
8:00 - 9:00 PM					0	0	0
9:00 - 10:00PM					0	0	0
10:00 - 11:00 PM					0	0	0
11:00 - 12:00 PM					0	0	0
Total	**0**	**3546**	**1166**	**2024**	**6736**	**3546**	**3190**

Does the 85th Percentile Speed/Posted Speed Limit exceed 40 mph on the major street? No

Does the intersection lie within a built-up area of an isolated community having a population of less than 10,000? No

Your intersection **CANNOT** use the 70% option for this warrant, do you want to use it? No

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: W. 12th Street and Bullock Street
City/State: Covington, KY
Date 7/8/2010 Performed by: AMW

Warrant 1 - Eight-Hour Vehicular Volume

Number of lanes of moving traffic for moving traffic on each approach:
Major Street: 1 Minor Street: 2

Vehicles per hour on major street (total of both approaches):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	295
1:00 - 2:00 AM	0	1:00 - 2:00 PM	295
2:00 - 3:00 AM	0	2:00 - 3:00 PM	295
3:00 - 4:00 AM	0	3:00 - 4:00 PM	295
4:00 - 5:00 AM	0	4:00 - 5:00 PM	380
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	450	7:00 - 8:00 PM	0
8:00 - 9:00 AM	295	8:00 - 9:00 PM	0
9:00 - 10:00AM	295	9:00 - 10:00PM	0
10:00 - 11:00 AM	295	10:00 - 11:00 PM	0
11:00 - 12:00 PM	295	11:00 - 12:00 PM	0

Vehicles per hour on higher-volume minor street approach (one direction only):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	327
1:00 - 2:00 AM	0	1:00 - 2:00 PM	327
2:00 - 3:00 AM	0	2:00 - 3:00 PM	327
3:00 - 4:00 AM	0	3:00 - 4:00 PM	327
4:00 - 5:00 AM	0	4:00 - 5:00 PM	550
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	380	7:00 - 8:00 PM	0
8:00 - 9:00 AM	327	8:00 - 9:00 PM	0
9:00 - 10:00AM	327	9:00 - 10:00PM	0
10:00 - 11:00 AM	327	10:00 - 11:00 PM	0
11:00 - 12:00 PM	327	11:00 - 12:00 PM	0

Is the intersection using the reduced volume criteria based on speed or population? No

A. Is the Minimum Vehicular Volume Warrant Met? No

B. Is the Interruption of Continuous Traffic Met? No

Combination of Warrants A and B Criteria Met? No
(Use only when Conditions A and B are both not satisified)

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: W. 12th Street and Bullock Street
City/State: Covington, KY

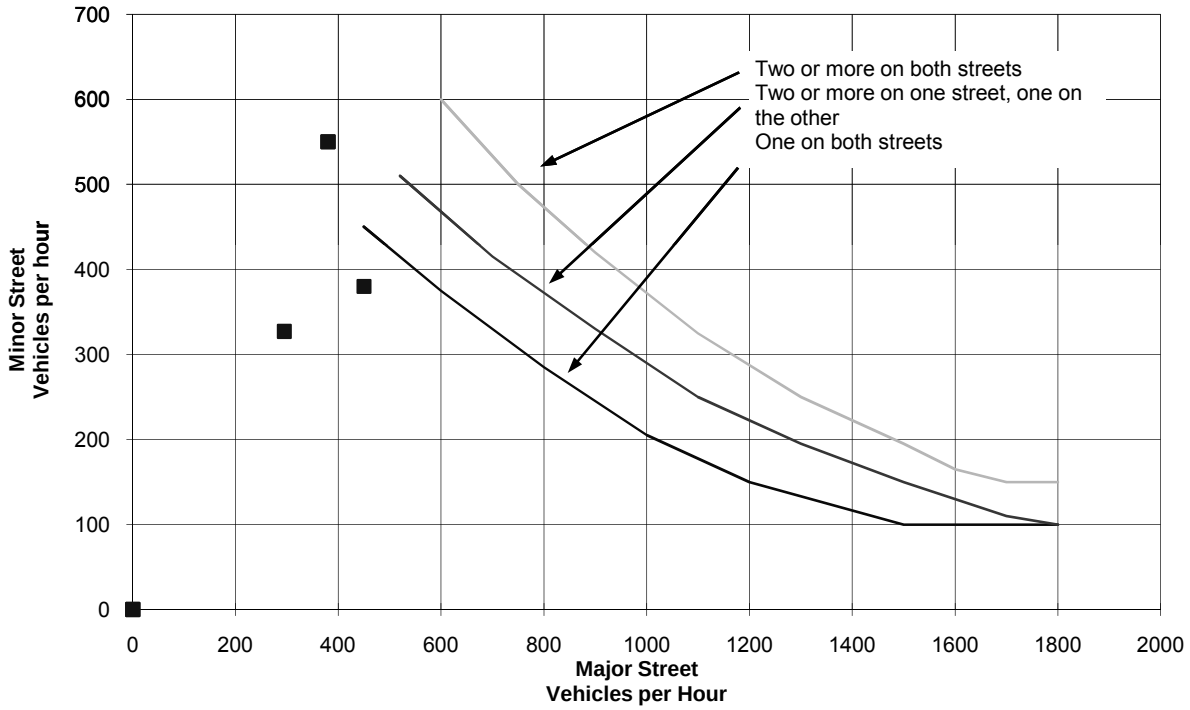
Warrant 3B - Peak Hour

The peak hour volume warrant is also intended for application when traffic conditions are such that for one hour of the day minor street traffic suffers undue traffic delay in entering or crossing the main street.

The peak hour volume warrant is satisfied when the plotted point representing vehicles per hour on the higher volume minor street for one hour falls above the curve in Figure 4C-3.

Figure 4C-4 may be used if the 85th percentile speed of the major street exceeds 40 mph or when the intersection lies within a built-up area of an isolated community having a population less than 10,000.

Peak Hour volume warrant - Major and Minor Streets for Urban Locations - Warrant 3B



Is Peak Hour Volume Warrant Met? **No**

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: W. 12th Street and Jillians Way

City/State: Covington, KY

Date: 7/8/2010 Performed By: AMW

	Minor (EB/NB) Approach	Minor (WB/SB) Approach	Major(EB/NB) Approach	Major(WB/SB) Approach	Total	Minor	Total Major
12:00 - 1:00 AM					0	0	0
1:00 - 2:00 AM					0	0	0
2:00 - 3:00 AM					0	0	0
3:00 - 4:00 AM					0	0	0
4:00 - 5:00 AM					0	0	0
5:00 - 6:00 AM					0	0	0
6:00 - 7:00 AM					0	0	0
7:00 - 8:00 AM	250		450	570	1270	250	1020
8:00 - 9:00 AM	316		282	341	939	316	623
9:00 - 10:00AM	316		282	341	939	316	623
10:00 - 11:00 AM	316		282	341	939	316	623
11:00 - 12:00 PM	316		282	341	939	316	623
12:00 - 1:00 PM	316		282	341	939	316	623
1:00 - 2:00 PM	316		282	341	939	316	623
2:00 - 3:00 PM	316		282	341	939	316	623
3:00 - 4:00 PM	316		282	341	939	316	623
4:00 - 5:00 PM	550		330	510	1390	550	840
5:00 - 6:00 PM					0	0	0
6:00 - 7:00 PM					0	0	0
7:00 - 8:00 PM					0	0	0
8:00 - 9:00 PM					0	0	0
9:00 - 10:00PM					0	0	0
10:00 - 11:00 PM					0	0	0
11:00 - 12:00 PM					0	0	0
Total	**3328**	**0**	**3036**	**3808**	**10172**	**3328**	**6844**

Does the 85th Percentile Speed/Posted Speed Limit exceed 40 mph on the major street? No

Does the intersection lie within a built-up area of an isolated community having a population of less than 10,000? No

Your intersection **CANNOT** use the 70% option for this warrant, do you want to use it? No

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: W. 12th Street and Jillians Way
City/State: Covington, KY
Date 7/8/2010 Performed by: AMW

Warrant 1 - Eight-Hour Vehicular Volume

Number of lanes of moving traffic for moving traffic on each approach:
Major Street: 1 Minor Street: 2

Vehicles per hour on major street (total of both approaches):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	623
1:00 - 2:00 AM	0	1:00 - 2:00 PM	623
2:00 - 3:00 AM	0	2:00 - 3:00 PM	623
3:00 - 4:00 AM	0	3:00 - 4:00 PM	623
4:00 - 5:00 AM	0	4:00 - 5:00 PM	840
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	1020	7:00 - 8:00 PM	0
8:00 - 9:00 AM	623	8:00 - 9:00 PM	0
9:00 - 10:00AM	623	9:00 - 10:00PM	0
10:00 - 11:00 AM	623	10:00 - 11:00 PM	0
11:00 - 12:00 PM	623	11:00 - 12:00 PM	0

Vehicles per hour on higher-volume minor street approach (one direction only):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	316
1:00 - 2:00 AM	0	1:00 - 2:00 PM	316
2:00 - 3:00 AM	0	2:00 - 3:00 PM	316
3:00 - 4:00 AM	0	3:00 - 4:00 PM	316
4:00 - 5:00 AM	0	4:00 - 5:00 PM	550
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	250	7:00 - 8:00 PM	0
8:00 - 9:00 AM	316	8:00 - 9:00 PM	0
9:00 - 10:00AM	316	9:00 - 10:00PM	0
10:00 - 11:00 AM	316	10:00 - 11:00 PM	0
11:00 - 12:00 PM	316	11:00 - 12:00 PM	0

Is the intersection using the reduced volume criteria based on speed or population? No

A. Is the Minimum Vehicular Volume Warrant Met? Yes

B. Is the Interruption of Continuous Traffic Met? No

Combination of Warrants A and B Criteria Met? Yes
(Use only when Conditions A and B are both not satisified)

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: W. 12th Street and Jillians Way
City/State: Covington, KY

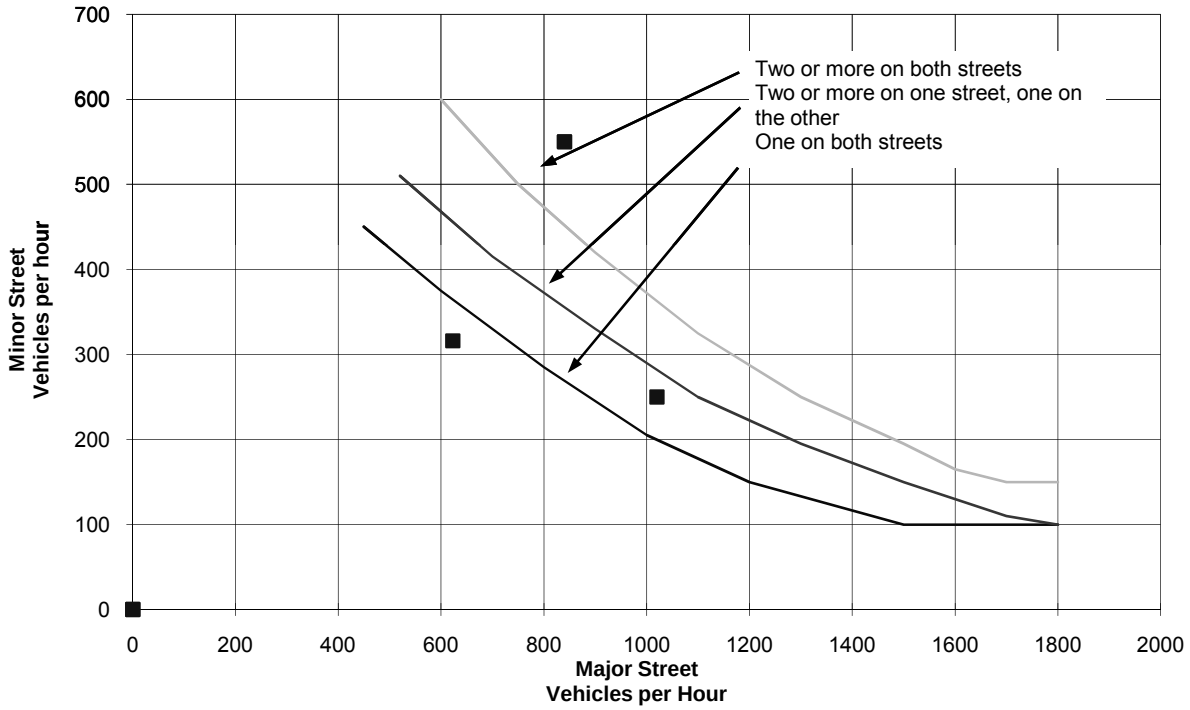
Warrant 3B - Peak Hour

The peak hour volume warrant is also intended for application when traffic conditions are such that for one hour of the day minor street traffic suffers undue traffic delay in entering or crossing the main street.

The peak hour volume warrant is satisfied when the plotted point representing vehicles per hour on the higher volume minor street for one hour falls above the curve in Figure 4C-3.

Figure 4C-4 may be used if the 85th percentile speed of the major street exceeds 40 mph or when the intersection lies within a built-up area of an isolated community having a population less than 10,000.

Peak Hour volume warrant - Major and Minor Streets for Urban Locations - Warrant 3B



Is Peak Hour Volume Warrant Met? **Yes**

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Kyles Lane and I-71/75 SB Ramps

City/State: Covington, KY

Date: 7/8/2010 Performed By: AMW

	Minor (EB/NB) Approach	Minor (WB/SB) Approach	Major(EB/NB) Approach	Major(WB/SB) Approach	Total	Minor	Total Major
12:00 - 1:00 AM					0	0	0
1:00 - 2:00 AM					0	0	0
2:00 - 3:00 AM					0	0	0
3:00 - 4:00 AM					0	0	0
4:00 - 5:00 AM					0	0	0
5:00 - 6:00 AM					0	0	0
6:00 - 7:00 AM					0	0	0
7:00 - 8:00 AM		490	740	870	2100	490	1610
8:00 - 9:00 AM		453	546	664	1663	453	1210
9:00 - 10:00AM		453	546	664	1663	453	1210
10:00 - 11:00 AM		453	546	664	1663	453	1210
11:00 - 12:00 PM		453	546	664	1663	453	1210
12:00 - 1:00 PM		453	546	664	1663	453	1210
1:00 - 2:00 PM		453	546	664	1663	453	1210
2:00 - 3:00 PM		453	546	664	1663	453	1210
3:00 - 4:00 PM		453	546	664	1663	453	1210
4:00 - 5:00 PM		870	890	1120	2880	870	2010
5:00 - 6:00 PM					0	0	0
6:00 - 7:00 PM					0	0	0
7:00 - 8:00 PM					0	0	0
8:00 - 9:00 PM					0	0	0
9:00 - 10:00PM					0	0	0
10:00 - 11:00 PM					0	0	0
11:00 - 12:00 PM					0	0	0
Total	**0**	**4984**	**5998**	**7302**	**18284**	**4984**	**13300**

Does the 85th Percentile Speed/Posted Speed Limit exceed 40 mph on the major street? No

Does the intersection lie within a built-up area of an isolated community having a population of less than 10,000? No

Your intersection **CANNOT** use the 70% option for this warrant, do you want to use it? No

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Kyles Lane and I-71/75 SB Ramps
City/State: Covington, KY
Date 7/8/2010 Performed by: AMW

Warrant 1 - Eight-Hour Vehicular Volume

Number of lanes of moving traffic for moving traffic on each approach:
Major Street: 2 Minor Street: 2

Vehicles per hour on major street (total of both approaches):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	1210
1:00 - 2:00 AM	0	1:00 - 2:00 PM	1210
2:00 - 3:00 AM	0	2:00 - 3:00 PM	1210
3:00 - 4:00 AM	0	3:00 - 4:00 PM	1210
4:00 - 5:00 AM	0	4:00 - 5:00 PM	2010
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	1610	7:00 - 8:00 PM	0
8:00 - 9:00 AM	1210	8:00 - 9:00 PM	0
9:00 - 10:00AM	1210	9:00 - 10:00PM	0
10:00 - 11:00 AM	1210	10:00 - 11:00 PM	0
11:00 - 12:00 PM	1210	11:00 - 12:00 PM	0

Vehicles per hour on higher-volume minor street approach (one direction only):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	453
1:00 - 2:00 AM	0	1:00 - 2:00 PM	453
2:00 - 3:00 AM	0	2:00 - 3:00 PM	453
3:00 - 4:00 AM	0	3:00 - 4:00 PM	453
4:00 - 5:00 AM	0	4:00 - 5:00 PM	870
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	490	7:00 - 8:00 PM	0
8:00 - 9:00 AM	453	8:00 - 9:00 PM	0
9:00 - 10:00AM	453	9:00 - 10:00PM	0
10:00 - 11:00 AM	453	10:00 - 11:00 PM	0
11:00 - 12:00 PM	453	11:00 - 12:00 PM	0

Is the intersection using the reduced volume criteria based on speed or population? No

A. Is the Minimum Vehicular Volume Warrant Met? Yes

B. Is the Interruption of Continuous Traffic Met? Yes

Combination of Warrants A and B Criteria Met? Yes
(Use only when Conditions A and B are both not satisified)

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Kyles Lane and I-71/75 SB Ramps
City/State: Covington, KY

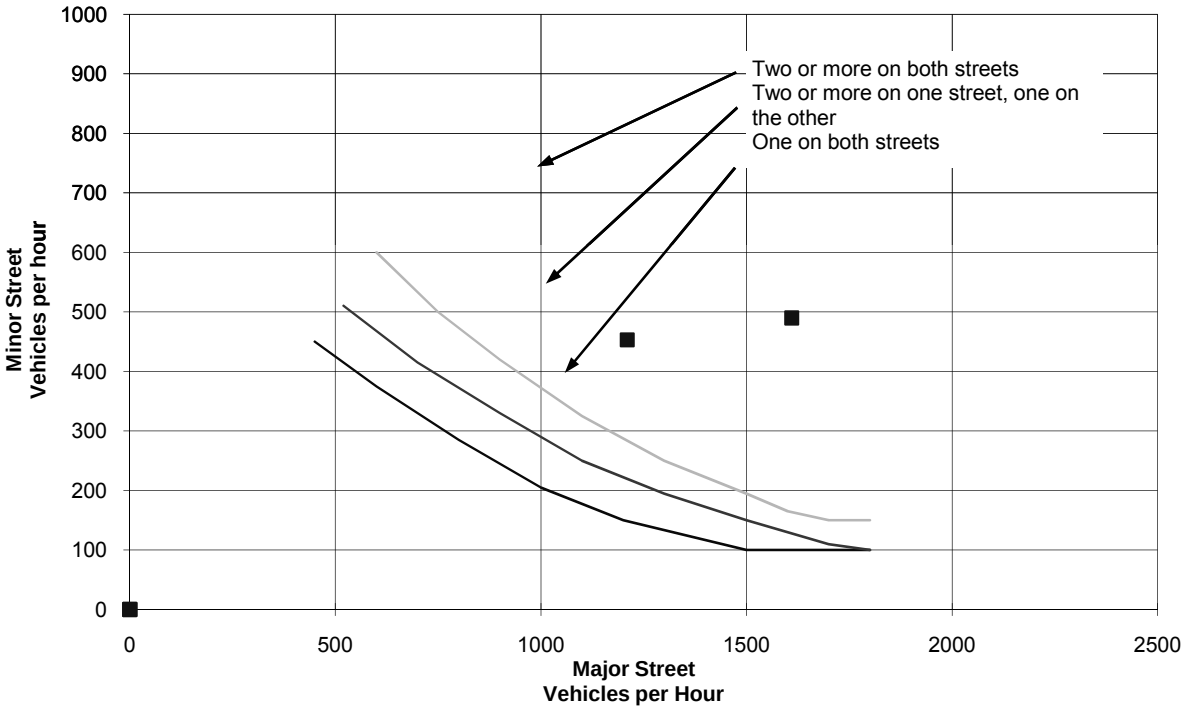
Warrant 3B - Peak Hour

The peak hour volume warrant is also intended for application when traffic conditions are such that for one hour of the day minor street traffic suffers undue traffic delay in entering or crossing the main street.

The peak hour volume warrant is satisfied when the plotted point representing vehicles per hour on the higher volume minor street for one hour falls above the curve in Figure 4C-3.

Figure 4C-4 may be used if the 85th percentile speed of the major street exceeds 40 mph or when the intersection lies within a built-up area of an isolated community having a population less than 10,000.

Peak Hour volume warrant - Major and Minor Streets for Urban Locations - Warrant 3B



Is Peak Hour Volume Warrant Met? **Yes**

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Kyles Lane and I-71/75 NB Ramps

City/State: Covington, KY

Date: 7/8/2010 Performed By: AMW

	Minor (EB/NB) Approach	Minor (WB/SB) Approach	Major(EB/NB) Approach	Major(WB/SB) Approach	Total	Minor	Total Major
12:00 - 1:00 AM					0	0	0
1:00 - 2:00 AM					0	0	0
2:00 - 3:00 AM					0	0	0
3:00 - 4:00 AM					0	0	0
4:00 - 5:00 AM					0	0	0
5:00 - 6:00 AM					0	0	0
6:00 - 7:00 AM					0	0	0
7:00 - 8:00 AM	420		910	1450	2780	420	2360
8:00 - 9:00 AM	361		731	841	1933	361	1572
9:00 - 10:00AM	361		731	841	1933	361	1572
10:00 - 11:00 AM	361		731	841	1933	361	1572
11:00 - 12:00 PM	361		731	841	1933	361	1572
12:00 - 1:00 PM	361		731	841	1933	361	1572
1:00 - 2:00 PM	361		731	841	1933	361	1572
2:00 - 3:00 PM	361		731	841	1933	361	1572
3:00 - 4:00 PM	361		731	841	1933	361	1572
4:00 - 5:00 PM	680		1220	1170	3070	680	2390
5:00 - 6:00 PM					0	0	0
6:00 - 7:00 PM					0	0	0
7:00 - 8:00 PM					0	0	0
8:00 - 9:00 PM					0	0	0
9:00 - 10:00PM					0	0	0
10:00 - 11:00 PM					0	0	0
11:00 - 12:00 PM					0	0	0
Total	**3988**	**0**	**7978**	**9348**	**21314**	**3988**	**17326**

Does the 85th Percentile Speed/Posted Speed Limit exceed 40 mph on the major street? No

Does the intersection lie within a built-up area of an isolated community having a population of less than 10,000? No

Your intersection **CANNOT** use the 70% option for this warrant, do you want to use it? No

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Kyles Lane and I-71/75 NB Ramps
City/State: Covington, KY
Date 7/8/2010 Performed by: AMW

Warrant 1 - Eight-Hour Vehicular Volume

Number of lanes of moving traffic for moving traffic on each approach:
Major Street: 2 Minor Street: 2

Vehicles per hour on major street (total of both approaches):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	1572
1:00 - 2:00 AM	0	1:00 - 2:00 PM	1572
2:00 - 3:00 AM	0	2:00 - 3:00 PM	1572
3:00 - 4:00 AM	0	3:00 - 4:00 PM	1572
4:00 - 5:00 AM	0	4:00 - 5:00 PM	2390
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	2360	7:00 - 8:00 PM	0
8:00 - 9:00 AM	1572	8:00 - 9:00 PM	0
9:00 - 10:00AM	1572	9:00 - 10:00PM	0
10:00 - 11:00 AM	1572	10:00 - 11:00 PM	0
11:00 - 12:00 PM	1572	11:00 - 12:00 PM	0

Vehicles per hour on higher-volume minor street approach (one direction only):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	361
1:00 - 2:00 AM	0	1:00 - 2:00 PM	361
2:00 - 3:00 AM	0	2:00 - 3:00 PM	361
3:00 - 4:00 AM	0	3:00 - 4:00 PM	361
4:00 - 5:00 AM	0	4:00 - 5:00 PM	680
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	420	7:00 - 8:00 PM	0
8:00 - 9:00 AM	361	8:00 - 9:00 PM	0
9:00 - 10:00AM	361	9:00 - 10:00PM	0
10:00 - 11:00 AM	361	10:00 - 11:00 PM	0
11:00 - 12:00 PM	361	11:00 - 12:00 PM	0

Is the intersection using the reduced volume criteria based on speed or population? No

A. Is the Minimum Vehicular Volume Warrant Met? Yes

B. Is the Interruption of Continuous Traffic Met? Yes

Combination of Warrants A and B Criteria Met? Yes
(Use only when Conditions A and B are both not satisified)

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Kyles Lane and I-71/75 NB Ramps
City/State: Covington, KY

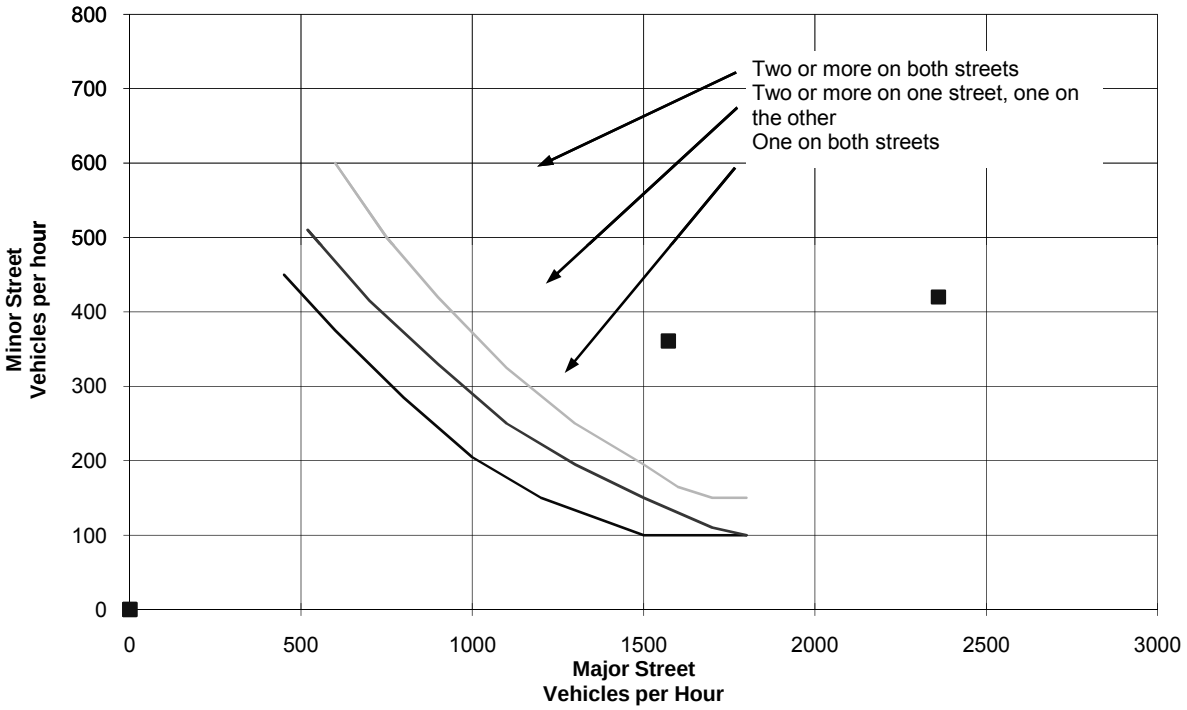
Warrant 3B - Peak Hour

The peak hour volume warrant is also intended for application when traffic conditions are such that for one hour of the day minor street traffic suffers undue traffic delay in entering or crossing the main street.

The peak hour volume warrant is satisfied when the plotted point representing vehicles per hour on the higher volume minor street for one hour falls above the curve in Figure 4C-3.

Figure 4C-4 may be used if the 85th percentile speed of the major street exceeds 40 mph or when the intersection lies within a built-up area of an isolated community having a population less than 10,000.

Peak Hour volume warrant - Major and Minor Streets for Urban Locations - Warrant 3B



Is Peak Hour Volume Warrant Met? **Yes**

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Dixie Highway and I-71/75 SB Ramps

City/State: Covington, KY

Date: 7/8/2010 Performed By: AMW

	Minor (EB/NB) Approach	Minor (WB/SB) Approach	Major(EB/NB) Approach	Major(WB/SB) Approach	Total	Minor	Total Major
12:00 - 1:00 AM					0	0	0
1:00 - 2:00 AM					0	0	0
2:00 - 3:00 AM					0	0	0
3:00 - 4:00 AM					0	0	0
4:00 - 5:00 AM					0	0	0
5:00 - 6:00 AM					0	0	0
6:00 - 7:00 AM					0	0	0
7:00 - 8:00 AM		160	500	1210	1870	160	1710
8:00 - 9:00 AM		247	467	690	1404	247	1157
9:00 - 10:00AM		247	467	690	1404	247	1157
10:00 - 11:00 AM		247	467	690	1404	247	1157
11:00 - 12:00 PM		247	467	690	1404	247	1157
12:00 - 1:00 PM		247	467	690	1404	247	1157
1:00 - 2:00 PM		247	467	690	1404	247	1157
2:00 - 3:00 PM		247	467	690	1404	247	1157
3:00 - 4:00 PM		247	467	690	1404	247	1157
4:00 - 5:00 PM		620	900	600	2120	620	1500
5:00 - 6:00 PM					0	0	0
6:00 - 7:00 PM					0	0	0
7:00 - 8:00 PM					0	0	0
8:00 - 9:00 PM					0	0	0
9:00 - 10:00PM					0	0	0
10:00 - 11:00 PM					0	0	0
11:00 - 12:00 PM					0	0	0
Total	**0**	**2756**	**5136**	**7330**	**15222**	**2756**	**12466**

Does the 85th Percentile Speed/Posted Speed Limit exceed 40 mph on the major street? No

Does the intersection lie within a built-up area of an isolated community having a population of less than 10,000? No

Your intersection **CANNOT** use the 70% option for this warrant, do you want to use it? No

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Dixie Highway and I-71/75 SB Ramps
City/State: Covington, KY
Date 7/8/2010 Performed by: AMW

Warrant 1 - Eight-Hour Vehicular Volume

Number of lanes of moving traffic for moving traffic on each approach:
Major Street: 2 Minor Street: 2

Vehicles per hour on major street (total of both approaches):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	1157
1:00 - 2:00 AM	0	1:00 - 2:00 PM	1157
2:00 - 3:00 AM	0	2:00 - 3:00 PM	1157
3:00 - 4:00 AM	0	3:00 - 4:00 PM	1157
4:00 - 5:00 AM	0	4:00 - 5:00 PM	1500
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	1710	7:00 - 8:00 PM	0
8:00 - 9:00 AM	1157	8:00 - 9:00 PM	0
9:00 - 10:00AM	1157	9:00 - 10:00PM	0
10:00 - 11:00 AM	1157	10:00 - 11:00 PM	0
11:00 - 12:00 PM	1157	11:00 - 12:00 PM	0

Vehicles per hour on higher-volume minor street approach (one direction only):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	247
1:00 - 2:00 AM	0	1:00 - 2:00 PM	247
2:00 - 3:00 AM	0	2:00 - 3:00 PM	247
3:00 - 4:00 AM	0	3:00 - 4:00 PM	247
4:00 - 5:00 AM	0	4:00 - 5:00 PM	620
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	160	7:00 - 8:00 PM	0
8:00 - 9:00 AM	247	8:00 - 9:00 PM	0
9:00 - 10:00AM	247	9:00 - 10:00PM	0
10:00 - 11:00 AM	247	10:00 - 11:00 PM	0
11:00 - 12:00 PM	247	11:00 - 12:00 PM	0

Is the intersection using the reduced volume criteria based on speed or population? No

A. Is the Minimum Vehicular Volume Warrant Met? Yes

B. Is the Interruption of Continuous Traffic Met? Yes

Combination of Warrants A and B Criteria Met? Yes
(Use only when Conditions A and B are both not satisified)

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Dixie Highway and I-71/75 SB Ramps
City/State: Covington, KY

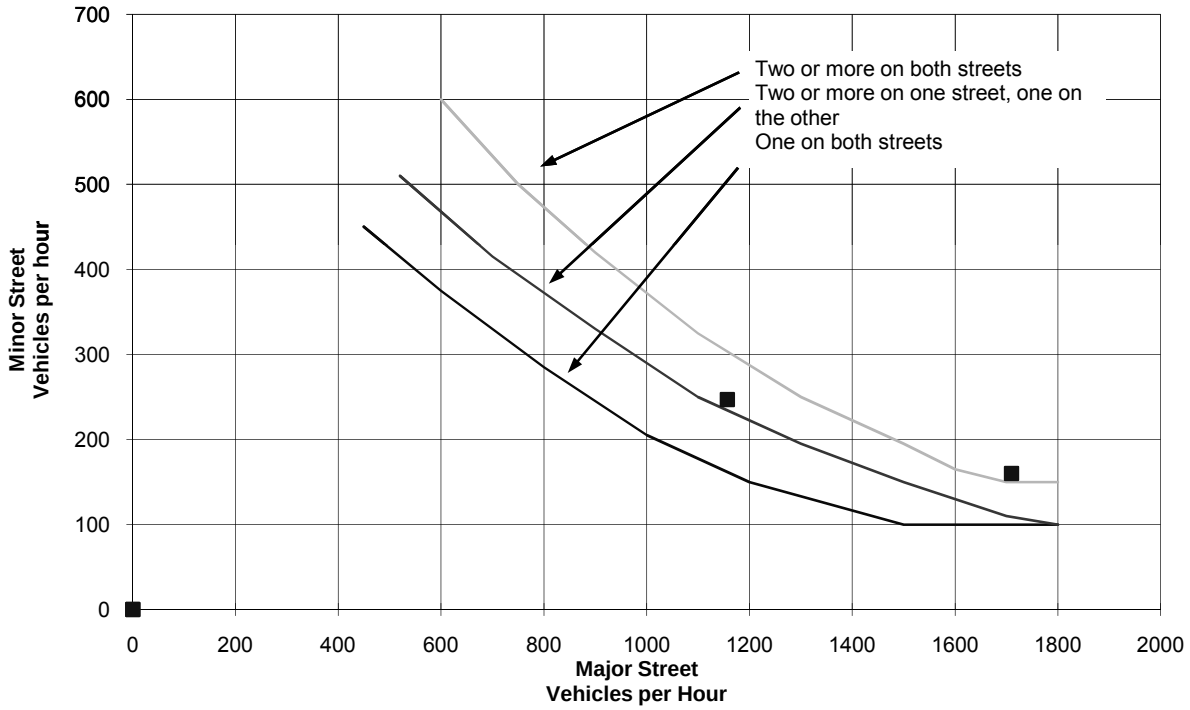
Warrant 3B - Peak Hour

The peak hour volume warrant is also intended for application when traffic conditions are such that for one hour of the day minor street traffic suffers undue traffic delay in entering or crossing the main street.

The peak hour volume warrant is satisfied when the plotted point representing vehicles per hour on the higher volume minor street for one hour falls above the curve in Figure 4C-3.

Figure 4C-4 may be used if the 85th percentile speed of the major street exceeds 40 mph or when the intersection lies within a built-up area of an isolated community having a population less than 10,000.

Peak Hour volume warrant - Major and Minor Streets for Urban Locations - Warrant 3B



Is Peak Hour Volume Warrant Met? **Yes**

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: W. 4th Street and Crescent Avenue

City/State: Covington, KY

Date: 7/19/2010 Performed By: AMW

	Minor (EB/NB) Approach	Minor (WB/SB) Approach	Major(EB/NB) Approach	Major(WB/SB) Approach	Total	Minor	Total Major
12:00 - 1:00 AM					0	0	0
1:00 - 2:00 AM					0	0	0
2:00 - 3:00 AM					0	0	0
3:00 - 4:00 AM					0	0	0
4:00 - 5:00 AM					0	0	0
5:00 - 6:00 AM					0	0	0
6:00 - 7:00 AM					0	0	0
7:00 - 8:00 AM		1210		490	1700	1210	490
8:00 - 9:00 AM		1212		290	1502	1212	290
9:00 - 10:00AM		1212		290	1502	1212	290
10:00 - 11:00 AM		1212		290	1502	1212	290
11:00 - 12:00 PM		1212		290	1502	1212	290
12:00 - 1:00 PM		1212		290	1502	1212	290
1:00 - 2:00 PM		1212		290	1502	1212	290
2:00 - 3:00 PM		1212		290	1502	1212	290
3:00 - 4:00 PM		1212		290	1502	1212	290
4:00 - 5:00 PM		1310		440	1750	1310	440
5:00 - 6:00 PM					0	0	0
6:00 - 7:00 PM					0	0	0
7:00 - 8:00 PM					0	0	0
8:00 - 9:00 PM					0	0	0
9:00 - 10:00PM					0	0	0
10:00 - 11:00 PM					0	0	0
11:00 - 12:00 PM					0	0	0
Total	**0**	**12216**	**0**	**3250**	**15466**	**12216**	**3250**

Does the 85th Percentile Speed/Posted Speed Limit exceed 40 mph on the major street? No

Does the intersection lie within a built-up area of an isolated community having a population of less than 10,000? No

Your intersection **CANNOT** use the 70% option for this warrant, do you want to use it? No

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: W. 4th Street and Crescent Avenue
City/State: Covington, KY
Date 7/19/2010 Performed by: AMW

Warrant 1 - Eight-Hour Vehicular Volume

Number of lanes of moving traffic for moving traffic on each approach:
Major Street: 1 Minor Street: 1

Vehicles per hour on major street (total of both approaches):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	290
1:00 - 2:00 AM	0	1:00 - 2:00 PM	290
2:00 - 3:00 AM	0	2:00 - 3:00 PM	290
3:00 - 4:00 AM	0	3:00 - 4:00 PM	290
4:00 - 5:00 AM	0	4:00 - 5:00 PM	440
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	490	7:00 - 8:00 PM	0
8:00 - 9:00 AM	290	8:00 - 9:00 PM	0
9:00 - 10:00AM	290	9:00 - 10:00PM	0
10:00 - 11:00 AM	290	10:00 - 11:00 PM	0
11:00 - 12:00 PM	290	11:00 - 12:00 PM	0

Vehicles per hour on higher-volume minor street approach (one direction only):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	1212
1:00 - 2:00 AM	0	1:00 - 2:00 PM	1212
2:00 - 3:00 AM	0	2:00 - 3:00 PM	1212
3:00 - 4:00 AM	0	3:00 - 4:00 PM	1212
4:00 - 5:00 AM	0	4:00 - 5:00 PM	1310
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	1210	7:00 - 8:00 PM	0
8:00 - 9:00 AM	1212	8:00 - 9:00 PM	0
9:00 - 10:00AM	1212	9:00 - 10:00PM	0
10:00 - 11:00 AM	1212	10:00 - 11:00 PM	0
11:00 - 12:00 PM	1212	11:00 - 12:00 PM	0

Is the intersection using the reduced volume criteria based on speed or population? No

A. Is the Minimum Vehicular Volume Warrant Met? No

B. Is the Interruption of Continuous Traffic Met? No

Combination of Warrants A and B Criteria Met? No
(Use only when Conditions A and B are both not satisified)

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: W. 4th Street and Crescent Avenue
City/State: Covington, KY

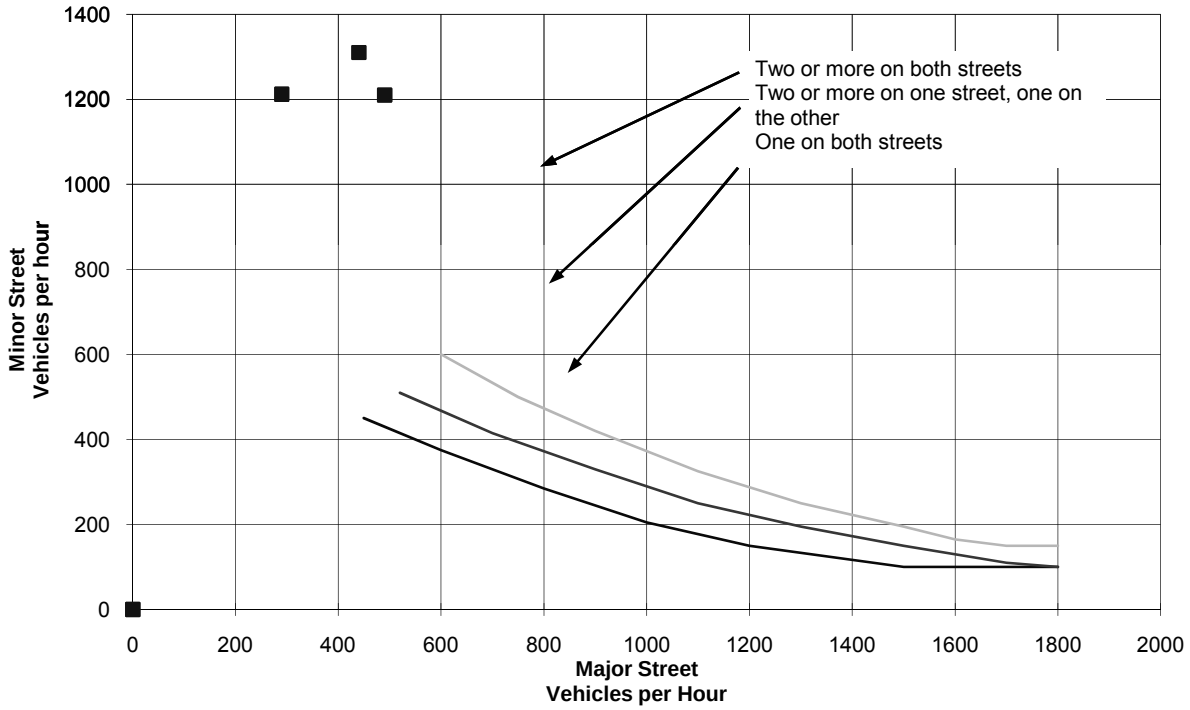
Warrant 3B - Peak Hour

The peak hour volume warrant is also intended for application when traffic conditions are such that for one hour of the day minor street traffic suffers undue traffic delay in entering or crossing the main street.

The peak hour volume warrant is satisfied when the plotted point representing vehicles per hour on the higher volume minor street for one hour falls above the curve in Figure 4C-3.

Figure 4C-4 may be used if the 85th percentile speed of the major street exceeds 40 mph or when the intersection lies within a built-up area of an isolated community having a population less than 10,000.

Peak Hour volume warrant - Major and Minor Streets for Urban Locations - Warrant 3B



Is Peak Hour Volume Warrant Met? **Yes**

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Pike Street and Bullock Street

City/State: Covington, KY

Date: 7/19/2010 Performed By: AMW

	Minor (EB/NB) Approach	Minor (WB/SB) Approach	Major(EB/NB) Approach	Major(WB/SB) Approach	Total	Minor	Total Major
12:00 - 1:00 AM					0	0	0
1:00 - 2:00 AM					0	0	0
2:00 - 3:00 AM					0	0	0
3:00 - 4:00 AM					0	0	0
4:00 - 5:00 AM					0	0	0
5:00 - 6:00 AM					0	0	0
6:00 - 7:00 AM					0	0	0
7:00 - 8:00 AM		1040	710	470	2220	1040	1180
8:00 - 9:00 AM		1042	66	422	1530	1042	488
9:00 - 10:00AM		1042	66	422	1530	1042	488
10:00 - 11:00 AM		1042	66	422	1530	1042	488
11:00 - 12:00 PM		1042	66	422	1530	1042	488
12:00 - 1:00 PM		1042	66	422	1530	1042	488
1:00 - 2:00 PM		1042	66	422	1530	1042	488
2:00 - 3:00 PM		1042	66	422	1530	1042	488
3:00 - 4:00 PM		1042	66	422	1530	1042	488
4:00 - 5:00 PM		2040	80	770	2890	2040	850
5:00 - 6:00 PM					0	0	0
6:00 - 7:00 PM					0	0	0
7:00 - 8:00 PM					0	0	0
8:00 - 9:00 PM					0	0	0
9:00 - 10:00PM					0	0	0
10:00 - 11:00 PM					0	0	0
11:00 - 12:00 PM					0	0	0
Total	**0**	**11416**	**1318**	**4616**	**17350**	**11416**	**5934**

Does the 85th Percentile Speed/Posted Speed Limit exceed 40 mph on the major street? No

Does the intersection lie within a built-up area of an isolated community having a population of less than 10,000? No

Your intersection **CANNOT** use the 70% option for this warrant, do you want to use it? No

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Pike Street and Bullock Street
City/State: Covington, KY
Date 7/19/2010 Performed by: AMW

Warrant 1 - Eight-Hour Vehicular Volume

Number of lanes of moving traffic for moving traffic on each approach:
Major Street: 2 Minor Street: 3

Vehicles per hour on major street (total of both approaches):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	488
1:00 - 2:00 AM	0	1:00 - 2:00 PM	488
2:00 - 3:00 AM	0	2:00 - 3:00 PM	488
3:00 - 4:00 AM	0	3:00 - 4:00 PM	488
4:00 - 5:00 AM	0	4:00 - 5:00 PM	850
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	1180	7:00 - 8:00 PM	0
8:00 - 9:00 AM	488	8:00 - 9:00 PM	0
9:00 - 10:00AM	488	9:00 - 10:00PM	0
10:00 - 11:00 AM	488	10:00 - 11:00 PM	0
11:00 - 12:00 PM	488	11:00 - 12:00 PM	0

Vehicles per hour on higher-volume minor street approach (one direction only):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	1042
1:00 - 2:00 AM	0	1:00 - 2:00 PM	1042
2:00 - 3:00 AM	0	2:00 - 3:00 PM	1042
3:00 - 4:00 AM	0	3:00 - 4:00 PM	1042
4:00 - 5:00 AM	0	4:00 - 5:00 PM	2040
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	1040	7:00 - 8:00 PM	0
8:00 - 9:00 AM	1042	8:00 - 9:00 PM	0
9:00 - 10:00AM	1042	9:00 - 10:00PM	0
10:00 - 11:00 AM	1042	10:00 - 11:00 PM	0
11:00 - 12:00 PM	1042	11:00 - 12:00 PM	0

Is the intersection using the reduced volume criteria based on speed or population? No

A. Is the Minimum Vehicular Volume Warrant Met? No

B. Is the Interruption of Continuous Traffic Met? No

Combination of Warrants A and B Criteria Met? No
(Use only when Conditions A and B are both not satisified)

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Pike Street and Bullock Street
City/State: Covington, KY

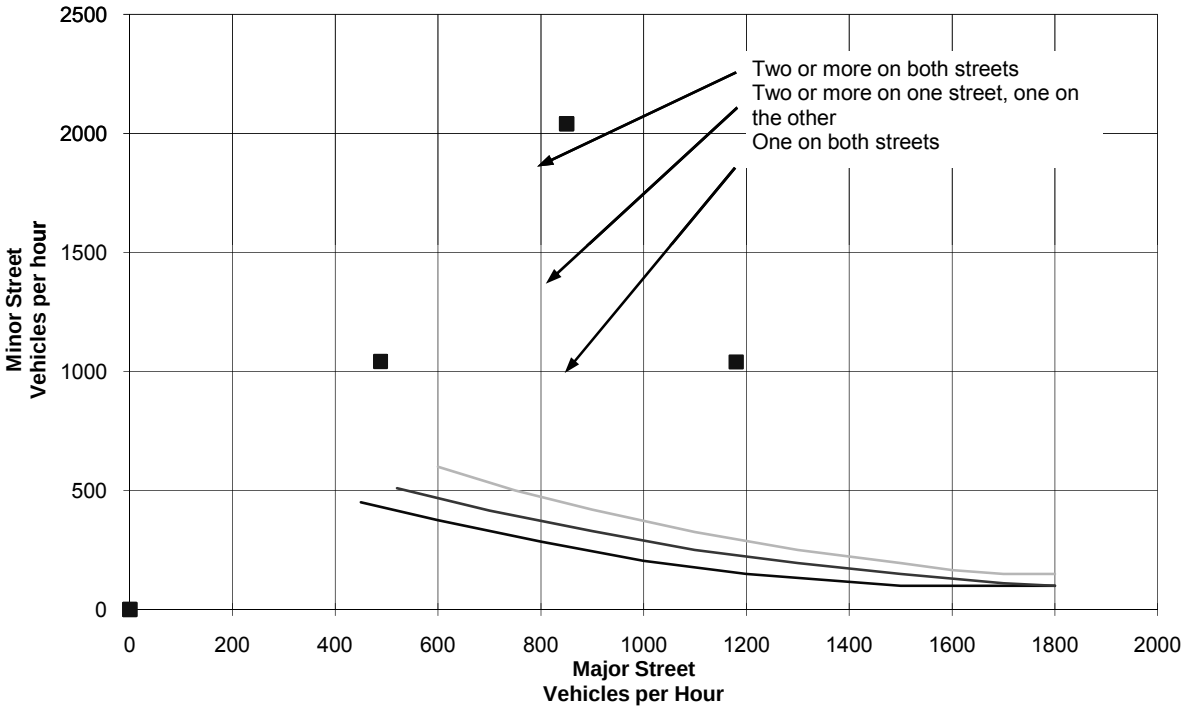
Warrant 3B - Peak Hour

The peak hour volume warrant is also intended for application when traffic conditions are such that for one hour of the day minor street traffic suffers undue traffic delay in entering or crossing the main street.

The peak hour volume warrant is satisfied when the plotted point representing vehicles per hour on the higher volume minor street for one hour falls above the curve in Figure 4C-3.

Figure 4C-4 may be used if the 85th percentile speed of the major street exceeds 40 mph or when the intersection lies within a built-up area of an isolated community having a population less than 10,000.

Peak Hour volume warrant - Major and Minor Streets for Urban Locations - Warrant 3B



Is Peak Hour Volume Warrant Met? **Yes**

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Pike Street and Jillians Way

City/State: Covington, KY

Date: 7/19/2010 Performed By: AMW

	Minor (EB/NB) Approach	Minor (WB/SB) Approach	Major(EB/NB) Approach	Major(WB/SB) Approach	Total	Minor	Total Major
12:00 - 1:00 AM					0	0	0
1:00 - 2:00 AM					0	0	0
2:00 - 3:00 AM					0	0	0
3:00 - 4:00 AM					0	0	0
4:00 - 5:00 AM					0	0	0
5:00 - 6:00 AM					0	0	0
6:00 - 7:00 AM					0	0	0
7:00 - 8:00 AM	720		800	310	1830	720	1110
8:00 - 9:00 AM	377		144	349	870	377	493
9:00 - 10:00AM	377		144	349	870	377	493
10:00 - 11:00 AM	377		144	349	870	377	493
11:00 - 12:00 PM	377		144	349	870	377	493
12:00 - 1:00 PM	377		144	349	870	377	493
1:00 - 2:00 PM	377		144	349	870	377	493
2:00 - 3:00 PM	377		144	349	870	377	493
3:00 - 4:00 PM	377		144	349	870	377	493
4:00 - 5:00 PM	500		290	760	1550	500	1050
5:00 - 6:00 PM					0	0	0
6:00 - 7:00 PM					0	0	0
7:00 - 8:00 PM					0	0	0
8:00 - 9:00 PM					0	0	0
9:00 - 10:00PM					0	0	0
10:00 - 11:00 PM					0	0	0
11:00 - 12:00 PM					0	0	0
Total	**4236**	**0**	**2242**	**3862**	**10340**	**4236**	**6104**

Does the 85th Percentile Speed/Posted Speed Limit exceed 40 mph on the major street? No

Does the intersection lie within a built-up area of an isolated community having a population of less than 10,000? No

Your intersection **CANNOT** use the 70% option for this warrant, do you want to use it? No

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Pike Street and Jillians Way
City/State: Covington, KY
Date 7/19/2010 Performed by: AMW

Warrant 1 - Eight-Hour Vehicular Volume

Number of lanes of moving traffic for moving traffic on each approach:
Major Street: 2 Minor Street: 2

Vehicles per hour on major street (total of both approaches):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	493
1:00 - 2:00 AM	0	1:00 - 2:00 PM	493
2:00 - 3:00 AM	0	2:00 - 3:00 PM	493
3:00 - 4:00 AM	0	3:00 - 4:00 PM	493
4:00 - 5:00 AM	0	4:00 - 5:00 PM	1050
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	1110	7:00 - 8:00 PM	0
8:00 - 9:00 AM	493	8:00 - 9:00 PM	0
9:00 - 10:00AM	493	9:00 - 10:00PM	0
10:00 - 11:00 AM	493	10:00 - 11:00 PM	0
11:00 - 12:00 PM	493	11:00 - 12:00 PM	0

Vehicles per hour on higher-volume minor street approach (one direction only):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	377
1:00 - 2:00 AM	0	1:00 - 2:00 PM	377
2:00 - 3:00 AM	0	2:00 - 3:00 PM	377
3:00 - 4:00 AM	0	3:00 - 4:00 PM	377
4:00 - 5:00 AM	0	4:00 - 5:00 PM	500
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	720	7:00 - 8:00 PM	0
8:00 - 9:00 AM	377	8:00 - 9:00 PM	0
9:00 - 10:00AM	377	9:00 - 10:00PM	0
10:00 - 11:00 AM	377	10:00 - 11:00 PM	0
11:00 - 12:00 PM	377	11:00 - 12:00 PM	0

Is the intersection using the reduced volume criteria based on speed or population? No

A. Is the Minimum Vehicular Volume Warrant Met? No

B. Is the Interruption of Continuous Traffic Met? No

Combination of Warrants A and B Criteria Met? No
(Use only when Conditions A and B are both not satisified)

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Pike Street and Jillians Way
City/State: Covington, KY

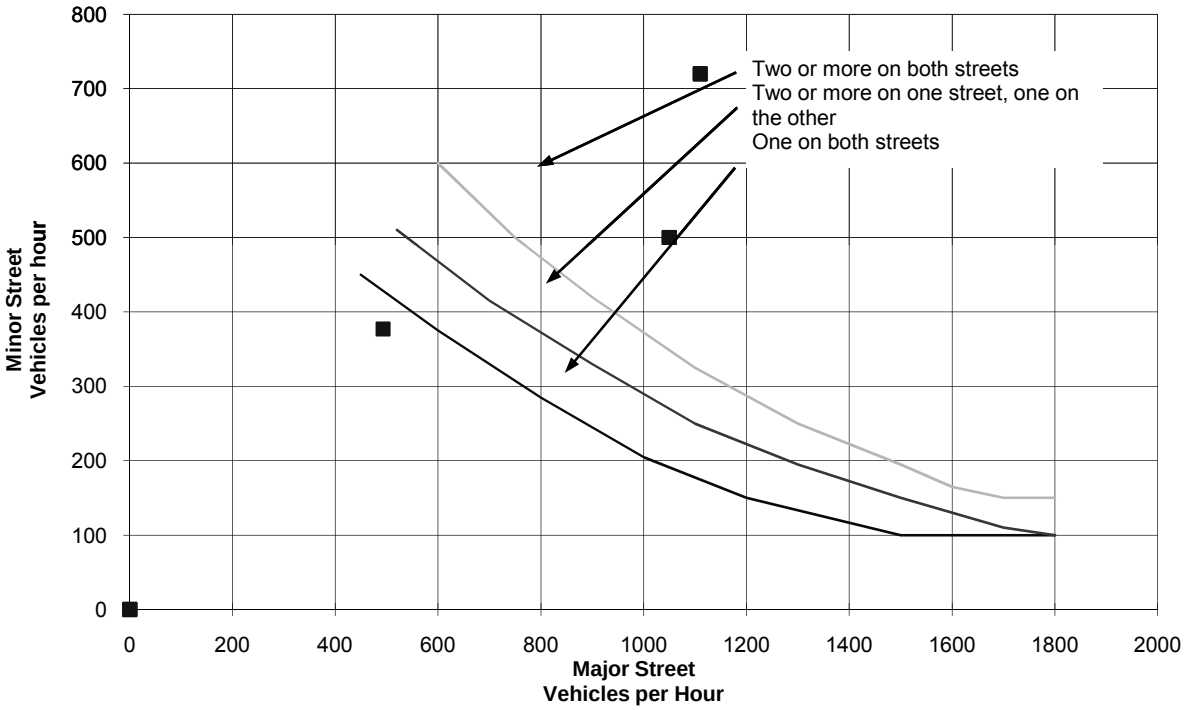
Warrant 3B - Peak Hour

The peak hour volume warrant is also intended for application when traffic conditions are such that for one hour of the day minor street traffic suffers undue traffic delay in entering or crossing the main street.

The peak hour volume warrant is satisfied when the plotted point representing vehicles per hour on the higher volume minor street for one hour falls above the curve in Figure 4C-3.

Figure 4C-4 may be used if the 85th percentile speed of the major street exceeds 40 mph or when the intersection lies within a built-up area of an isolated community having a population less than 10,000.

Peak Hour volume warrant - Major and Minor Streets for Urban Locations - Warrant 3B



Is Peak Hour Volume Warrant Met? **Yes**

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: W. 12th Street and Bullock Street

City/State: Covington, KY

Date: 7/19/2010 Performed By: AMW

	Minor (EB/NB) Approach	Minor (WB/SB) Approach	Major(EB/NB) Approach	Major(WB/SB) Approach	Total	Minor	Total Major
12:00 - 1:00 AM					0	0	0
1:00 - 2:00 AM					0	0	0
2:00 - 3:00 AM					0	0	0
3:00 - 4:00 AM					0	0	0
4:00 - 5:00 AM					0	0	0
5:00 - 6:00 AM					0	0	0
6:00 - 7:00 AM					0	0	0
7:00 - 8:00 AM		990	250	260	1500	990	510
8:00 - 9:00 AM		966	121	218	1305	966	339
9:00 - 10:00AM		966	121	218	1305	966	339
10:00 - 11:00 AM		966	121	218	1305	966	339
11:00 - 12:00 PM		966	121	218	1305	966	339
12:00 - 1:00 PM		966	121	218	1305	966	339
1:00 - 2:00 PM		966	121	218	1305	966	339
2:00 - 3:00 PM		966	121	218	1305	966	339
3:00 - 4:00 PM		966	121	218	1305	966	339
4:00 - 5:00 PM		1670	100	330	2100	1670	430
5:00 - 6:00 PM					0	0	0
6:00 - 7:00 PM					0	0	0
7:00 - 8:00 PM					0	0	0
8:00 - 9:00 PM					0	0	0
9:00 - 10:00PM					0	0	0
10:00 - 11:00 PM					0	0	0
11:00 - 12:00 PM					0	0	0
Total	**0**	**10388**	**1318**	**2334**	**14040**	**10388**	**3652**

Does the 85th Percentile Speed/Posted Speed Limit exceed 40 mph on the major street? No

Does the intersection lie within a built-up area of an isolated community having a population of less than 10,000? No

Your intersection **CANNOT** use the 70% option for this warrant, do you want to use it? No

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: W. 12th Street and Bullock Street
City/State: Covington, KY
Date 7/19/2010 Performed by: AMW

Warrant 1 - Eight-Hour Vehicular Volume

Number of lanes of moving traffic for moving traffic on each approach:
Major Street: 1 Minor Street: 2

Vehicles per hour on major street (total of both approaches):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	339
1:00 - 2:00 AM	0	1:00 - 2:00 PM	339
2:00 - 3:00 AM	0	2:00 - 3:00 PM	339
3:00 - 4:00 AM	0	3:00 - 4:00 PM	339
4:00 - 5:00 AM	0	4:00 - 5:00 PM	430
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	510	7:00 - 8:00 PM	0
8:00 - 9:00 AM	339	8:00 - 9:00 PM	0
9:00 - 10:00AM	339	9:00 - 10:00PM	0
10:00 - 11:00 AM	339	10:00 - 11:00 PM	0
11:00 - 12:00 PM	339	11:00 - 12:00 PM	0

Vehicles per hour on higher-volume minor street approach (one direction only):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	966
1:00 - 2:00 AM	0	1:00 - 2:00 PM	966
2:00 - 3:00 AM	0	2:00 - 3:00 PM	966
3:00 - 4:00 AM	0	3:00 - 4:00 PM	966
4:00 - 5:00 AM	0	4:00 - 5:00 PM	1670
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	990	7:00 - 8:00 PM	0
8:00 - 9:00 AM	966	8:00 - 9:00 PM	0
9:00 - 10:00AM	966	9:00 - 10:00PM	0
10:00 - 11:00 AM	966	10:00 - 11:00 PM	0
11:00 - 12:00 PM	966	11:00 - 12:00 PM	0

Is the intersection using the reduced volume criteria based on speed or population? No

A. Is the Minimum Vehicular Volume Warrant Met? No

B. Is the Interruption of Continuous Traffic Met? No

Combination of Warrants A and B Criteria Met? No
(Use only when Conditions A and B are both not satisified)

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: W. 12th Street and Bullock Street
City/State: Covington, KY

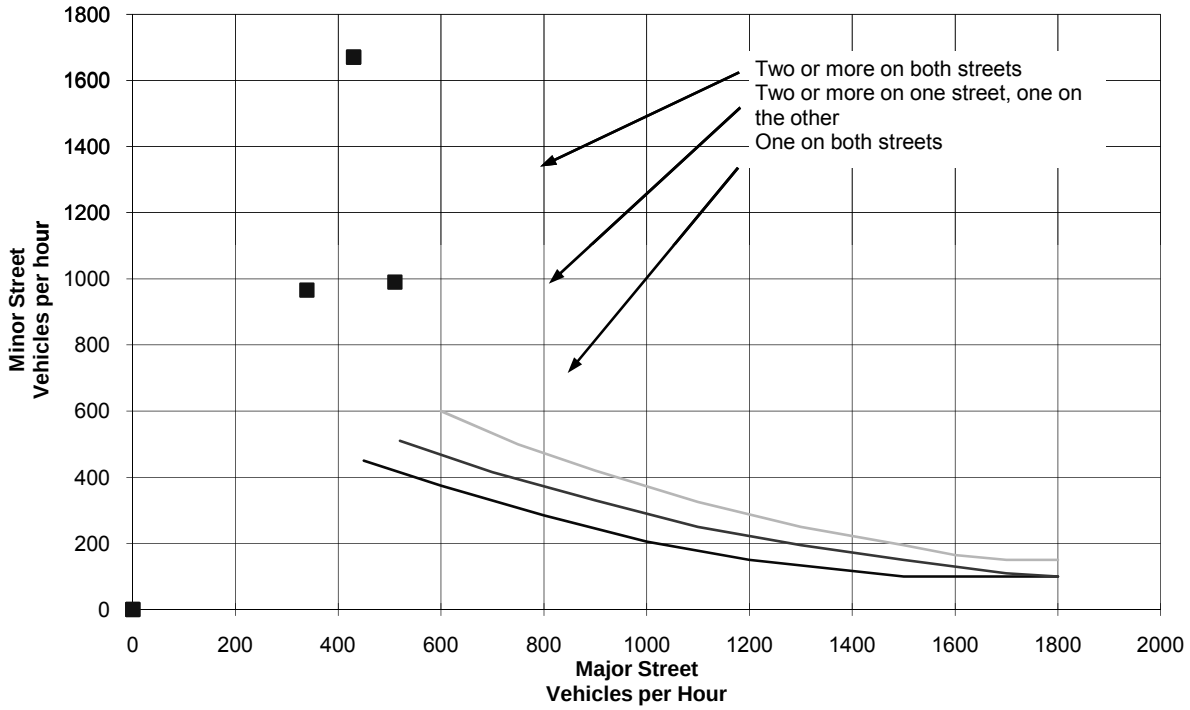
Warrant 3B - Peak Hour

The peak hour volume warrant is also intended for application when traffic conditions are such that for one hour of the day minor street traffic suffers undue traffic delay in entering or crossing the main street.

The peak hour volume warrant is satisfied when the plotted point representing vehicles per hour on the higher volume minor street for one hour falls above the curve in Figure 4C-3.

Figure 4C-4 may be used if the 85th percentile speed of the major street exceeds 40 mph or when the intersection lies within a built-up area of an isolated community having a population less than 10,000.

Peak Hour volume warrant - Major and Minor Streets for Urban Locations - Warrant 3B



Is Peak Hour Volume Warrant Met? **No**

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: W. 12th Street and Jillians Way

City/State: Covington, KY

Date: 7/8/2010 Performed By: AMW

	Minor (EB/NB) Approach	Minor (WB/SB) Approach	Major(EB/NB) Approach	Major(WB/SB) Approach	Total	Minor	Total Major
12:00 - 1:00 AM					0	0	0
1:00 - 2:00 AM					0	0	0
2:00 - 3:00 AM					0	0	0
3:00 - 4:00 AM					0	0	0
4:00 - 5:00 AM					0	0	0
5:00 - 6:00 AM					0	0	0
6:00 - 7:00 AM					0	0	0
7:00 - 8:00 AM	250		610	670	1530	250	1280
8:00 - 9:00 AM	316		416	403	1135	316	819
9:00 - 10:00AM	316		416	403	1135	316	819
10:00 - 11:00 AM	316		416	403	1135	316	819
11:00 - 12:00 PM	316		416	403	1135	316	819
12:00 - 1:00 PM	316		416	403	1135	316	819
1:00 - 2:00 PM	316		416	403	1135	316	819
2:00 - 3:00 PM	316		416	403	1135	316	819
3:00 - 4:00 PM	316		416	403	1135	316	819
4:00 - 5:00 PM	550		520	600	1670	550	1120
5:00 - 6:00 PM					0	0	0
6:00 - 7:00 PM					0	0	0
7:00 - 8:00 PM					0	0	0
8:00 - 9:00 PM					0	0	0
9:00 - 10:00PM					0	0	0
10:00 - 11:00 PM					0	0	0
11:00 - 12:00 PM					0	0	0
Total	**3328**	**0**	**4458**	**4494**	**12280**	**3328**	**8952**

Does the 85th Percentile Speed/Posted Speed Limit exceed 40 mph on the major street? No

Does the intersection lie within a built-up area of an isolated community having a population of less than 10,000? No

Your intersection **CANNOT** use the 70% option for this warrant, do you want to use it? No

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: W. 12th Street and Jillians Way
City/State: Covington, KY
Date 7/8/2010 Performed by: AMW

Warrant 1 - Eight-Hour Vehicular Volume

Number of lanes of moving traffic for moving traffic on each approach:
Major Street: 2 Minor Street: 2

Vehicles per hour on major street (total of both approaches):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	819
1:00 - 2:00 AM	0	1:00 - 2:00 PM	819
2:00 - 3:00 AM	0	2:00 - 3:00 PM	819
3:00 - 4:00 AM	0	3:00 - 4:00 PM	819
4:00 - 5:00 AM	0	4:00 - 5:00 PM	1120
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	1280	7:00 - 8:00 PM	0
8:00 - 9:00 AM	819	8:00 - 9:00 PM	0
9:00 - 10:00AM	819	9:00 - 10:00PM	0
10:00 - 11:00 AM	819	10:00 - 11:00 PM	0
11:00 - 12:00 PM	819	11:00 - 12:00 PM	0

Vehicles per hour on higher-volume minor street approach (one direction only):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	316
1:00 - 2:00 AM	0	1:00 - 2:00 PM	316
2:00 - 3:00 AM	0	2:00 - 3:00 PM	316
3:00 - 4:00 AM	0	3:00 - 4:00 PM	316
4:00 - 5:00 AM	0	4:00 - 5:00 PM	550
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	250	7:00 - 8:00 PM	0
8:00 - 9:00 AM	316	8:00 - 9:00 PM	0
9:00 - 10:00AM	316	9:00 - 10:00PM	0
10:00 - 11:00 AM	316	10:00 - 11:00 PM	0
11:00 - 12:00 PM	316	11:00 - 12:00 PM	0

Is the intersection using the reduced volume criteria based on speed or population? No

A. Is the Minimum Vehicular Volume Warrant Met? Yes

B. Is the Interruption of Continuous Traffic Met? No

Combination of Warrants A and B Criteria Met? Yes
(Use only when Conditions A and B are both not satisified)

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: W. 12th Street and Jillians Way
City/State: Covington, KY

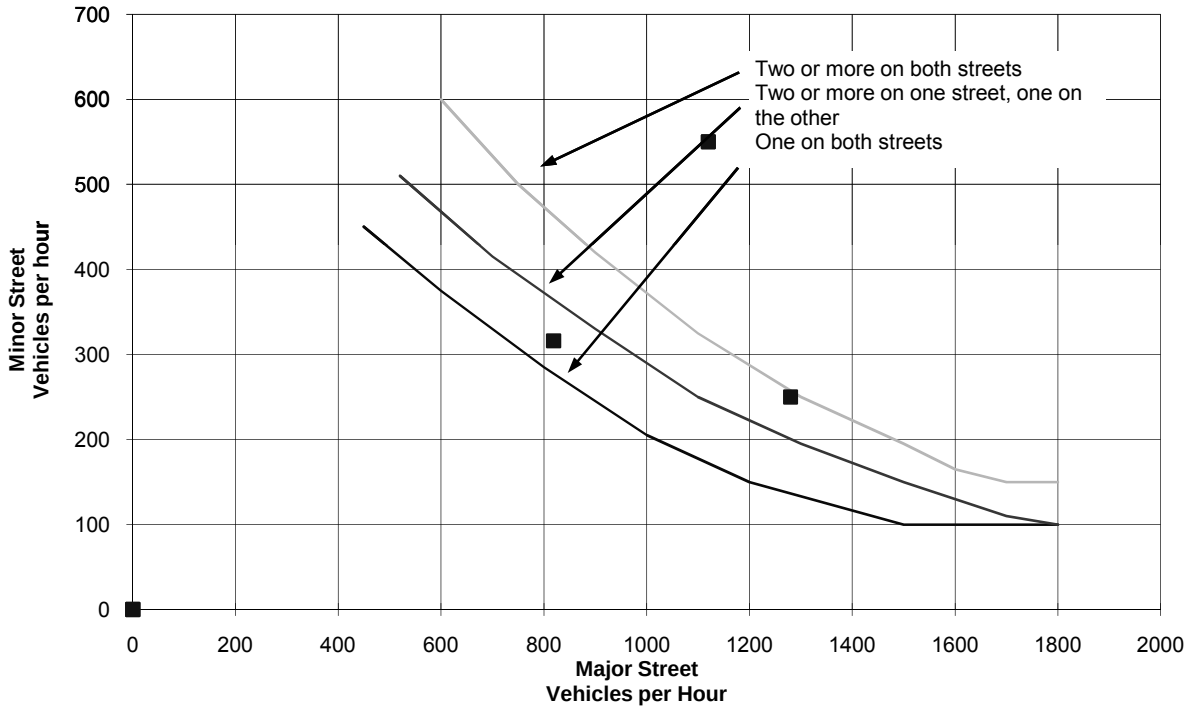
Warrant 3B - Peak Hour

The peak hour volume warrant is also intended for application when traffic conditions are such that for one hour of the day minor street traffic suffers undue traffic delay in entering or crossing the main street.

The peak hour volume warrant is satisfied when the plotted point representing vehicles per hour on the higher volume minor street for one hour falls above the curve in Figure 4C-3.

Figure 4C-4 may be used if the 85th percentile speed of the major street exceeds 40 mph or when the intersection lies within a built-up area of an isolated community having a population less than 10,000.

Peak Hour volume warrant - Major and Minor Streets for Urban Locations - Warrant 3B



Is Peak Hour Volume Warrant Met? **Yes**

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Kyles Lane and I-71/75 SB Ramps

City/State: Covington, KY

Date: 7/19/2010 Performed By: AMW

	Minor (EB/NB) Approach	Minor (WB/SB) Approach	Major(EB/NB) Approach	Major(WB/SB) Approach	Total	Minor	Total Major
12:00 - 1:00 AM					0	0	0
1:00 - 2:00 AM					0	0	0
2:00 - 3:00 AM					0	0	0
3:00 - 4:00 AM					0	0	0
4:00 - 5:00 AM					0	0	0
5:00 - 6:00 AM					0	0	0
6:00 - 7:00 AM					0	0	0
7:00 - 8:00 AM		690	810	850	2350	690	1660
8:00 - 9:00 AM		591	595	690	1876	591	1285
9:00 - 10:00AM		591	595	690	1876	591	1285
10:00 - 11:00 AM		591	595	690	1876	591	1285
11:00 - 12:00 PM		591	595	690	1876	591	1285
12:00 - 1:00 PM		591	595	690	1876	591	1285
1:00 - 2:00 PM		591	595	690	1876	591	1285
2:00 - 3:00 PM		591	595	690	1876	591	1285
3:00 - 4:00 PM		591	595	690	1876	591	1285
4:00 - 5:00 PM		1140	970	1150	3260	1140	2120
5:00 - 6:00 PM					0	0	0
6:00 - 7:00 PM					0	0	0
7:00 - 8:00 PM					0	0	0
8:00 - 9:00 PM					0	0	0
9:00 - 10:00PM					0	0	0
10:00 - 11:00 PM					0	0	0
11:00 - 12:00 PM					0	0	0
Total	**0**	**6558**	**6540**	**7520**	**20618**	**6558**	**14060**

Does the 85th Percentile Speed/Posted Speed Limit exceed 40 mph on the major street? No

Does the intersection lie within a built-up area of an isolated community having a population of less than 10,000? No

Your intersection **CANNOT** use the 70% option for this warrant, do you want to use it? No

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Kyles Lane and I-71/75 SB Ramps
City/State: Covington, KY
Date 7/19/2010 Performed by: AMW

Warrant 1 - Eight-Hour Vehicular Volume

Number of lanes of moving traffic for moving traffic on each approach:
Major Street: 2 Minor Street: 2

Vehicles per hour on major street (total of both approaches):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	1285
1:00 - 2:00 AM	0	1:00 - 2:00 PM	1285
2:00 - 3:00 AM	0	2:00 - 3:00 PM	1285
3:00 - 4:00 AM	0	3:00 - 4:00 PM	1285
4:00 - 5:00 AM	0	4:00 - 5:00 PM	2120
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	1660	7:00 - 8:00 PM	0
8:00 - 9:00 AM	1285	8:00 - 9:00 PM	0
9:00 - 10:00AM	1285	9:00 - 10:00PM	0
10:00 - 11:00 AM	1285	10:00 - 11:00 PM	0
11:00 - 12:00 PM	1285	11:00 - 12:00 PM	0

Vehicles per hour on higher-volume minor street approach (one direction only):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	591
1:00 - 2:00 AM	0	1:00 - 2:00 PM	591
2:00 - 3:00 AM	0	2:00 - 3:00 PM	591
3:00 - 4:00 AM	0	3:00 - 4:00 PM	591
4:00 - 5:00 AM	0	4:00 - 5:00 PM	1140
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	690	7:00 - 8:00 PM	0
8:00 - 9:00 AM	591	8:00 - 9:00 PM	0
9:00 - 10:00AM	591	9:00 - 10:00PM	0
10:00 - 11:00 AM	591	10:00 - 11:00 PM	0
11:00 - 12:00 PM	591	11:00 - 12:00 PM	0

Is the intersection using the reduced volume criteria based on speed or population? No

A. Is the Minimum Vehicular Volume Warrant Met? Yes

B. Is the Interruption of Continuous Traffic Met? Yes

Combination of Warrants A and B Criteria Met? Yes
(Use only when Conditions A and B are both not satisified)

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Kyles Lane and I-71/75 SB Ramps
City/State: Covington, KY

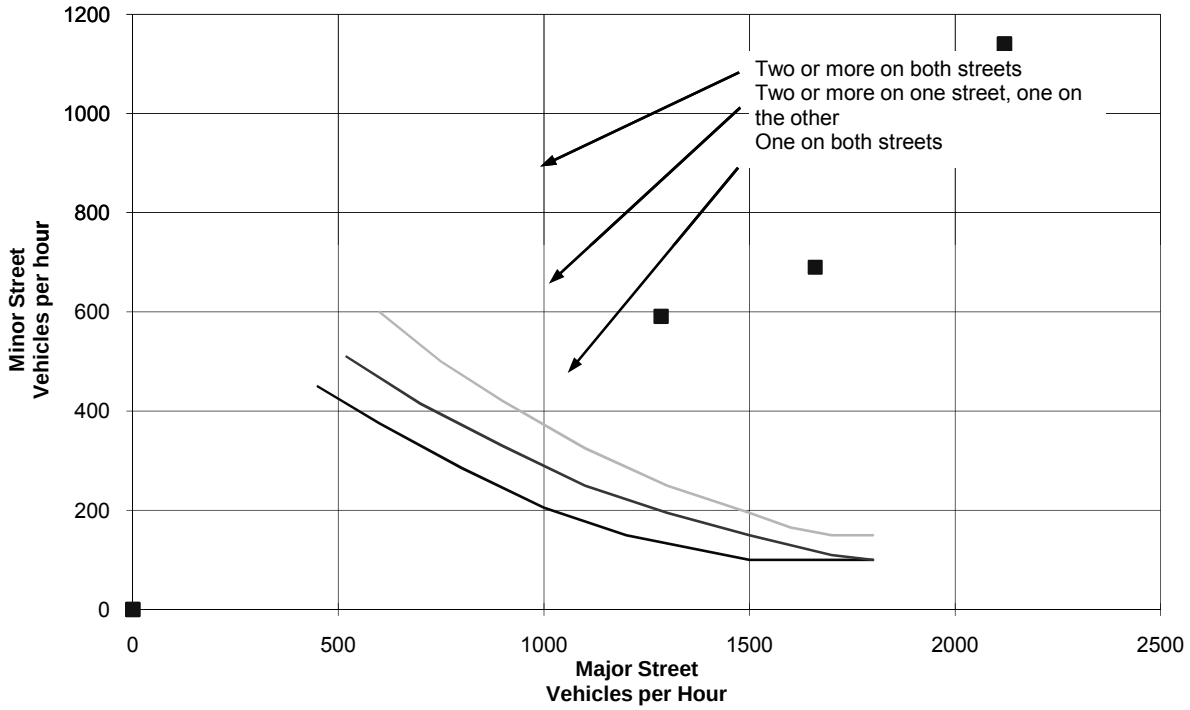
Warrant 3B - Peak Hour

The peak hour volume warrant is also intended for application when traffic conditions are such that for one hour of the day minor street traffic suffers undue traffic delay in entering or crossing the main street.

The peak hour volume warrant is satisfied when the plotted point representing vehicles per hour on the higher volume minor street for one hour falls above the curve in Figure 4C-3.

Figure 4C-4 may be used if the 85th percentile speed of the major street exceeds 40 mph or when the intersection lies within a built-up area of an isolated community having a population less than 10,000.

Peak Hour volume warrant - Major and Minor Streets for Urban Locations - Warrant 3B



Is Peak Hour Volume Warrant Met? **Yes**

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Kyles Lane and I-71/75 NB Ramps

City/State: Covington, KY

Date: 7/19/2010 Performed By: AMW

	Minor (EB/NB) Approach	Minor (WB/SB) Approach	Major(EB/NB) Approach	Major(WB/SB) Approach	Total	Minor	Total Major
12:00 - 1:00 AM					0	0	0
1:00 - 2:00 AM					0	0	0
2:00 - 3:00 AM					0	0	0
3:00 - 4:00 AM					0	0	0
4:00 - 5:00 AM					0	0	0
5:00 - 6:00 AM					0	0	0
6:00 - 7:00 AM					0	0	0
7:00 - 8:00 AM	440		1120	1660	3220	440	2780
8:00 - 9:00 AM	394		863	959	2216	394	1822
9:00 - 10:00AM	394		863	959	2216	394	1822
10:00 - 11:00 AM	394		863	959	2216	394	1822
11:00 - 12:00 PM	394		863	959	2216	394	1822
12:00 - 1:00 PM	394		863	959	2216	394	1822
1:00 - 2:00 PM	394		863	959	2216	394	1822
2:00 - 3:00 PM	394		863	959	2216	394	1822
3:00 - 4:00 PM	394		863	959	2216	394	1822
4:00 - 5:00 PM	720		1460	1320	3500	720	2780
5:00 - 6:00 PM					0	0	0
6:00 - 7:00 PM					0	0	0
7:00 - 8:00 PM					0	0	0
8:00 - 9:00 PM					0	0	0
9:00 - 10:00PM					0	0	0
10:00 - 11:00 PM					0	0	0
11:00 - 12:00 PM					0	0	0
Total	**4312**	**0**	**9484**	**10652**	**24448**	**4312**	**20136**

Does the 85th Percentile Speed/Posted Speed Limit exceed 40 mph on the major street? No

Does the intersection lie within a built-up area of an isolated community having a population of less than 10,000? No

Your intersection **CANNOT** use the 70% option for this warrant, do you want to use it? No

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Kyles Lane and I-71/75 NB Ramps
City/State: Covington, KY
Date 7/19/2010 Performed by: AMW

Warrant 1 - Eight-Hour Vehicular Volume

Number of lanes of moving traffic for moving traffic on each approach:
Major Street: 2 Minor Street: 2

Vehicles per hour on major street (total of both approaches):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	1822
1:00 - 2:00 AM	0	1:00 - 2:00 PM	1822
2:00 - 3:00 AM	0	2:00 - 3:00 PM	1822
3:00 - 4:00 AM	0	3:00 - 4:00 PM	1822
4:00 - 5:00 AM	0	4:00 - 5:00 PM	2780
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	2780	7:00 - 8:00 PM	0
8:00 - 9:00 AM	1822	8:00 - 9:00 PM	0
9:00 - 10:00AM	1822	9:00 - 10:00PM	0
10:00 - 11:00 AM	1822	10:00 - 11:00 PM	0
11:00 - 12:00 PM	1822	11:00 - 12:00 PM	0

Vehicles per hour on higher-volume minor street approach (one direction only):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	394
1:00 - 2:00 AM	0	1:00 - 2:00 PM	394
2:00 - 3:00 AM	0	2:00 - 3:00 PM	394
3:00 - 4:00 AM	0	3:00 - 4:00 PM	394
4:00 - 5:00 AM	0	4:00 - 5:00 PM	720
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	440	7:00 - 8:00 PM	0
8:00 - 9:00 AM	394	8:00 - 9:00 PM	0
9:00 - 10:00AM	394	9:00 - 10:00PM	0
10:00 - 11:00 AM	394	10:00 - 11:00 PM	0
11:00 - 12:00 PM	394	11:00 - 12:00 PM	0

Is the intersection using the reduced volume criteria based on speed or population? No

A. Is the Minimum Vehicular Volume Warrant Met? Yes

B. Is the Interruption of Continuous Traffic Met? Yes

Combination of Warrants A and B Criteria Met? Yes
(Use only when Conditions A and B are both not satisified)

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Kyles Lane and I-71/75 NB Ramps
City/State: Covington, KY

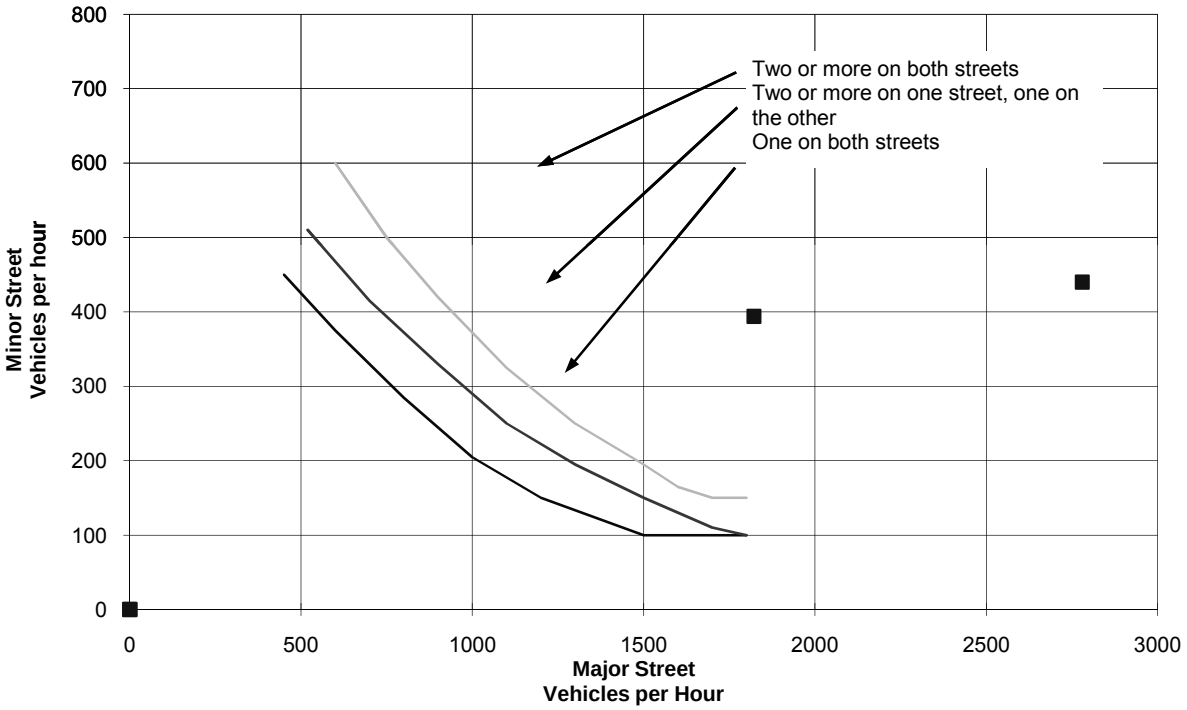
Warrant 3B - Peak Hour

The peak hour volume warrant is also intended for application when traffic conditions are such that for one hour of the day minor street traffic suffers undue traffic delay in entering or crossing the main street.

The peak hour volume warrant is satisfied when the plotted point representing vehicles per hour on the higher volume minor street for one hour falls above the curve in Figure 4C-3.

Figure 4C-4 may be used if the 85th percentile speed of the major street exceeds 40 mph or when the intersection lies within a built-up area of an isolated community having a population less than 10,000.

Peak Hour volume warrant - Major and Minor Streets for Urban Locations - Warrant 3B



Is Peak Hour Volume Warrant Met? **Yes**

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Dixie Highway and I-71/75 SB Ramps

City/State: Covington, KY

Date: 7/19/2010 Performed By: AMW

	Minor (EB/NB) Approach	Minor (WB/SB) Approach	Major(EB/NB) Approach	Major(WB/SB) Approach	Total	Minor	Total Major
12:00 - 1:00 AM					0	0	0
1:00 - 2:00 AM					0	0	0
2:00 - 3:00 AM					0	0	0
3:00 - 4:00 AM					0	0	0
4:00 - 5:00 AM					0	0	0
5:00 - 6:00 AM					0	0	0
6:00 - 7:00 AM					0	0	0
7:00 - 8:00 AM		190	660	1510	2360	190	2170
8:00 - 9:00 AM		272	601	863	1736	272	1464
9:00 - 10:00AM		272	601	863	1736	272	1464
10:00 - 11:00 AM		272	601	863	1736	272	1464
11:00 - 12:00 PM		272	601	863	1736	272	1464
12:00 - 1:00 PM		272	601	863	1736	272	1464
1:00 - 2:00 PM		272	601	863	1736	272	1464
2:00 - 3:00 PM		272	601	863	1736	272	1464
3:00 - 4:00 PM		272	601	863	1736	272	1464
4:00 - 5:00 PM		680	1170	740	2590	680	1910
5:00 - 6:00 PM					0	0	0
6:00 - 7:00 PM					0	0	0
7:00 - 8:00 PM					0	0	0
8:00 - 9:00 PM					0	0	0
9:00 - 10:00PM					0	0	0
10:00 - 11:00 PM					0	0	0
11:00 - 12:00 PM					0	0	0
Total	**0**	**3046**	**6638**	**9154**	**18838**	**3046**	**15792**

Does the 85th Percentile Speed/Posted Speed Limit exceed 40 mph on the major street? No

Does the intersection lie within a built-up area of an isolated community having a population of less than 10,000? No

Your intersection **CANNOT** use the 70% option for this warrant, do you want to use it? No

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Dixie Highway and I-71/75 SB Ramps
City/State: Covington, KY
Date 7/19/2010 Performed by: AMW

Warrant 1 - Eight-Hour Vehicular Volume

Number of lanes of moving traffic for moving traffic on each approach:
Major Street: 2 Minor Street: 2

Vehicles per hour on major street (total of both approaches):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	1464
1:00 - 2:00 AM	0	1:00 - 2:00 PM	1464
2:00 - 3:00 AM	0	2:00 - 3:00 PM	1464
3:00 - 4:00 AM	0	3:00 - 4:00 PM	1464
4:00 - 5:00 AM	0	4:00 - 5:00 PM	1910
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	2170	7:00 - 8:00 PM	0
8:00 - 9:00 AM	1464	8:00 - 9:00 PM	0
9:00 - 10:00AM	1464	9:00 - 10:00PM	0
10:00 - 11:00 AM	1464	10:00 - 11:00 PM	0
11:00 - 12:00 PM	1464	11:00 - 12:00 PM	0

Vehicles per hour on higher-volume minor street approach (one direction only):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	272
1:00 - 2:00 AM	0	1:00 - 2:00 PM	272
2:00 - 3:00 AM	0	2:00 - 3:00 PM	272
3:00 - 4:00 AM	0	3:00 - 4:00 PM	272
4:00 - 5:00 AM	0	4:00 - 5:00 PM	680
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	190	7:00 - 8:00 PM	0
8:00 - 9:00 AM	272	8:00 - 9:00 PM	0
9:00 - 10:00AM	272	9:00 - 10:00PM	0
10:00 - 11:00 AM	272	10:00 - 11:00 PM	0
11:00 - 12:00 PM	272	11:00 - 12:00 PM	0

Is the intersection using the reduced volume criteria based on speed or population? No

A. Is the Minimum Vehicular Volume Warrant Met? Yes

B. Is the Interruption of Continuous Traffic Met? Yes

Combination of Warrants A and B Criteria Met? Yes
(Use only when Conditions A and B are both not satisified)

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Dixie Highway and I-71/75 SB Ramps
City/State: Covington, KY

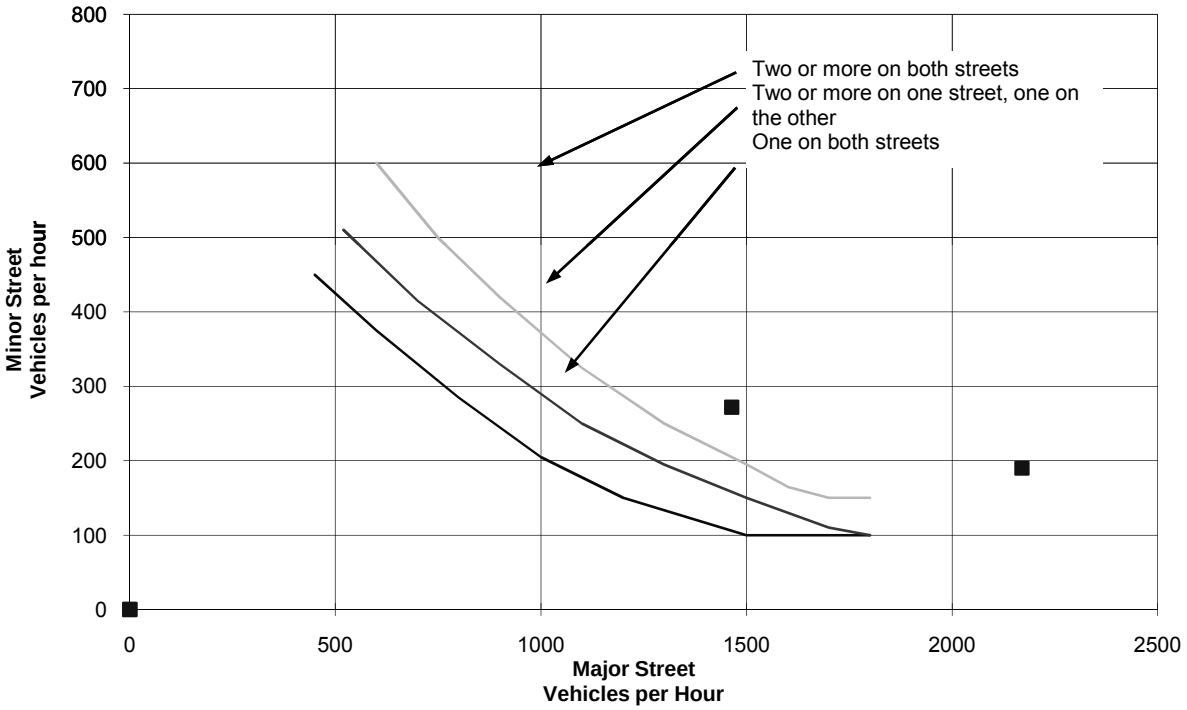
Warrant 3B - Peak Hour

The peak hour volume warrant is also intended for application when traffic conditions are such that for one hour of the day minor street traffic suffers undue traffic delay in entering or crossing the main street.

The peak hour volume warrant is satisfied when the plotted point representing vehicles per hour on the higher volume minor street for one hour falls above the curve in Figure 4C-3.

Figure 4C-4 may be used if the 85th percentile speed of the major street exceeds 40 mph or when the intersection lies within a built-up area of an isolated community having a population less than 10,000.

Peak Hour volume warrant - Major and Minor Streets for Urban Locations - Warrant 3B



Is Peak Hour Volume Warrant Met? **Yes**

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Dixie Highway and I-71/75 NB Ramps

City/State: Covington, KY

Date: 7/19/2010 Performed By: AMW

	Minor (EB/NB) Approach	Minor (WB/SB) Approach	Major(EB/NB) Approach	Major(WB/SB) Approach	Total	Minor	Total Major
12:00 - 1:00 AM					0	0	0
1:00 - 2:00 AM					0	0	0
2:00 - 3:00 AM					0	0	0
3:00 - 4:00 AM					0	0	0
4:00 - 5:00 AM					0	0	0
5:00 - 6:00 AM					0	0	0
6:00 - 7:00 AM					0	0	0
7:00 - 8:00 AM	280		540	2110	2930	280	2650
8:00 - 9:00 AM	248		550	977	1775	248	1527
9:00 - 10:00AM	248		550	977	1775	248	1527
10:00 - 11:00 AM	248		550	977	1775	248	1527
11:00 - 12:00 PM	248		550	977	1775	248	1527
12:00 - 1:00 PM	248		550	977	1775	248	1527
1:00 - 2:00 PM	248		550	977	1775	248	1527
2:00 - 3:00 PM	248		550	977	1775	248	1527
3:00 - 4:00 PM	248		550	977	1775	248	1527
4:00 - 5:00 PM	380		1210	810	2400	380	2020
5:00 - 6:00 PM					0	0	0
6:00 - 7:00 PM					0	0	0
7:00 - 8:00 PM					0	0	0
8:00 - 9:00 PM					0	0	0
9:00 - 10:00PM					0	0	0
10:00 - 11:00 PM					0	0	0
11:00 - 12:00 PM					0	0	0
Total	**2644**	**0**	**6150**	**10736**	**19530**	**2644**	**16886**

Does the 85th Percentile Speed/Posted Speed Limit exceed 40 mph on the major street? No

Does the intersection lie within a built-up area of an isolated community having a population of less than 10,000? No

Your intersection **CANNOT** use the 70% option for this warrant, do you want to use it? No

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Dixie Highway and I-71/75 NB Ramps
City/State: Covington, KY
Date 7/19/2010 Performed by: AMW

Warrant 1 - Eight-Hour Vehicular Volume

Number of lanes of moving traffic for moving traffic on each approach:
Major Street: 2 Minor Street: 2

Vehicles per hour on major street (total of both approaches):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	1527
1:00 - 2:00 AM	0	1:00 - 2:00 PM	1527
2:00 - 3:00 AM	0	2:00 - 3:00 PM	1527
3:00 - 4:00 AM	0	3:00 - 4:00 PM	1527
4:00 - 5:00 AM	0	4:00 - 5:00 PM	2020
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	2650	7:00 - 8:00 PM	0
8:00 - 9:00 AM	1527	8:00 - 9:00 PM	0
9:00 - 10:00AM	1527	9:00 - 10:00PM	0
10:00 - 11:00 AM	1527	10:00 - 11:00 PM	0
11:00 - 12:00 PM	1527	11:00 - 12:00 PM	0

Vehicles per hour on higher-volume minor street approach (one direction only):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	248
1:00 - 2:00 AM	0	1:00 - 2:00 PM	248
2:00 - 3:00 AM	0	2:00 - 3:00 PM	248
3:00 - 4:00 AM	0	3:00 - 4:00 PM	248
4:00 - 5:00 AM	0	4:00 - 5:00 PM	380
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	280	7:00 - 8:00 PM	0
8:00 - 9:00 AM	248	8:00 - 9:00 PM	0
9:00 - 10:00AM	248	9:00 - 10:00PM	0
10:00 - 11:00 AM	248	10:00 - 11:00 PM	0
11:00 - 12:00 PM	248	11:00 - 12:00 PM	0

Is the intersection using the reduced volume criteria based on speed or population? No

A. Is the Minimum Vehicular Volume Warrant Met? Yes

B. Is the Interruption of Continuous Traffic Met? Yes

Combination of Warrants A and B Criteria Met? Yes
(Use only when Conditions A and B are both not satisified)

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Dixie Highway and I-71/75 NB Ramps
City/State: Covington, KY

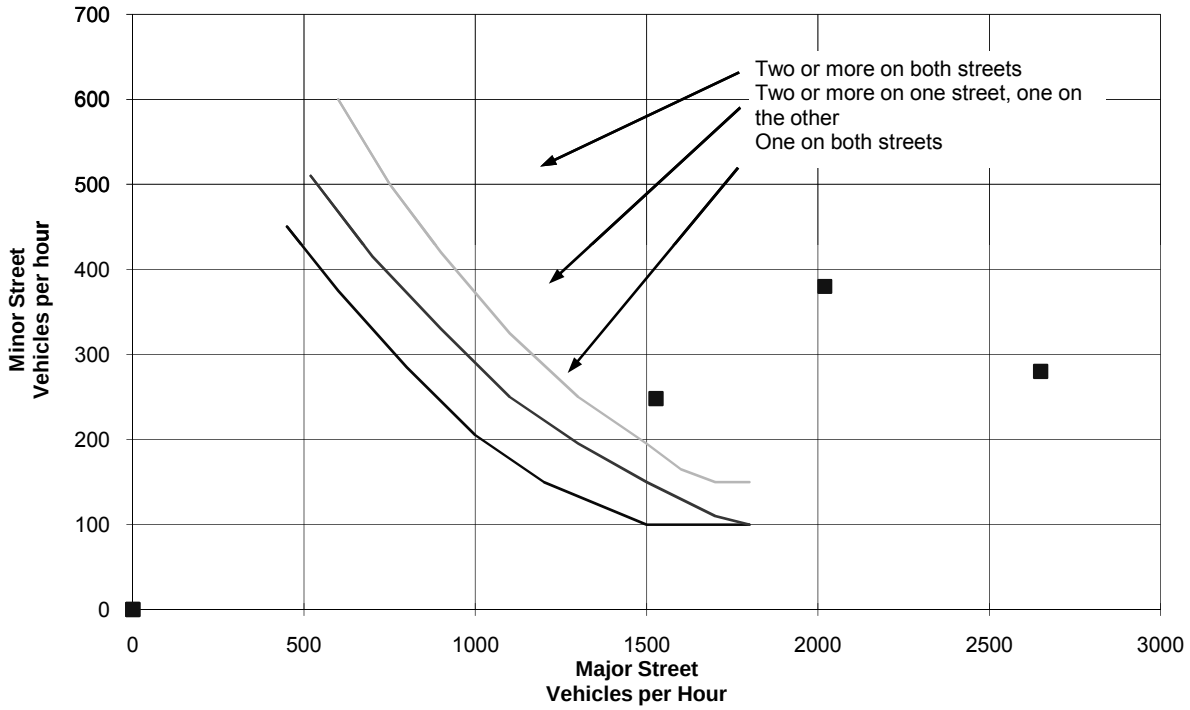
Warrant 3B - Peak Hour

The peak hour volume warrant is also intended for application when traffic conditions are such that for one hour of the day minor street traffic suffers undue traffic delay in entering or crossing the main street.

The peak hour volume warrant is satisfied when the plotted point representing vehicles per hour on the higher volume minor street for one hour falls above the curve in Figure 4C-3.

Figure 4C-4 may be used if the 85th percentile speed of the major street exceeds 40 mph or when the intersection lies within a built-up area of an isolated community having a population less than 10,000.

Peak Hour volume warrant - Major and Minor Streets for Urban Locations - Warrant 3B



Is Peak Hour Volume Warrant Met? **Yes**

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: W. 9th Street and Jillians Way

City/State: Covington, KY

Date: 7/19/2010 Performed By: AMW

	Minor (EB/NB) Approach	Minor (WB/SB) Approach	Major(EB/NB) Approach	Major(WB/SB) Approach	Total	Minor	Total Major
12:00 - 1:00 AM					0	0	0
1:00 - 2:00 AM					0	0	0
2:00 - 3:00 AM					0	0	0
3:00 - 4:00 AM					0	0	0
4:00 - 5:00 AM					0	0	0
5:00 - 6:00 AM					0	0	0
6:00 - 7:00 AM					0	0	0
7:00 - 8:00 AM	470		710	280	1460	470	990
8:00 - 9:00 AM	198		744	257	1199	198	1001
9:00 - 10:00AM	198		744	257	1199	198	1001
10:00 - 11:00 AM	198		744	257	1199	198	1001
11:00 - 12:00 PM	198		744	257	1199	198	1001
12:00 - 1:00 PM	198		744	257	1199	198	1001
1:00 - 2:00 PM	198		744	257	1199	198	1001
2:00 - 3:00 PM	198		744	257	1199	198	1001
3:00 - 4:00 PM	198		744	257	1199	198	1001
4:00 - 5:00 PM	400		920	450	1770	400	1370
5:00 - 6:00 PM					0	0	0
6:00 - 7:00 PM					0	0	0
7:00 - 8:00 PM					0	0	0
8:00 - 9:00 PM					0	0	0
9:00 - 10:00PM					0	0	0
10:00 - 11:00 PM					0	0	0
11:00 - 12:00 PM					0	0	0
Total	**2454**	**0**	**7582**	**2786**	**12822**	**2454**	**10368**

Does the 85th Percentile Speed/Posted Speed Limit exceed 40 mph on the major street? No

Does the intersection lie within a built-up area of an isolated community having a population of less than 10,000? No

Your intersection **CANNOT** use the 70% option for this warrant, do you want to use it? No

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: W. 9th Street and Jillians Way
City/State: Covington, KY
Date 7/19/2010 Performed by: AMW

Warrant 1 - Eight-Hour Vehicular Volume

Number of lanes of moving traffic for moving traffic on each approach:
Major Street: 1 Minor Street: 2

Vehicles per hour on major street (total of both approaches):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	1001
1:00 - 2:00 AM	0	1:00 - 2:00 PM	1001
2:00 - 3:00 AM	0	2:00 - 3:00 PM	1001
3:00 - 4:00 AM	0	3:00 - 4:00 PM	1001
4:00 - 5:00 AM	0	4:00 - 5:00 PM	1370
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	990	7:00 - 8:00 PM	0
8:00 - 9:00 AM	1001	8:00 - 9:00 PM	0
9:00 - 10:00AM	1001	9:00 - 10:00PM	0
10:00 - 11:00 AM	1001	10:00 - 11:00 PM	0
11:00 - 12:00 PM	1001	11:00 - 12:00 PM	0

Vehicles per hour on higher-volume minor street approach (one direction only):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	198
1:00 - 2:00 AM	0	1:00 - 2:00 PM	198
2:00 - 3:00 AM	0	2:00 - 3:00 PM	198
3:00 - 4:00 AM	0	3:00 - 4:00 PM	198
4:00 - 5:00 AM	0	4:00 - 5:00 PM	400
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	470	7:00 - 8:00 PM	0
8:00 - 9:00 AM	198	8:00 - 9:00 PM	0
9:00 - 10:00AM	198	9:00 - 10:00PM	0
10:00 - 11:00 AM	198	10:00 - 11:00 PM	0
11:00 - 12:00 PM	198	11:00 - 12:00 PM	0

Is the intersection using the reduced volume criteria based on speed or population? No

A. Is the Minimum Vehicular Volume Warrant Met? No

B. Is the Interruption of Continuous Traffic Met? Yes

Combination of Warrants A and B Criteria Met? Yes
(Use only when Conditions A and B are both not satisified)

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: W. 9th Street and Jillians Way
City/State: Covington, KY

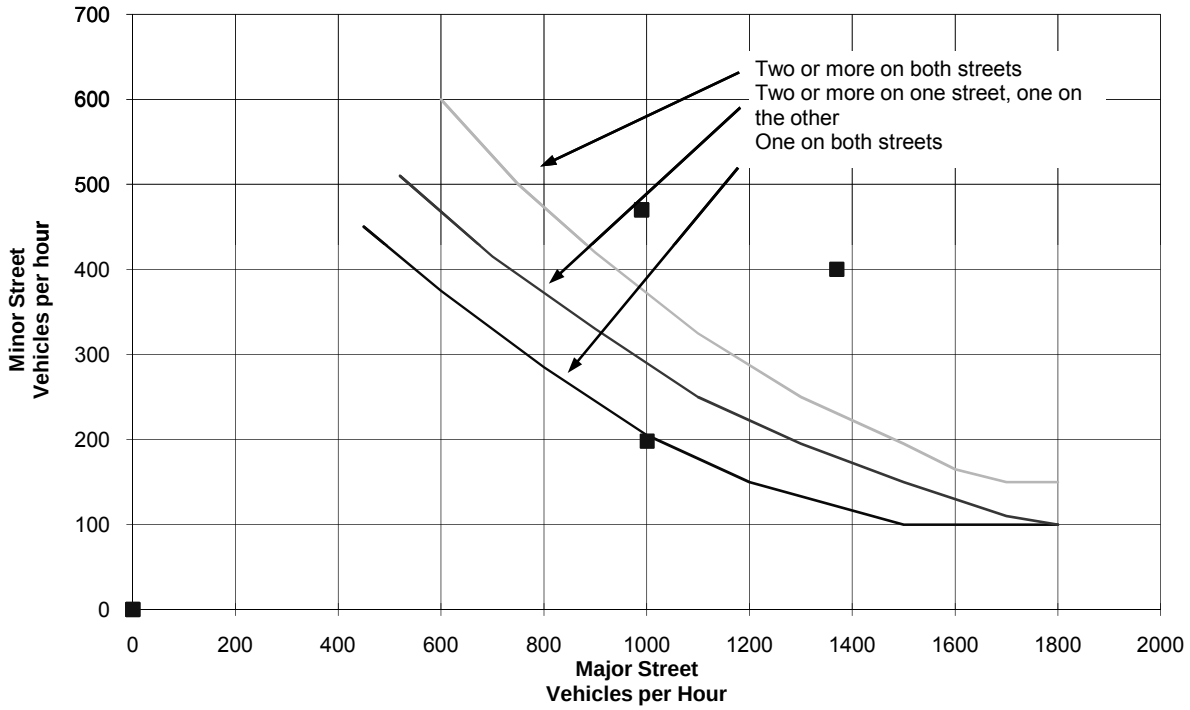
Warrant 3B - Peak Hour

The peak hour volume warrant is also intended for application when traffic conditions are such that for one hour of the day minor street traffic suffers undue traffic delay in entering or crossing the main street.

The peak hour volume warrant is satisfied when the plotted point representing vehicles per hour on the higher volume minor street for one hour falls above the curve in Figure 4C-3.

Figure 4C-4 may be used if the 85th percentile speed of the major street exceeds 40 mph or when the intersection lies within a built-up area of an isolated community having a population less than 10,000.

Peak Hour volume warrant - Major and Minor Streets for Urban Locations - Warrant 3B



Is Peak Hour Volume Warrant Met? **Yes**

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: W. 9th Street and Bullock Street

City/State: Covington, KY

Date: 7/19/2010 Performed By: AMW

	Minor (EB/NB) Approach	Minor (WB/SB) Approach	Major(EB/NB) Approach	Major(WB/SB) Approach	Total	Minor	Total Major
12:00 - 1:00 AM					0	0	0
1:00 - 2:00 AM					0	0	0
2:00 - 3:00 AM					0	0	0
3:00 - 4:00 AM					0	0	0
4:00 - 5:00 AM					0	0	0
5:00 - 6:00 AM					0	0	0
6:00 - 7:00 AM					0	0	0
7:00 - 8:00 AM		1450	220	260	1930	1450	480
8:00 - 9:00 AM		1433	205	247	1885	1433	452
9:00 - 10:00AM		1433	205	247	1885	1433	452
10:00 - 11:00 AM		1433	205	247	1885	1433	452
11:00 - 12:00 PM		1433	205	247	1885	1433	452
12:00 - 1:00 PM		1433	205	247	1885	1433	452
1:00 - 2:00 PM		1433	205	247	1885	1433	452
2:00 - 3:00 PM		1433	205	247	1885	1433	452
3:00 - 4:00 PM		1433	205	247	1885	1433	452
4:00 - 5:00 PM		1920	310	450	2680	1920	760
5:00 - 6:00 PM					0	0	0
6:00 - 7:00 PM					0	0	0
7:00 - 8:00 PM					0	0	0
8:00 - 9:00 PM					0	0	0
9:00 - 10:00PM					0	0	0
10:00 - 11:00 PM					0	0	0
11:00 - 12:00 PM					0	0	0
Total	**0**	**14834**	**2170**	**2686**	**19690**	**14834**	**4856**

Does the 85th Percentile Speed/Posted Speed Limit exceed 40 mph on the major street? No

Does the intersection lie within a built-up area of an isolated community having a population of less than 10,000? No

Your intersection **CANNOT** use the 70% option for this warrant, do you want to use it? No

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: W. 9th Street and Bullock Street
City/State: Covington, KY
Date 7/19/2010 Performed by: AMW

Warrant 1 - Eight-Hour Vehicular Volume

Number of lanes of moving traffic for moving traffic on each approach:
Major Street: 1 Minor Street: 3

Vehicles per hour on major street (total of both approaches):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	452
1:00 - 2:00 AM	0	1:00 - 2:00 PM	452
2:00 - 3:00 AM	0	2:00 - 3:00 PM	452
3:00 - 4:00 AM	0	3:00 - 4:00 PM	452
4:00 - 5:00 AM	0	4:00 - 5:00 PM	760
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	480	7:00 - 8:00 PM	0
8:00 - 9:00 AM	452	8:00 - 9:00 PM	0
9:00 - 10:00AM	452	9:00 - 10:00PM	0
10:00 - 11:00 AM	452	10:00 - 11:00 PM	0
11:00 - 12:00 PM	452	11:00 - 12:00 PM	0

Vehicles per hour on higher-volume minor street approach (one direction only):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	1433
1:00 - 2:00 AM	0	1:00 - 2:00 PM	1433
2:00 - 3:00 AM	0	2:00 - 3:00 PM	1433
3:00 - 4:00 AM	0	3:00 - 4:00 PM	1433
4:00 - 5:00 AM	0	4:00 - 5:00 PM	1920
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	1450	7:00 - 8:00 PM	0
8:00 - 9:00 AM	1433	8:00 - 9:00 PM	0
9:00 - 10:00AM	1433	9:00 - 10:00PM	0
10:00 - 11:00 AM	1433	10:00 - 11:00 PM	0
11:00 - 12:00 PM	1433	11:00 - 12:00 PM	0

Is the intersection using the reduced volume criteria based on speed or population? No

A. Is the Minimum Vehicular Volume Warrant Met? No

B. Is the Interruption of Continuous Traffic Met? No

Combination of Warrants A and B Criteria Met? No
(Use only when Conditions A and B are both not satisified)

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: W. 9th Street and Bullock Street
City/State: Covington, KY

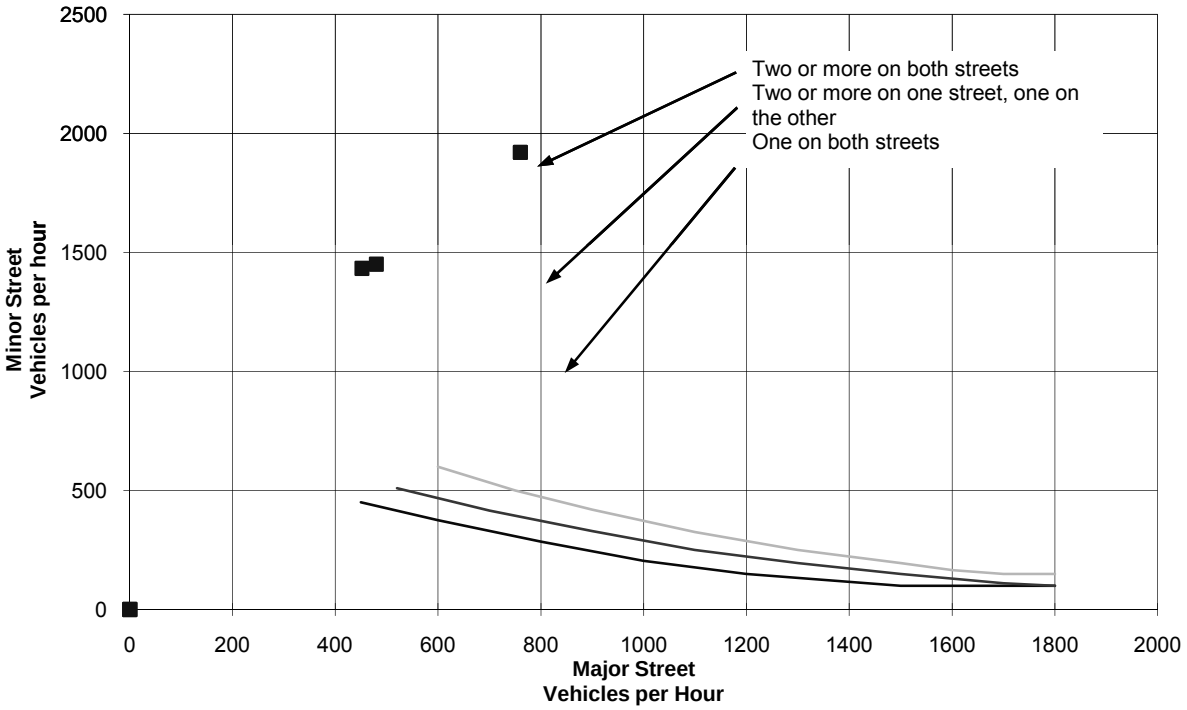
Warrant 3B - Peak Hour

The peak hour volume warrant is also intended for application when traffic conditions are such that for one hour of the day minor street traffic suffers undue traffic delay in entering or crossing the main street.

The peak hour volume warrant is satisfied when the plotted point representing vehicles per hour on the higher volume minor street for one hour falls above the curve in Figure 4C-3.

Figure 4C-4 may be used if the 85th percentile speed of the major street exceeds 40 mph or when the intersection lies within a built-up area of an isolated community having a population less than 10,000.

Peak Hour volume warrant - Major and Minor Streets for Urban Locations - Warrant 3B



Is Peak Hour Volume Warrant Met? **Yes**

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: W. 5th Street and Jillians Way

City/State: Covington, KY

Date: 7/19/2010 Performed By: AMW

	Minor (EB/NB) Approach	Minor (WB/SB) Approach	Major(EB/NB) Approach	Major(WB/SB) Approach	Total	Minor	Total Major
12:00 - 1:00 AM					0	0	0
1:00 - 2:00 AM					0	0	0
2:00 - 3:00 AM					0	0	0
3:00 - 4:00 AM					0	0	0
4:00 - 5:00 AM					0	0	0
5:00 - 6:00 AM					0	0	0
6:00 - 7:00 AM					0	0	0
7:00 - 8:00 AM	1430		240		1670	1430	240
8:00 - 9:00 AM	1179		142		1321	1179	142
9:00 - 10:00AM	1179		142		1321	1179	142
10:00 - 11:00 AM	1179		142		1321	1179	142
11:00 - 12:00 PM	1179		142		1321	1179	142
12:00 - 1:00 PM	1179		142		1321	1179	142
1:00 - 2:00 PM	1179		142		1321	1179	142
2:00 - 3:00 PM	1179		142		1321	1179	142
3:00 - 4:00 PM	1179		142		1321	1179	142
4:00 - 5:00 PM	1460		50		1510	1460	50
5:00 - 6:00 PM					0	0	0
6:00 - 7:00 PM					0	0	0
7:00 - 8:00 PM					0	0	0
8:00 - 9:00 PM					0	0	0
9:00 - 10:00PM					0	0	0
10:00 - 11:00 PM					0	0	0
11:00 - 12:00 PM					0	0	0
Total	**12322**	**0**	**1426**	**0**	**13748**	**12322**	**1426**

Does the 85th Percentile Speed/Posted Speed Limit exceed 40 mph on the major street? No

Does the intersection lie within a built-up area of an isolated community having a population of less than 10,000? No

Your intersection **CANNOT** use the 70% option for this warrant, do you want to use it? No

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: W. 5th Street and Jillians Way
City/State: Covington, KY
Date 7/19/2010 Performed by: AMW

Warrant 1 - Eight-Hour Vehicular Volume

Number of lanes of moving traffic for moving traffic on each approach:
Major Street: 2 Minor Street: 1

Vehicles per hour on major street (total of both approaches):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	142
1:00 - 2:00 AM	0	1:00 - 2:00 PM	142
2:00 - 3:00 AM	0	2:00 - 3:00 PM	142
3:00 - 4:00 AM	0	3:00 - 4:00 PM	142
4:00 - 5:00 AM	0	4:00 - 5:00 PM	50
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	240	7:00 - 8:00 PM	0
8:00 - 9:00 AM	142	8:00 - 9:00 PM	0
9:00 - 10:00AM	142	9:00 - 10:00PM	0
10:00 - 11:00 AM	142	10:00 - 11:00 PM	0
11:00 - 12:00 PM	142	11:00 - 12:00 PM	0

Vehicles per hour on higher-volume minor street approach (one direction only):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	1179
1:00 - 2:00 AM	0	1:00 - 2:00 PM	1179
2:00 - 3:00 AM	0	2:00 - 3:00 PM	1179
3:00 - 4:00 AM	0	3:00 - 4:00 PM	1179
4:00 - 5:00 AM	0	4:00 - 5:00 PM	1460
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	1430	7:00 - 8:00 PM	0
8:00 - 9:00 AM	1179	8:00 - 9:00 PM	0
9:00 - 10:00AM	1179	9:00 - 10:00PM	0
10:00 - 11:00 AM	1179	10:00 - 11:00 PM	0
11:00 - 12:00 PM	1179	11:00 - 12:00 PM	0

Is the intersection using the reduced volume criteria based on speed or population? No

A. Is the Minimum Vehicular Volume Warrant Met? No

B. Is the Interruption of Continuous Traffic Met? No

Combination of Warrants A and B Criteria Met? No
(Use only when Conditions A and B are both not satisified)

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: W. 5th Street and Jillians Way
City/State: Covington, KY

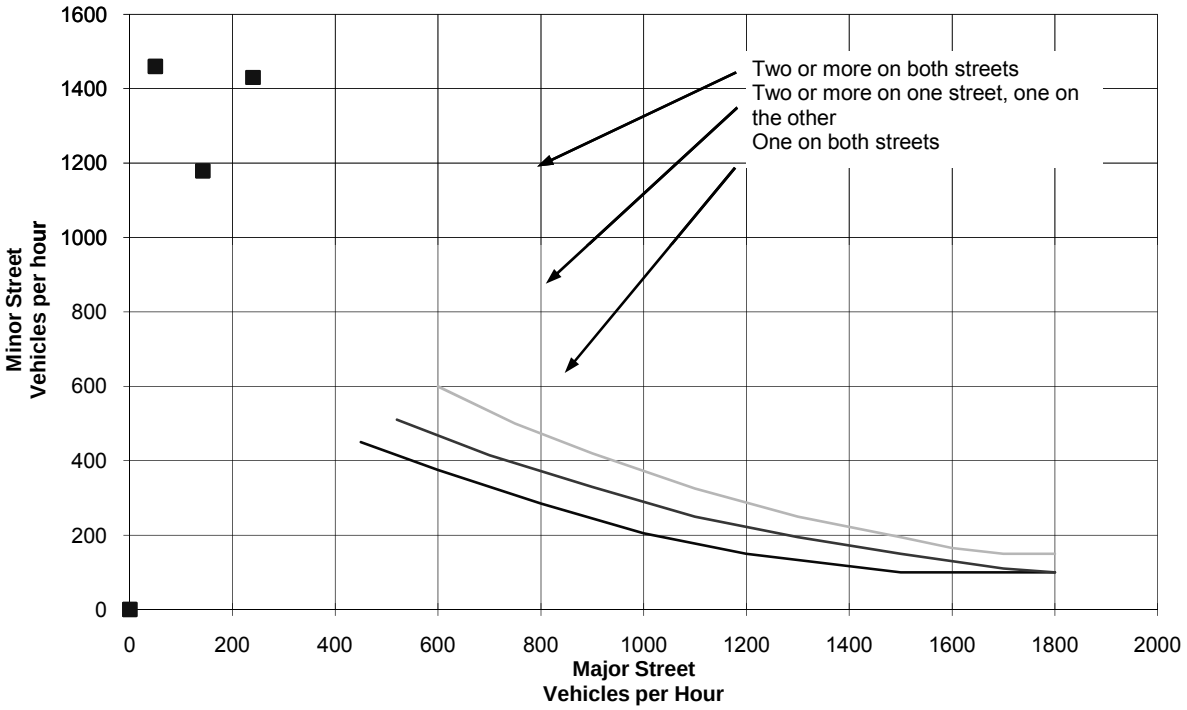
Warrant 3B - Peak Hour

The peak hour volume warrant is also intended for application when traffic conditions are such that for one hour of the day minor street traffic suffers undue traffic delay in entering or crossing the main street.

The peak hour volume warrant is satisfied when the plotted point representing vehicles per hour on the higher volume minor street for one hour falls above the curve in Figure 4C-3.

Figure 4C-4 may be used if the 85th percentile speed of the major street exceeds 40 mph or when the intersection lies within a built-up area of an isolated community having a population less than 10,000.

Peak Hour volume warrant - Major and Minor Streets for Urban Locations - Warrant 3B



Is Peak Hour Volume Warrant Met? **Yes**

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: W. 4th Street and Jillians Way

City/State: Covington, KY

Date: 7/19/2010 Performed By: AMW

	Minor (EB/NB) Approach	Minor (WB/SB) Approach	Major(EB/NB) Approach	Major(WB/SB) Approach	Total	Minor	Total Major
12:00 - 1:00 AM					0	0	0
1:00 - 2:00 AM					0	0	0
2:00 - 3:00 AM					0	0	0
3:00 - 4:00 AM					0	0	0
4:00 - 5:00 AM					0	0	0
5:00 - 6:00 AM					0	0	0
6:00 - 7:00 AM					0	0	0
7:00 - 8:00 AM	330		880		1210	330	880
8:00 - 9:00 AM	365		552		917	365	552
9:00 - 10:00AM	365		552		917	365	552
10:00 - 11:00 AM	365		552		917	365	552
11:00 - 12:00 PM	365		552		917	365	552
12:00 - 1:00 PM	365		552		917	365	552
1:00 - 2:00 PM	365		552		917	365	552
2:00 - 3:00 PM	365		552		917	365	552
3:00 - 4:00 PM	365		552		917	365	552
4:00 - 5:00 PM	540		770		1310	540	770
5:00 - 6:00 PM					0	0	0
6:00 - 7:00 PM					0	0	0
7:00 - 8:00 PM					0	0	0
8:00 - 9:00 PM					0	0	0
9:00 - 10:00PM					0	0	0
10:00 - 11:00 PM					0	0	0
11:00 - 12:00 PM					0	0	0
Total	**3790**	**0**	**6066**	**0**	**9856**	**3790**	**6066**

Does the 85th Percentile Speed/Posted Speed Limit exceed 40 mph on the major street? No

Does the intersection lie within a built-up area of an isolated community having a population of less than 10,000? No

Your intersection **CANNOT** use the 70% option for this warrant, do you want to use it? No

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: W. 4th Street and Jillians Way
City/State: Covington, KY
Date 7/19/2010 Performed by: AMW

Warrant 1 - Eight-Hour Vehicular Volume

Number of lanes of moving traffic for moving traffic on each approach:
Major Street: 2 Minor Street: 1

Vehicles per hour on major street (total of both approaches):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	552
1:00 - 2:00 AM	0	1:00 - 2:00 PM	552
2:00 - 3:00 AM	0	2:00 - 3:00 PM	552
3:00 - 4:00 AM	0	3:00 - 4:00 PM	552
4:00 - 5:00 AM	0	4:00 - 5:00 PM	770
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	880	7:00 - 8:00 PM	0
8:00 - 9:00 AM	552	8:00 - 9:00 PM	0
9:00 - 10:00AM	552	9:00 - 10:00PM	0
10:00 - 11:00 AM	552	10:00 - 11:00 PM	0
11:00 - 12:00 PM	552	11:00 - 12:00 PM	0

Vehicles per hour on higher-volume minor street approach (one direction only):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	365
1:00 - 2:00 AM	0	1:00 - 2:00 PM	365
2:00 - 3:00 AM	0	2:00 - 3:00 PM	365
3:00 - 4:00 AM	0	3:00 - 4:00 PM	365
4:00 - 5:00 AM	0	4:00 - 5:00 PM	540
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	330	7:00 - 8:00 PM	0
8:00 - 9:00 AM	365	8:00 - 9:00 PM	0
9:00 - 10:00AM	365	9:00 - 10:00PM	0
10:00 - 11:00 AM	365	10:00 - 11:00 PM	0
11:00 - 12:00 PM	365	11:00 - 12:00 PM	0

Is the intersection using the reduced volume criteria based on speed or population? No

A. Is the Minimum Vehicular Volume Warrant Met? No

B. Is the Interruption of Continuous Traffic Met? No

Combination of Warrants A and B Criteria Met? No
(Use only when Conditions A and B are both not satisified)

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: W. 4th Street and Jillians Way
City/State: Covington, KY

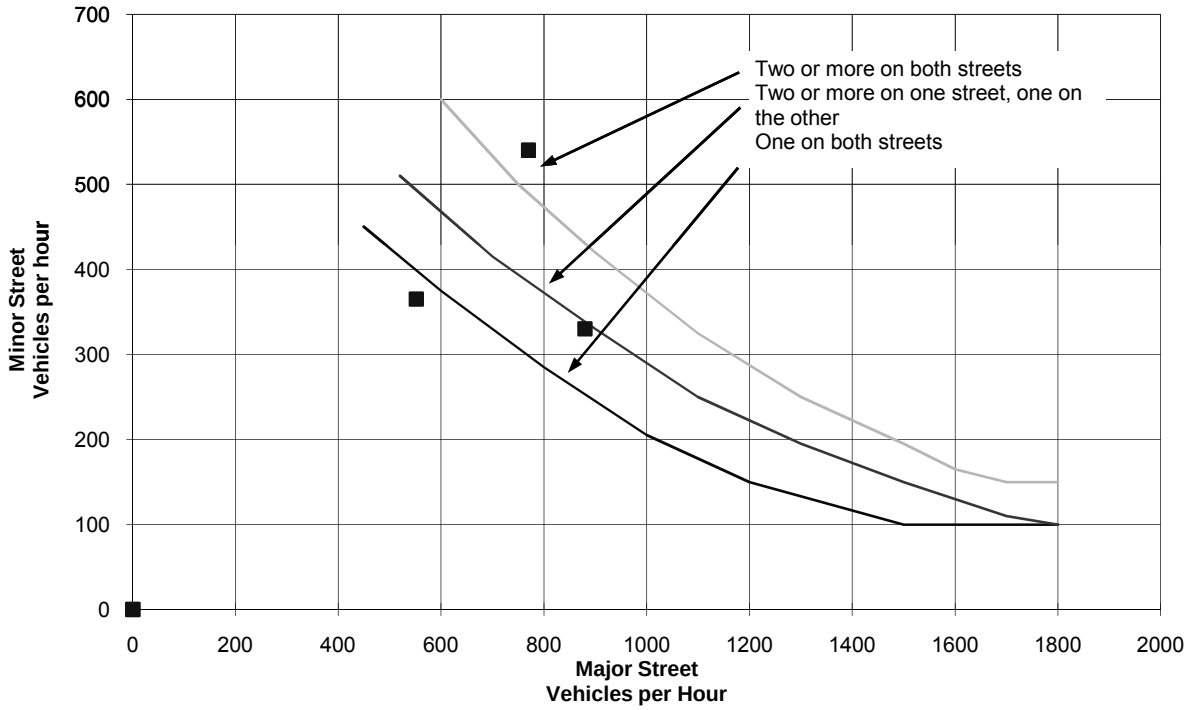
Warrant 3B - Peak Hour

The peak hour volume warrant is also intended for application when traffic conditions are such that for one hour of the day minor street traffic suffers undue traffic delay in entering or crossing the main street.

The peak hour volume warrant is satisfied when the plotted point representing vehicles per hour on the higher volume minor street for one hour falls above the curve in Figure 4C-3.

Figure 4C-4 may be used if the 85th percentile speed of the major street exceeds 40 mph or when the intersection lies within a built-up area of an isolated community having a population less than 10,000.

Peak Hour volume warrant - Major and Minor Streets for Urban Locations - Warrant 3B



Is Peak Hour Volume Warrant Met? **No**

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: W. 4th Street and Crescent Avenue

City/State: Covington, KY

Date: 7/8/2010 Performed By: AMW

	Minor (EB/NB) Approach	Minor (WB/SB) Approach	Major(EB/NB) Approach	Major(WB/SB) Approach	Total	Minor	Total Major
12:00 - 1:00 AM					0	0	0
1:00 - 2:00 AM					0	0	0
2:00 - 3:00 AM					0	0	0
3:00 - 4:00 AM					0	0	0
4:00 - 5:00 AM					0	0	0
5:00 - 6:00 AM					0	0	0
6:00 - 7:00 AM					0	0	0
7:00 - 8:00 AM		90	290	410	790	90	700
8:00 - 9:00 AM		63	265	155	483	63	420
9:00 - 10:00AM		63	265	155	483	63	420
10:00 - 11:00 AM		63	265	155	483	63	420
11:00 - 12:00 PM		63	265	155	483	63	420
12:00 - 1:00 PM		63	265	155	483	63	420
1:00 - 2:00 PM		63	265	155	483	63	420
2:00 - 3:00 PM		63	265	155	483	63	420
3:00 - 4:00 PM		63	265	155	483	63	420
4:00 - 5:00 PM		100	420	220	740	100	640
5:00 - 6:00 PM					0	0	0
6:00 - 7:00 PM					0	0	0
7:00 - 8:00 PM					0	0	0
8:00 - 9:00 PM					0	0	0
9:00 - 10:00PM					0	0	0
10:00 - 11:00 PM					0	0	0
11:00 - 12:00 PM					0	0	0
Total	**0**	**694**	**2830**	**1870**	**5394**	**694**	**4700**

Does the 85th Percentile Speed/Posted Speed Limit exceed 40 mph on the major street? No

Does the intersection lie within a built-up area of an isolated community having a population of less than 10,000? No

Your intersection **CANNOT** use the 70% option for this warrant, do you want to use it? No

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: W. 4th Street and Crescent Avenue
City/State: Covington, KY
Date 7/8/2010 Performed by: AMW

Warrant 1 - Eight-Hour Vehicular Volume

Number of lanes of moving traffic for moving traffic on each approach:
Major Street: 1 Minor Street: 1

Vehicles per hour on major street (total of both approaches):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	420
1:00 - 2:00 AM	0	1:00 - 2:00 PM	420
2:00 - 3:00 AM	0	2:00 - 3:00 PM	420
3:00 - 4:00 AM	0	3:00 - 4:00 PM	420
4:00 - 5:00 AM	0	4:00 - 5:00 PM	640
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	700	7:00 - 8:00 PM	0
8:00 - 9:00 AM	420	8:00 - 9:00 PM	0
9:00 - 10:00AM	420	9:00 - 10:00PM	0
10:00 - 11:00 AM	420	10:00 - 11:00 PM	0
11:00 - 12:00 PM	420	11:00 - 12:00 PM	0

Vehicles per hour on higher-volume minor street approach (one direction only):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	63
1:00 - 2:00 AM	0	1:00 - 2:00 PM	63
2:00 - 3:00 AM	0	2:00 - 3:00 PM	63
3:00 - 4:00 AM	0	3:00 - 4:00 PM	63
4:00 - 5:00 AM	0	4:00 - 5:00 PM	100
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	90	7:00 - 8:00 PM	0
8:00 - 9:00 AM	63	8:00 - 9:00 PM	0
9:00 - 10:00AM	63	9:00 - 10:00PM	0
10:00 - 11:00 AM	63	10:00 - 11:00 PM	0
11:00 - 12:00 PM	63	11:00 - 12:00 PM	0

Is the intersection using the reduced volume criteria based on speed or population? No

A. Is the Minimum Vehicular Volume Warrant Met? No

B. Is the Interruption of Continuous Traffic Met? No

Combination of Warrants A and B Criteria Met? No
(Use only when Conditions A and B are both not satisified)

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: W. 4th Street and Crescent Avenue
City/State: Covington, KY

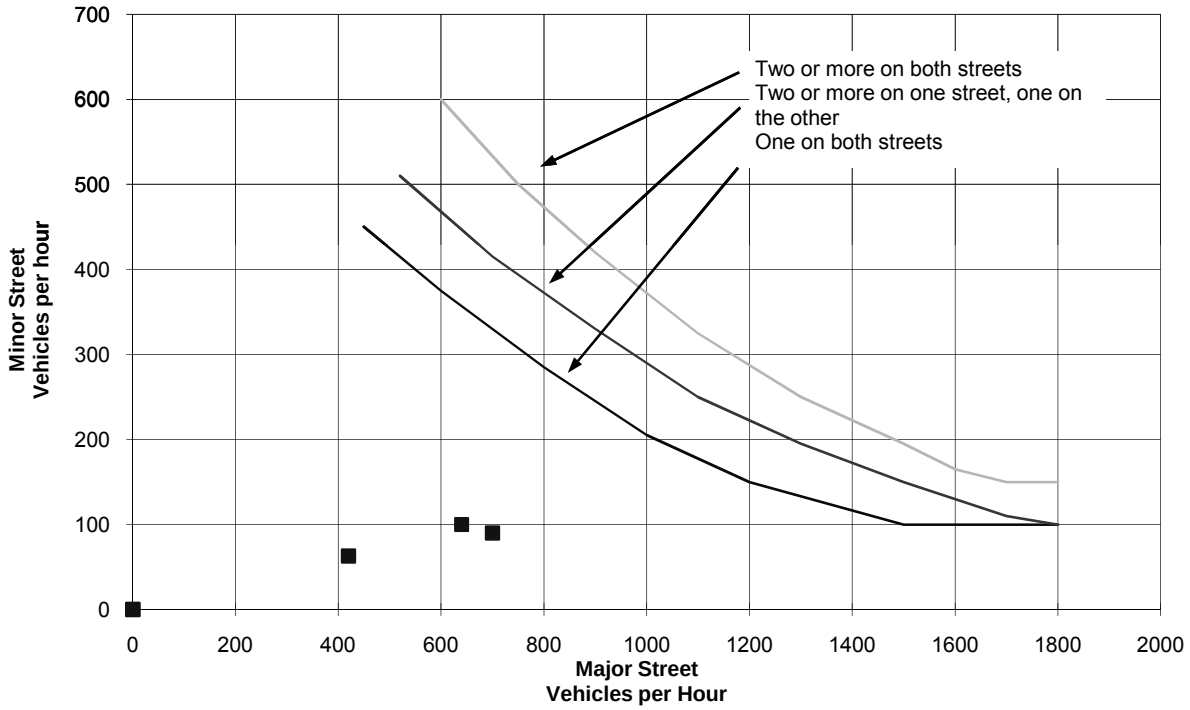
Warrant 3B - Peak Hour

The peak hour volume warrant is also intended for application when traffic conditions are such that for one hour of the day minor street traffic suffers undue traffic delay in entering or crossing the main street.

The peak hour volume warrant is satisfied when the plotted point representing vehicles per hour on the higher volume minor street for one hour falls above the curve in Figure 4C-3.

Figure 4C-4 may be used if the 85th percentile speed of the major street exceeds 40 mph or when the intersection lies within a built-up area of an isolated community having a population less than 10,000.

Peak Hour volume warrant - Major and Minor Streets for Urban Locations - Warrant 3B



Is Peak Hour Volume Warrant Met? **No**

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: W. 5th Street and Crescent Avenue

City/State: Covington, KY

Date: 7/8/2010 Performed By: AMW

	Minor (EB/NB) Approach	Minor (WB/SB) Approach	Major(EB/NB) Approach	Major(WB/SB) Approach	Total	Minor	Total Major
12:00 - 1:00 AM					0	0	0
1:00 - 2:00 AM					0	0	0
2:00 - 3:00 AM					0	0	0
3:00 - 4:00 AM					0	0	0
4:00 - 5:00 AM					0	0	0
5:00 - 6:00 AM					0	0	0
6:00 - 7:00 AM					0	0	0
7:00 - 8:00 AM	250		90	250	590	250	340
8:00 - 9:00 AM	250		83	154	487	250	237
9:00 - 10:00AM	250		83	154	487	250	237
10:00 - 11:00 AM	250		83	154	487	250	237
11:00 - 12:00 PM	250		83	154	487	250	237
12:00 - 1:00 PM	250		83	154	487	250	237
1:00 - 2:00 PM	250		83	154	487	250	237
2:00 - 3:00 PM	250		83	154	487	250	237
3:00 - 4:00 PM	250		83	154	487	250	237
4:00 - 5:00 PM	440		130	210	780	440	340
5:00 - 6:00 PM					0	0	0
6:00 - 7:00 PM					0	0	0
7:00 - 8:00 PM					0	0	0
8:00 - 9:00 PM					0	0	0
9:00 - 10:00PM					0	0	0
10:00 - 11:00 PM					0	0	0
11:00 - 12:00 PM					0	0	0
Total	**2690**	**0**	**884**	**1692**	**5266**	**2690**	**2576**

Does the 85th Percentile Speed/Posted Speed Limit exceed 40 mph on the major street? No

Does the intersection lie within a built-up area of an isolated community having a population of less than 10,000? No

Your intersection **CANNOT** use the 70% option for this warrant, do you want to use it? No

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: W. 5th Street and Crescent Avenue
City/State: Covington, KY
Date 7/8/2010 Performed by: AMW

Warrant 1 - Eight-Hour Vehicular Volume

Number of lanes of moving traffic for moving traffic on each approach:
Major Street: 1 Minor Street: 1

Vehicles per hour on major street (total of both approaches):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	237
1:00 - 2:00 AM	0	1:00 - 2:00 PM	237
2:00 - 3:00 AM	0	2:00 - 3:00 PM	237
3:00 - 4:00 AM	0	3:00 - 4:00 PM	237
4:00 - 5:00 AM	0	4:00 - 5:00 PM	340
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	340	7:00 - 8:00 PM	0
8:00 - 9:00 AM	237	8:00 - 9:00 PM	0
9:00 - 10:00AM	237	9:00 - 10:00PM	0
10:00 - 11:00 AM	237	10:00 - 11:00 PM	0
11:00 - 12:00 PM	237	11:00 - 12:00 PM	0

Vehicles per hour on higher-volume minor street approach (one direction only):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	250
1:00 - 2:00 AM	0	1:00 - 2:00 PM	250
2:00 - 3:00 AM	0	2:00 - 3:00 PM	250
3:00 - 4:00 AM	0	3:00 - 4:00 PM	250
4:00 - 5:00 AM	0	4:00 - 5:00 PM	440
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	250	7:00 - 8:00 PM	0
8:00 - 9:00 AM	250	8:00 - 9:00 PM	0
9:00 - 10:00AM	250	9:00 - 10:00PM	0
10:00 - 11:00 AM	250	10:00 - 11:00 PM	0
11:00 - 12:00 PM	250	11:00 - 12:00 PM	0

Is the intersection using the reduced volume criteria based on speed or population? No

A. Is the Minimum Vehicular Volume Warrant Met? No

B. Is the Interruption of Continuous Traffic Met? No

Combination of Warrants A and B Criteria Met? No
(Use only when Conditions A and B are both not satisified)

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: W. 5th Street and Crescent Avenue
City/State: Covington, KY

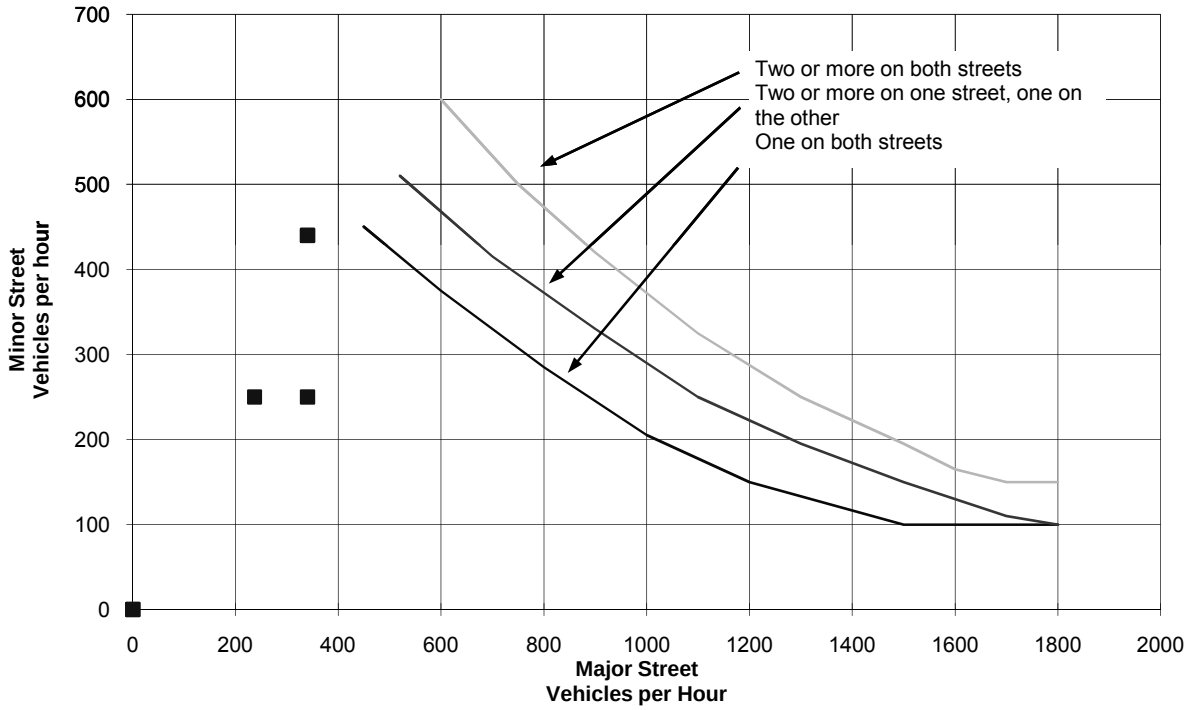
Warrant 3B - Peak Hour

The peak hour volume warrant is also intended for application when traffic conditions are such that for one hour of the day minor street traffic suffers undue traffic delay in entering or crossing the main street.

The peak hour volume warrant is satisfied when the plotted point representing vehicles per hour on the higher volume minor street for one hour falls above the curve in Figure 4C-3.

Figure 4C-4 may be used if the 85th percentile speed of the major street exceeds 40 mph or when the intersection lies within a built-up area of an isolated community having a population less than 10,000.

Peak Hour volume warrant - Major and Minor Streets for Urban Locations - Warrant 3B



Is Peak Hour Volume Warrant Met? **No**

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Pike Street and Bullock Street

City/State: Covington, KY

Date: 7/8/2010 Performed By: AMW

	Minor (EB/NB) Approach	Minor (WB/SB) Approach	Major(EB/NB) Approach	Major(WB/SB) Approach	Total	Minor	Total Major
12:00 - 1:00 AM					0	0	0
1:00 - 2:00 AM					0	0	0
2:00 - 3:00 AM					0	0	0
3:00 - 4:00 AM					0	0	0
4:00 - 5:00 AM					0	0	0
5:00 - 6:00 AM					0	0	0
6:00 - 7:00 AM					0	0	0
7:00 - 8:00 AM		1040	780	480	2300	1040	1260
8:00 - 9:00 AM		715	221	563	1499	715	784
9:00 - 10:00AM		715	221	563	1499	715	784
10:00 - 11:00 AM		715	221	563	1499	715	784
11:00 - 12:00 PM		715	221	563	1499	715	784
12:00 - 1:00 PM		715	221	563	1499	715	784
1:00 - 2:00 PM		715	221	563	1499	715	784
2:00 - 3:00 PM		715	221	563	1499	715	784
3:00 - 4:00 PM		715	221	563	1499	715	784
4:00 - 5:00 PM		1530	260	1120	2910	1530	1380
5:00 - 6:00 PM					0	0	0
6:00 - 7:00 PM					0	0	0
7:00 - 8:00 PM					0	0	0
8:00 - 9:00 PM					0	0	0
9:00 - 10:00PM					0	0	0
10:00 - 11:00 PM					0	0	0
11:00 - 12:00 PM					0	0	0
Total	**0**	**8290**	**2808**	**6104**	**17202**	**8290**	**8912**

Does the 85th Percentile Speed/Posted Speed Limit exceed 40 mph on the major street? No

Does the intersection lie within a built-up area of an isolated community having a population of less than 10,000? No

Your intersection **CANNOT** use the 70% option for this warrant, do you want to use it? No

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Pike Street and Bullock Street
City/State: Covington, KY
Date 7/8/2010 Performed by: AMW

Warrant 1 - Eight-Hour Vehicular Volume

Number of lanes of moving traffic for moving traffic on each approach:
Major Street: 2 Minor Street: 3

Vehicles per hour on major street (total of both approaches):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	784
1:00 - 2:00 AM	0	1:00 - 2:00 PM	784
2:00 - 3:00 AM	0	2:00 - 3:00 PM	784
3:00 - 4:00 AM	0	3:00 - 4:00 PM	784
4:00 - 5:00 AM	0	4:00 - 5:00 PM	1380
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	1260	7:00 - 8:00 PM	0
8:00 - 9:00 AM	784	8:00 - 9:00 PM	0
9:00 - 10:00AM	784	9:00 - 10:00PM	0
10:00 - 11:00 AM	784	10:00 - 11:00 PM	0
11:00 - 12:00 PM	784	11:00 - 12:00 PM	0

Vehicles per hour on higher-volume minor street approach (one direction only):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	715
1:00 - 2:00 AM	0	1:00 - 2:00 PM	715
2:00 - 3:00 AM	0	2:00 - 3:00 PM	715
3:00 - 4:00 AM	0	3:00 - 4:00 PM	715
4:00 - 5:00 AM	0	4:00 - 5:00 PM	1530
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	1040	7:00 - 8:00 PM	0
8:00 - 9:00 AM	715	8:00 - 9:00 PM	0
9:00 - 10:00AM	715	9:00 - 10:00PM	0
10:00 - 11:00 AM	715	10:00 - 11:00 PM	0
11:00 - 12:00 PM	715	11:00 - 12:00 PM	0

Is the intersection using the reduced volume criteria based on speed or population? No

A. Is the Minimum Vehicular Volume Warrant Met? Yes

B. Is the Interruption of Continuous Traffic Met? No

Combination of Warrants A and B Criteria Met? Yes
(Use only when Conditions A and B are both not satisified)

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Pike Street and Bullock Street
City/State: Covington, KY

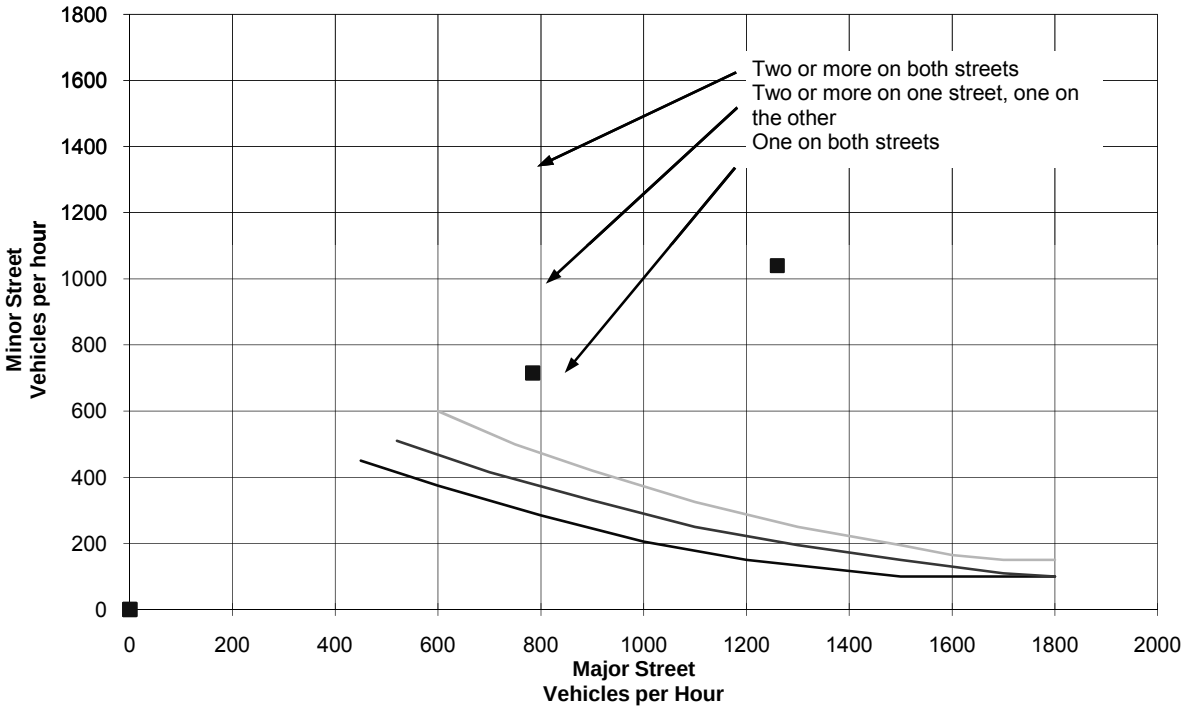
Warrant 3B - Peak Hour

The peak hour volume warrant is also intended for application when traffic conditions are such that for one hour of the day minor street traffic suffers undue traffic delay in entering or crossing the main street.

The peak hour volume warrant is satisfied when the plotted point representing vehicles per hour on the higher volume minor street for one hour falls above the curve in Figure 4C-3.

Figure 4C-4 may be used if the 85th percentile speed of the major street exceeds 40 mph or when the intersection lies within a built-up area of an isolated community having a population less than 10,000.

Peak Hour volume warrant - Major and Minor Streets for Urban Locations - Warrant 3B



Is Peak Hour Volume Warrant Met? **Yes**

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Pike Street and Jillians Way

City/State: Covington, KY

Date: 7/8/2010 Performed By: AMW

	Minor (EB/NB) Approach	Minor (WB/SB) Approach	Major(EB/NB) Approach	Major(WB/SB) Approach	Total	Minor	Total Major
12:00 - 1:00 AM					0	0	0
1:00 - 2:00 AM					0	0	0
2:00 - 3:00 AM					0	0	0
3:00 - 4:00 AM					0	0	0
4:00 - 5:00 AM					0	0	0
5:00 - 6:00 AM					0	0	0
6:00 - 7:00 AM					0	0	0
7:00 - 8:00 AM	1730		880	470	3080	1730	1350
8:00 - 9:00 AM	924		280	501	1705	924	781
9:00 - 10:00AM	924		280	501	1705	924	781
10:00 - 11:00 AM	924		280	501	1705	924	781
11:00 - 12:00 PM	924		280	501	1705	924	781
12:00 - 1:00 PM	924		280	501	1705	924	781
1:00 - 2:00 PM	924		280	501	1705	924	781
2:00 - 3:00 PM	924		280	501	1705	924	781
3:00 - 4:00 PM	924		280	501	1705	924	781
4:00 - 5:00 PM	1000		470	1090	2560	1000	1560
5:00 - 6:00 PM					0	0	0
6:00 - 7:00 PM					0	0	0
7:00 - 8:00 PM					0	0	0
8:00 - 9:00 PM					0	0	0
9:00 - 10:00PM					0	0	0
10:00 - 11:00 PM					0	0	0
11:00 - 12:00 PM					0	0	0
Total	**10122**	**0**	**3590**	**5568**	**19280**	**10122**	**9158**

Does the 85th Percentile Speed/Posted Speed Limit exceed 40 mph on the major street? No

Does the intersection lie within a built-up area of an isolated community having a population of less than 10,000? No

Your intersection **CANNOT** use the 70% option for this warrant, do you want to use it? No

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Pike Street and Jillians Way
City/State: Covington, KY
Date 7/8/2010 Performed by: AMW

Warrant 1 - Eight-Hour Vehicular Volume

Number of lanes of moving traffic for moving traffic on each approach:
Major Street: 2 Minor Street: 3

Vehicles per hour on major street (total of both approaches):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	781
1:00 - 2:00 AM	0	1:00 - 2:00 PM	781
2:00 - 3:00 AM	0	2:00 - 3:00 PM	781
3:00 - 4:00 AM	0	3:00 - 4:00 PM	781
4:00 - 5:00 AM	0	4:00 - 5:00 PM	1560
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	1350	7:00 - 8:00 PM	0
8:00 - 9:00 AM	781	8:00 - 9:00 PM	0
9:00 - 10:00AM	781	9:00 - 10:00PM	0
10:00 - 11:00 AM	781	10:00 - 11:00 PM	0
11:00 - 12:00 PM	781	11:00 - 12:00 PM	0

Vehicles per hour on higher-volume minor street approach (one direction only):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	924
1:00 - 2:00 AM	0	1:00 - 2:00 PM	924
2:00 - 3:00 AM	0	2:00 - 3:00 PM	924
3:00 - 4:00 AM	0	3:00 - 4:00 PM	924
4:00 - 5:00 AM	0	4:00 - 5:00 PM	1000
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	1730	7:00 - 8:00 PM	0
8:00 - 9:00 AM	924	8:00 - 9:00 PM	0
9:00 - 10:00AM	924	9:00 - 10:00PM	0
10:00 - 11:00 AM	924	10:00 - 11:00 PM	0
11:00 - 12:00 PM	924	11:00 - 12:00 PM	0

Is the intersection using the reduced volume criteria based on speed or population? No

A. Is the Minimum Vehicular Volume Warrant Met? Yes

B. Is the Interruption of Continuous Traffic Met? No

Combination of Warrants A and B Criteria Met? Yes
(Use only when Conditions A and B are both not satisified)

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Pike Street and Jillians Way
City/State: Covington, KY

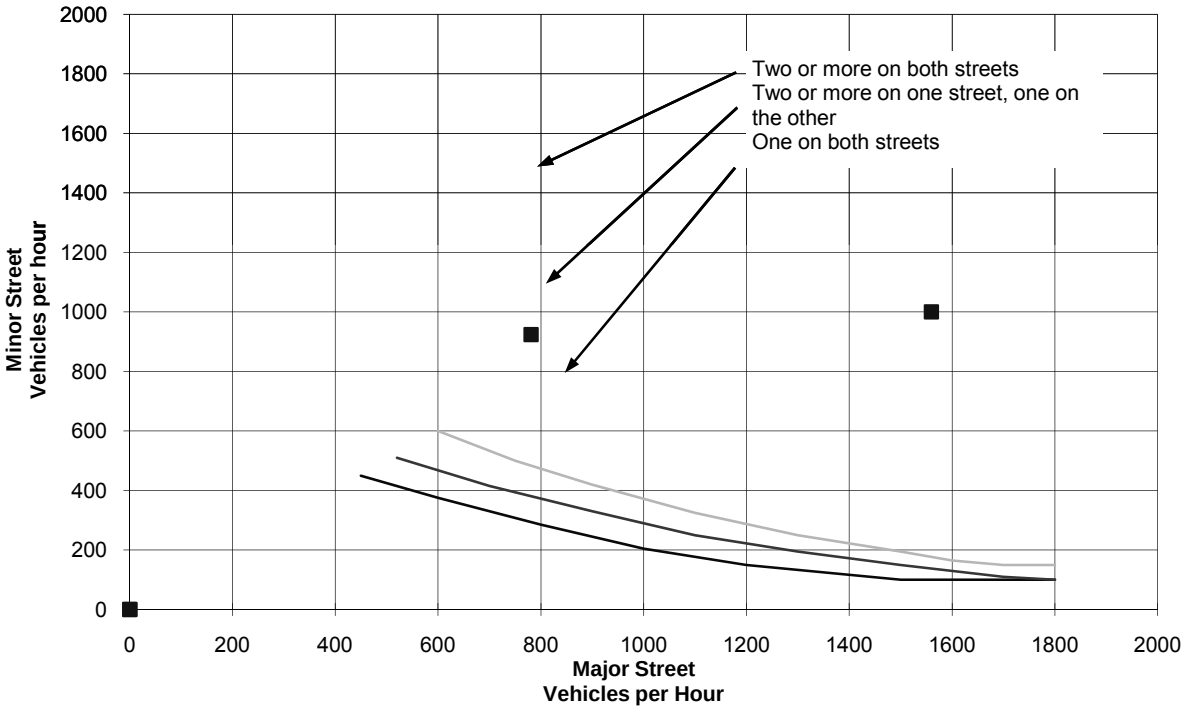
Warrant 3B - Peak Hour

The peak hour volume warrant is also intended for application when traffic conditions are such that for one hour of the day minor street traffic suffers undue traffic delay in entering or crossing the main street.

The peak hour volume warrant is satisfied when the plotted point representing vehicles per hour on the higher volume minor street for one hour falls above the curve in Figure 4C-3.

Figure 4C-4 may be used if the 85th percentile speed of the major street exceeds 40 mph or when the intersection lies within a built-up area of an isolated community having a population less than 10,000.

Peak Hour volume warrant - Major and Minor Streets for Urban Locations - Warrant 3B



Is Peak Hour Volume Warrant Met? **Yes**

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: W. 12th Street and Bullock Street

City/State: Covington, KY

Date: 7/8/2010 Performed By: AMW

	Minor (EB/NB) Approach	Minor (WB/SB) Approach	Major(EB/NB) Approach	Major(WB/SB) Approach	Total	Minor	Total Major
12:00 - 1:00 AM					0	0	0
1:00 - 2:00 AM					0	0	0
2:00 - 3:00 AM					0	0	0
3:00 - 4:00 AM					0	0	0
4:00 - 5:00 AM					0	0	0
5:00 - 6:00 AM					0	0	0
6:00 - 7:00 AM					0	0	0
7:00 - 8:00 AM		990	280	270	1540	990	550
8:00 - 9:00 AM		750	132	267	1149	750	399
9:00 - 10:00AM		750	132	267	1149	750	399
10:00 - 11:00 AM		750	132	267	1149	750	399
11:00 - 12:00 PM		750	132	267	1149	750	399
12:00 - 1:00 PM		750	132	267	1149	750	399
1:00 - 2:00 PM		750	132	267	1149	750	399
2:00 - 3:00 PM		750	132	267	1149	750	399
3:00 - 4:00 PM		750	132	267	1149	750	399
4:00 - 5:00 PM		1270	120	460	1850	1270	580
5:00 - 6:00 PM					0	0	0
6:00 - 7:00 PM					0	0	0
7:00 - 8:00 PM					0	0	0
8:00 - 9:00 PM					0	0	0
9:00 - 10:00PM					0	0	0
10:00 - 11:00 PM					0	0	0
11:00 - 12:00 PM					0	0	0
Total	**0**	**8260**	**1456**	**2866**	**12582**	**8260**	**4322**

Does the 85th Percentile Speed/Posted Speed Limit exceed 40 mph on the major street? No

Does the intersection lie within a built-up area of an isolated community having a population of less than 10,000? No

Your intersection **CANNOT** use the 70% option for this warrant, do you want to use it? No

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: W. 12th Street and Bullock Street
City/State: Covington, KY
Date 7/8/2010 Performed by: AMW

Warrant 1 - Eight-Hour Vehicular Volume

Number of lanes of moving traffic for moving traffic on each approach:
Major Street: 1 Minor Street: 2

Vehicles per hour on major street (total of both approaches):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	399
1:00 - 2:00 AM	0	1:00 - 2:00 PM	399
2:00 - 3:00 AM	0	2:00 - 3:00 PM	399
3:00 - 4:00 AM	0	3:00 - 4:00 PM	399
4:00 - 5:00 AM	0	4:00 - 5:00 PM	580
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	550	7:00 - 8:00 PM	0
8:00 - 9:00 AM	399	8:00 - 9:00 PM	0
9:00 - 10:00AM	399	9:00 - 10:00PM	0
10:00 - 11:00 AM	399	10:00 - 11:00 PM	0
11:00 - 12:00 PM	399	11:00 - 12:00 PM	0

Vehicles per hour on higher-volume minor street approach (one direction only):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	750
1:00 - 2:00 AM	0	1:00 - 2:00 PM	750
2:00 - 3:00 AM	0	2:00 - 3:00 PM	750
3:00 - 4:00 AM	0	3:00 - 4:00 PM	750
4:00 - 5:00 AM	0	4:00 - 5:00 PM	1270
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	990	7:00 - 8:00 PM	0
8:00 - 9:00 AM	750	8:00 - 9:00 PM	0
9:00 - 10:00AM	750	9:00 - 10:00PM	0
10:00 - 11:00 AM	750	10:00 - 11:00 PM	0
11:00 - 12:00 PM	750	11:00 - 12:00 PM	0

Is the intersection using the reduced volume criteria based on speed or population? No

A. Is the Minimum Vehicular Volume Warrant Met? No

B. Is the Interruption of Continuous Traffic Met? No

Combination of Warrants A and B Criteria Met? No
(Use only when Conditions A and B are both not satisified)

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: W. 12th Street and Bullock Street
City/State: Covington, KY

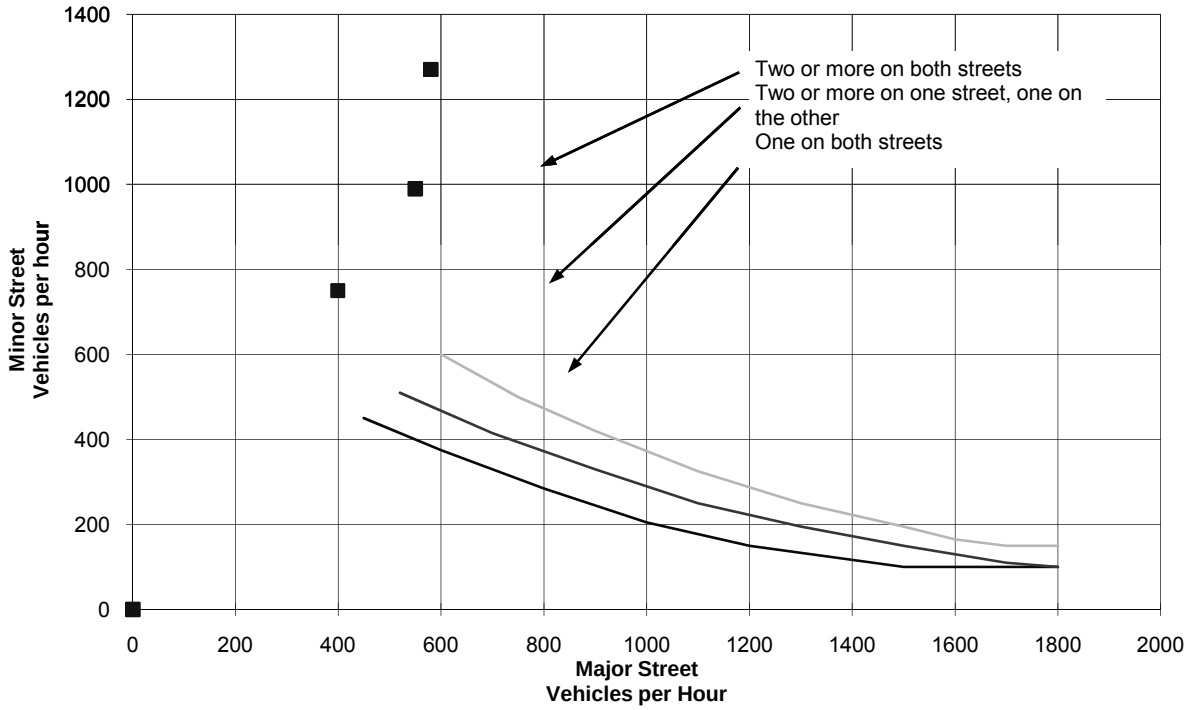
Warrant 3B - Peak Hour

The peak hour volume warrant is also intended for application when traffic conditions are such that for one hour of the day minor street traffic suffers undue traffic delay in entering or crossing the main street.

The peak hour volume warrant is satisfied when the plotted point representing vehicles per hour on the higher volume minor street for one hour falls above the curve in Figure 4C-3.

Figure 4C-4 may be used if the 85th percentile speed of the major street exceeds 40 mph or when the intersection lies within a built-up area of an isolated community having a population less than 10,000.

Peak Hour volume warrant - Major and Minor Streets for Urban Locations - Warrant 3B



Is Peak Hour Volume Warrant Met? **No**

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: W. 12th Street and Jillians Way

City/State: Covington, KY

Date: 7/8/2010 Performed By: AMW

	Minor (EB/NB) Approach	Minor (WB/SB) Approach	Major(EB/NB) Approach	Major(WB/SB) Approach	Total	Minor	Total Major
12:00 - 1:00 AM					0	0	0
1:00 - 2:00 AM					0	0	0
2:00 - 3:00 AM					0	0	0
3:00 - 4:00 AM					0	0	0
4:00 - 5:00 AM					0	0	0
5:00 - 6:00 AM					0	0	0
6:00 - 7:00 AM					0	0	0
7:00 - 8:00 AM	1140		630	780	2550	1140	1410
8:00 - 9:00 AM	909		254	440	1603	909	694
9:00 - 10:00AM	909		254	440	1603	909	694
10:00 - 11:00 AM	909		254	440	1603	909	694
11:00 - 12:00 PM	909		254	440	1603	909	694
12:00 - 1:00 PM	909		254	440	1603	909	694
1:00 - 2:00 PM	909		254	440	1603	909	694
2:00 - 3:00 PM	909		254	440	1603	909	694
3:00 - 4:00 PM	909		254	440	1603	909	694
4:00 - 5:00 PM	1200		260	660	2120	1200	920
5:00 - 6:00 PM					0	0	0
6:00 - 7:00 PM					0	0	0
7:00 - 8:00 PM					0	0	0
8:00 - 9:00 PM					0	0	0
9:00 - 10:00PM					0	0	0
10:00 - 11:00 PM					0	0	0
11:00 - 12:00 PM					0	0	0
Total	**9612**	**0**	**2922**	**4960**	**17494**	**9612**	**7882**

Does the 85th Percentile Speed/Posted Speed Limit exceed 40 mph on the major street? No

Does the intersection lie within a built-up area of an isolated community having a population of less than 10,000? No

Your intersection **CANNOT** use the 70% option for this warrant, do you want to use it? No

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: W. 12th Street and Jillians Way
City/State: Covington, KY
Date 7/8/2010 Performed by: AMW

Warrant 1 - Eight-Hour Vehicular Volume

Number of lanes of moving traffic for moving traffic on each approach:
Major Street: 2 Minor Street: 3

Vehicles per hour on major street (total of both approaches):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	694
1:00 - 2:00 AM	0	1:00 - 2:00 PM	694
2:00 - 3:00 AM	0	2:00 - 3:00 PM	694
3:00 - 4:00 AM	0	3:00 - 4:00 PM	694
4:00 - 5:00 AM	0	4:00 - 5:00 PM	920
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	1410	7:00 - 8:00 PM	0
8:00 - 9:00 AM	694	8:00 - 9:00 PM	0
9:00 - 10:00AM	694	9:00 - 10:00PM	0
10:00 - 11:00 AM	694	10:00 - 11:00 PM	0
11:00 - 12:00 PM	694	11:00 - 12:00 PM	0

Vehicles per hour on higher-volume minor street approach (one direction only):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	909
1:00 - 2:00 AM	0	1:00 - 2:00 PM	909
2:00 - 3:00 AM	0	2:00 - 3:00 PM	909
3:00 - 4:00 AM	0	3:00 - 4:00 PM	909
4:00 - 5:00 AM	0	4:00 - 5:00 PM	1200
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	1140	7:00 - 8:00 PM	0
8:00 - 9:00 AM	909	8:00 - 9:00 PM	0
9:00 - 10:00AM	909	9:00 - 10:00PM	0
10:00 - 11:00 AM	909	10:00 - 11:00 PM	0
11:00 - 12:00 PM	909	11:00 - 12:00 PM	0

Is the intersection using the reduced volume criteria based on speed or population? No

A. Is the Minimum Vehicular Volume Warrant Met? Yes

B. Is the Interruption of Continuous Traffic Met? No

Combination of Warrants A and B Criteria Met? No
(Use only when Conditions A and B are both not satisified)

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: W. 12th Street and Jillians Way
City/State: Covington, KY

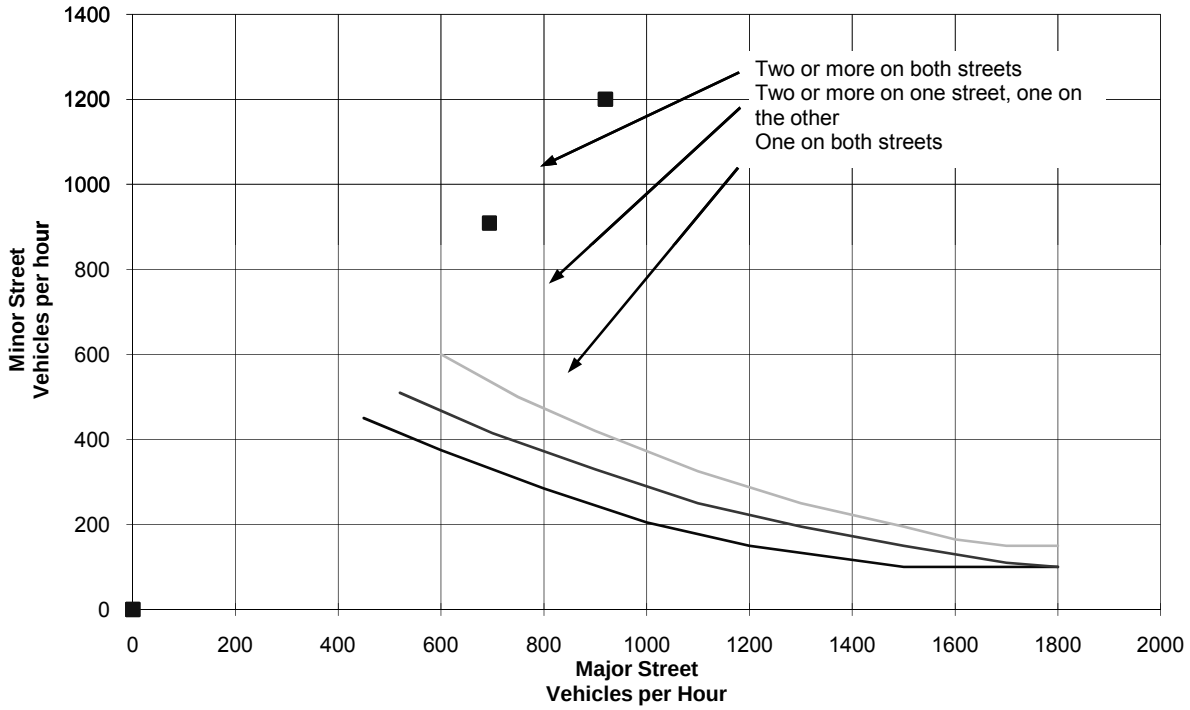
Warrant 3B - Peak Hour

The peak hour volume warrant is also intended for application when traffic conditions are such that for one hour of the day minor street traffic suffers undue traffic delay in entering or crossing the main street.

The peak hour volume warrant is satisfied when the plotted point representing vehicles per hour on the higher volume minor street for one hour falls above the curve in Figure 4C-3.

Figure 4C-4 may be used if the 85th percentile speed of the major street exceeds 40 mph or when the intersection lies within a built-up area of an isolated community having a population less than 10,000.

Peak Hour volume warrant - Major and Minor Streets for Urban Locations - Warrant 3B



Is Peak Hour Volume Warrant Met? **Yes**

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Kyles Lane and I-71/75 SB Ramps

City/State: Covington, KY

Date: 7/8/2010 Performed By: AMW

	Minor (EB/NB) Approach	Minor (WB/SB) Approach	Major(EB/NB) Approach	Major(WB/SB) Approach	Total	Minor	Total Major
12:00 - 1:00 AM					0	0	0
1:00 - 2:00 AM					0	0	0
2:00 - 3:00 AM					0	0	0
3:00 - 4:00 AM					0	0	0
4:00 - 5:00 AM					0	0	0
5:00 - 6:00 AM					0	0	0
6:00 - 7:00 AM					0	0	0
7:00 - 8:00 AM		690	810	850	2350	690	1660
8:00 - 9:00 AM		591	595	690	1876	591	1285
9:00 - 10:00AM		591	595	690	1876	591	1285
10:00 - 11:00 AM		591	595	690	1876	591	1285
11:00 - 12:00 PM		591	595	690	1876	591	1285
12:00 - 1:00 PM		591	595	690	1876	591	1285
1:00 - 2:00 PM		591	595	690	1876	591	1285
2:00 - 3:00 PM		591	595	690	1876	591	1285
3:00 - 4:00 PM		591	595	690	1876	591	1285
4:00 - 5:00 PM		1140	970	1150	3260	1140	2120
5:00 - 6:00 PM					0	0	0
6:00 - 7:00 PM					0	0	0
7:00 - 8:00 PM					0	0	0
8:00 - 9:00 PM					0	0	0
9:00 - 10:00PM					0	0	0
10:00 - 11:00 PM					0	0	0
11:00 - 12:00 PM					0	0	0
Total	**0**	**6558**	**6540**	**7520**	**20618**	**6558**	**14060**

Does the 85th Percentile Speed/Posted Speed Limit exceed 40 mph on the major street? No

Does the intersection lie within a built-up area of an isolated community having a population of less than 10,000? No

Your intersection **CANNOT** use the 70% option for this warrant, do you want to use it? No

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Kyles Lane and I-71/75 SB Ramps
City/State: Covington, KY
Date 7/8/2010 Performed by: AMW

Warrant 1 - Eight-Hour Vehicular Volume

Number of lanes of moving traffic for moving traffic on each approach:
Major Street: 2 Minor Street: 2

Vehicles per hour on major street (total of both approaches):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	1285
1:00 - 2:00 AM	0	1:00 - 2:00 PM	1285
2:00 - 3:00 AM	0	2:00 - 3:00 PM	1285
3:00 - 4:00 AM	0	3:00 - 4:00 PM	1285
4:00 - 5:00 AM	0	4:00 - 5:00 PM	2120
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	1660	7:00 - 8:00 PM	0
8:00 - 9:00 AM	1285	8:00 - 9:00 PM	0
9:00 - 10:00AM	1285	9:00 - 10:00PM	0
10:00 - 11:00 AM	1285	10:00 - 11:00 PM	0
11:00 - 12:00 PM	1285	11:00 - 12:00 PM	0

Vehicles per hour on higher-volume minor street approach (one direction only):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	591
1:00 - 2:00 AM	0	1:00 - 2:00 PM	591
2:00 - 3:00 AM	0	2:00 - 3:00 PM	591
3:00 - 4:00 AM	0	3:00 - 4:00 PM	591
4:00 - 5:00 AM	0	4:00 - 5:00 PM	1140
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	690	7:00 - 8:00 PM	0
8:00 - 9:00 AM	591	8:00 - 9:00 PM	0
9:00 - 10:00AM	591	9:00 - 10:00PM	0
10:00 - 11:00 AM	591	10:00 - 11:00 PM	0
11:00 - 12:00 PM	591	11:00 - 12:00 PM	0

Is the intersection using the reduced volume criteria based on speed or population? No

A. Is the Minimum Vehicular Volume Warrant Met? Yes

B. Is the Interruption of Continuous Traffic Met? Yes

Combination of Warrants A and B Criteria Met? Yes
(Use only when Conditions A and B are both not satisified)

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Kyles Lane and I-71/75 SB Ramps
City/State: Covington, KY

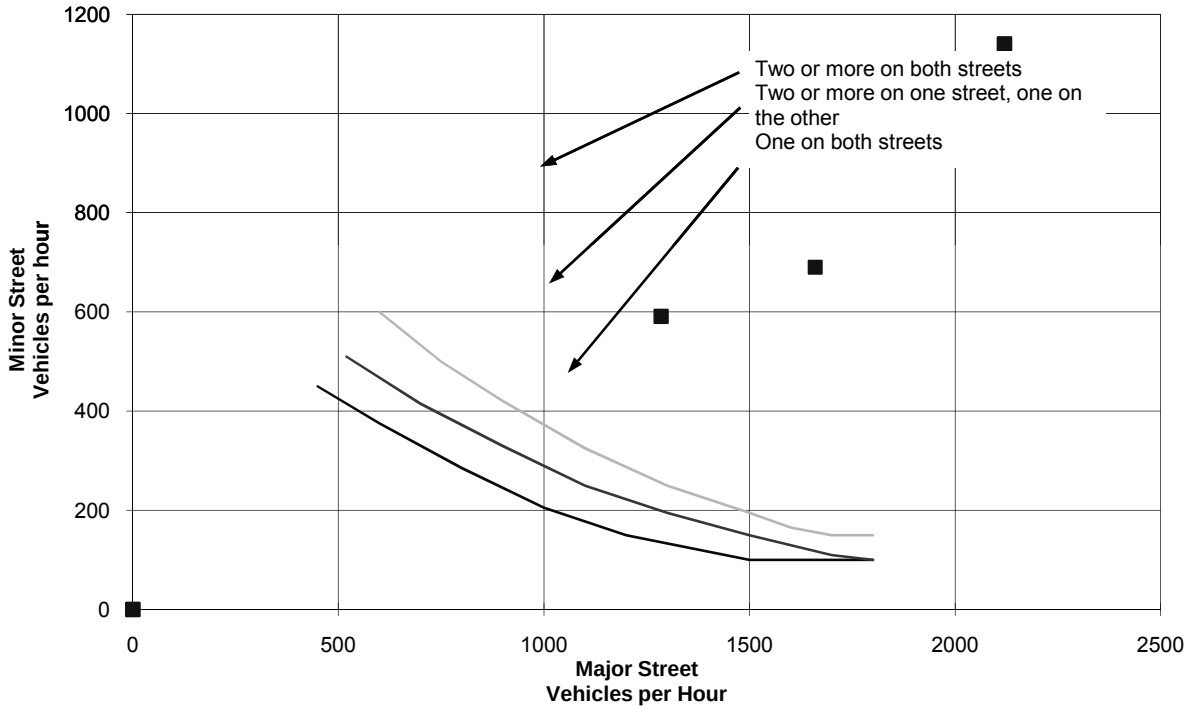
Warrant 3B - Peak Hour

The peak hour volume warrant is also intended for application when traffic conditions are such that for one hour of the day minor street traffic suffers undue traffic delay in entering or crossing the main street.

The peak hour volume warrant is satisfied when the plotted point representing vehicles per hour on the higher volume minor street for one hour falls above the curve in Figure 4C-3.

Figure 4C-4 may be used if the 85th percentile speed of the major street exceeds 40 mph or when the intersection lies within a built-up area of an isolated community having a population less than 10,000.

Peak Hour volume warrant - Major and Minor Streets for Urban Locations - Warrant 3B



Is Peak Hour Volume Warrant Met? **Yes**

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Kyles Lane and I-71/75 NB Ramps

City/State: Covington, KY

Date: 7/8/2010 Performed By: AMW

	Minor (EB/NB) Approach	Minor (WB/SB) Approach	Major(EB/NB) Approach	Major(WB/SB) Approach	Total	Minor	Total Major
12:00 - 1:00 AM					0	0	0
1:00 - 2:00 AM					0	0	0
2:00 - 3:00 AM					0	0	0
3:00 - 4:00 AM					0	0	0
4:00 - 5:00 AM					0	0	0
5:00 - 6:00 AM					0	0	0
6:00 - 7:00 AM					0	0	0
7:00 - 8:00 AM	440		1120	1660	3220	440	2780
8:00 - 9:00 AM	394		863	959	2216	394	1822
9:00 - 10:00AM	394		863	959	2216	394	1822
10:00 - 11:00 AM	394		863	959	2216	394	1822
11:00 - 12:00 PM	394		863	959	2216	394	1822
12:00 - 1:00 PM	394		863	959	2216	394	1822
1:00 - 2:00 PM	394		863	959	2216	394	1822
2:00 - 3:00 PM	394		863	959	2216	394	1822
3:00 - 4:00 PM	394		863	959	2216	394	1822
4:00 - 5:00 PM	720		1460	1320	3500	720	2780
5:00 - 6:00 PM					0	0	0
6:00 - 7:00 PM					0	0	0
7:00 - 8:00 PM					0	0	0
8:00 - 9:00 PM					0	0	0
9:00 - 10:00PM					0	0	0
10:00 - 11:00 PM					0	0	0
11:00 - 12:00 PM					0	0	0
Total	**4312**	**0**	**9484**	**10652**	**24448**	**4312**	**20136**

Does the 85th Percentile Speed/Posted Speed Limit exceed 40 mph on the major street? No

Does the intersection lie within a built-up area of an isolated community having a population of less than 10,000? No

Your intersection **CANNOT** use the 70% option for this warrant, do you want to use it? No

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Kyles Lane and I-71/75 NB Ramps
City/State: Covington, KY
Date 7/8/2010 Performed by: AMW

Warrant 1 - Eight-Hour Vehicular Volume

Number of lanes of moving traffic for moving traffic on each approach:
Major Street: 2 Minor Street: 2

Vehicles per hour on major street (total of both approaches):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	1822
1:00 - 2:00 AM	0	1:00 - 2:00 PM	1822
2:00 - 3:00 AM	0	2:00 - 3:00 PM	1822
3:00 - 4:00 AM	0	3:00 - 4:00 PM	1822
4:00 - 5:00 AM	0	4:00 - 5:00 PM	2780
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	2780	7:00 - 8:00 PM	0
8:00 - 9:00 AM	1822	8:00 - 9:00 PM	0
9:00 - 10:00AM	1822	9:00 - 10:00PM	0
10:00 - 11:00 AM	1822	10:00 - 11:00 PM	0
11:00 - 12:00 PM	1822	11:00 - 12:00 PM	0

Vehicles per hour on higher-volume minor street approach (one direction only):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	394
1:00 - 2:00 AM	0	1:00 - 2:00 PM	394
2:00 - 3:00 AM	0	2:00 - 3:00 PM	394
3:00 - 4:00 AM	0	3:00 - 4:00 PM	394
4:00 - 5:00 AM	0	4:00 - 5:00 PM	720
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	440	7:00 - 8:00 PM	0
8:00 - 9:00 AM	394	8:00 - 9:00 PM	0
9:00 - 10:00AM	394	9:00 - 10:00PM	0
10:00 - 11:00 AM	394	10:00 - 11:00 PM	0
11:00 - 12:00 PM	394	11:00 - 12:00 PM	0

Is the intersection using the reduced volume criteria based on speed or population? No

A. Is the Minimum Vehicular Volume Warrant Met? Yes

B. Is the Interruption of Continuous Traffic Met? Yes

Combination of Warrants A and B Criteria Met? Yes
(Use only when Conditions A and B are both not satisified)

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Kyles Lane and I-71/75 NB Ramps
City/State: Covington, KY

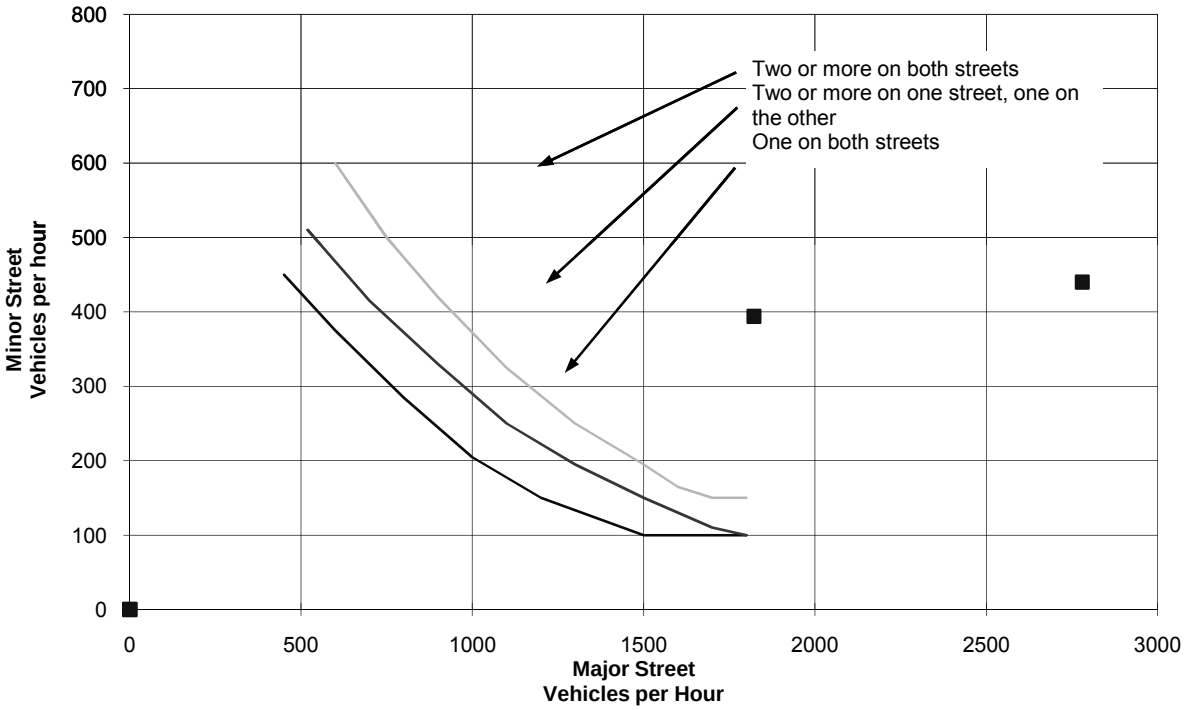
Warrant 3B - Peak Hour

The peak hour volume warrant is also intended for application when traffic conditions are such that for one hour of the day minor street traffic suffers undue traffic delay in entering or crossing the main street.

The peak hour volume warrant is satisfied when the plotted point representing vehicles per hour on the higher volume minor street for one hour falls above the curve in Figure 4C-3.

Figure 4C-4 may be used if the 85th percentile speed of the major street exceeds 40 mph or when the intersection lies within a built-up area of an isolated community having a population less than 10,000.

Peak Hour volume warrant - Major and Minor Streets for Urban Locations - Warrant 3B



Is Peak Hour Volume Warrant Met? **Yes**

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Dixie Highway and I-71/75 SB Ramps

City/State: Covington, KY

Date: 7/8/2010 Performed By: AMW

	Minor (EB/NB) Approach	Minor (WB/SB) Approach	Major(EB/NB) Approach	Major(WB/SB) Approach	Total	Minor	Total Major
12:00 - 1:00 AM					0	0	0
1:00 - 2:00 AM					0	0	0
2:00 - 3:00 AM					0	0	0
3:00 - 4:00 AM					0	0	0
4:00 - 5:00 AM					0	0	0
5:00 - 6:00 AM					0	0	0
6:00 - 7:00 AM					0	0	0
7:00 - 8:00 AM		190	660	1510	2360	190	2170
8:00 - 9:00 AM		272	601	863	1736	272	1464
9:00 - 10:00AM		272	601	863	1736	272	1464
10:00 - 11:00 AM		272	601	863	1736	272	1464
11:00 - 12:00 PM		272	601	863	1736	272	1464
12:00 - 1:00 PM		272	601	863	1736	272	1464
1:00 - 2:00 PM		272	601	863	1736	272	1464
2:00 - 3:00 PM		272	601	863	1736	272	1464
3:00 - 4:00 PM		272	601	863	1736	272	1464
4:00 - 5:00 PM		680	1170	740	2590	680	1910
5:00 - 6:00 PM					0	0	0
6:00 - 7:00 PM					0	0	0
7:00 - 8:00 PM					0	0	0
8:00 - 9:00 PM					0	0	0
9:00 - 10:00PM					0	0	0
10:00 - 11:00 PM					0	0	0
11:00 - 12:00 PM					0	0	0
Total	**0**	**3046**	**6638**	**9154**	**18838**	**3046**	**15792**

Does the 85th Percentile Speed/Posted Speed Limit exceed 40 mph on the major street? No

Does the intersection lie within a built-up area of an isolated community having a population of less than 10,000? No

Your intersection **CANNOT** use the 70% option for this warrant, do you want to use it? No

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Dixie Highway and I-71/75 SB Ramps
City/State: Covington, KY
Date 7/8/2010 Performed by: AMW

Warrant 1 - Eight-Hour Vehicular Volume

Number of lanes of moving traffic for moving traffic on each approach:
Major Street: 2 Minor Street: 2

Vehicles per hour on major street (total of both approaches):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	1464
1:00 - 2:00 AM	0	1:00 - 2:00 PM	1464
2:00 - 3:00 AM	0	2:00 - 3:00 PM	1464
3:00 - 4:00 AM	0	3:00 - 4:00 PM	1464
4:00 - 5:00 AM	0	4:00 - 5:00 PM	1910
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	2170	7:00 - 8:00 PM	0
8:00 - 9:00 AM	1464	8:00 - 9:00 PM	0
9:00 - 10:00AM	1464	9:00 - 10:00PM	0
10:00 - 11:00 AM	1464	10:00 - 11:00 PM	0
11:00 - 12:00 PM	1464	11:00 - 12:00 PM	0

Vehicles per hour on higher-volume minor street approach (one direction only):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	272
1:00 - 2:00 AM	0	1:00 - 2:00 PM	272
2:00 - 3:00 AM	0	2:00 - 3:00 PM	272
3:00 - 4:00 AM	0	3:00 - 4:00 PM	272
4:00 - 5:00 AM	0	4:00 - 5:00 PM	680
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	190	7:00 - 8:00 PM	0
8:00 - 9:00 AM	272	8:00 - 9:00 PM	0
9:00 - 10:00AM	272	9:00 - 10:00PM	0
10:00 - 11:00 AM	272	10:00 - 11:00 PM	0
11:00 - 12:00 PM	272	11:00 - 12:00 PM	0

Is the intersection using the reduced volume criteria based on speed or population? No

A. Is the Minimum Vehicular Volume Warrant Met? Yes

B. Is the Interruption of Continuous Traffic Met? Yes

Combination of Warrants A and B Criteria Met? Yes
(Use only when Conditions A and B are both not satisified)

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Dixie Highway and I-71/75 SB Ramps
City/State: Covington, KY

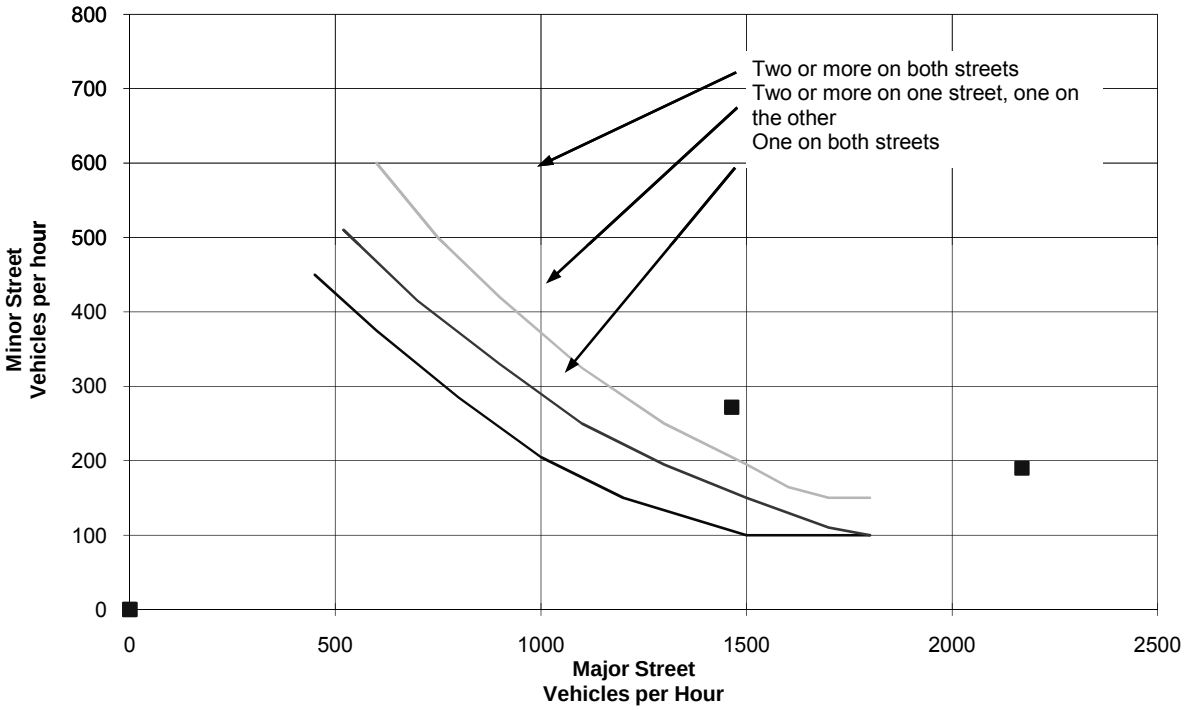
Warrant 3B - Peak Hour

The peak hour volume warrant is also intended for application when traffic conditions are such that for one hour of the day minor street traffic suffers undue traffic delay in entering or crossing the main street.

The peak hour volume warrant is satisfied when the plotted point representing vehicles per hour on the higher volume minor street for one hour falls above the curve in Figure 4C-3.

Figure 4C-4 may be used if the 85th percentile speed of the major street exceeds 40 mph or when the intersection lies within a built-up area of an isolated community having a population less than 10,000.

Peak Hour volume warrant - Major and Minor Streets for Urban Locations - Warrant 3B



Is Peak Hour Volume Warrant Met? **Yes**

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Dixie Highway and I-71/75 NB Ramps

City/State: Covington, KY

Date: 7/8/2010 Performed By: AMW

	Minor (EB/NB) Approach	Minor (WB/SB) Approach	Major(EB/NB) Approach	Major(WB/SB) Approach	Total	Minor	Total Major
12:00 - 1:00 AM					0	0	0
1:00 - 2:00 AM					0	0	0
2:00 - 3:00 AM					0	0	0
3:00 - 4:00 AM					0	0	0
4:00 - 5:00 AM					0	0	0
5:00 - 6:00 AM					0	0	0
6:00 - 7:00 AM					0	0	0
7:00 - 8:00 AM	280		540	2110	2930	280	2650
8:00 - 9:00 AM	248		550	977	1775	248	1527
9:00 - 10:00AM	248		550	977	1775	248	1527
10:00 - 11:00 AM	248		550	977	1775	248	1527
11:00 - 12:00 PM	248		550	977	1775	248	1527
12:00 - 1:00 PM	248		550	977	1775	248	1527
1:00 - 2:00 PM	248		550	977	1775	248	1527
2:00 - 3:00 PM	248		550	977	1775	248	1527
3:00 - 4:00 PM	248		550	977	1775	248	1527
4:00 - 5:00 PM	380		1210	810	2400	380	2020
5:00 - 6:00 PM					0	0	0
6:00 - 7:00 PM					0	0	0
7:00 - 8:00 PM					0	0	0
8:00 - 9:00 PM					0	0	0
9:00 - 10:00PM					0	0	0
10:00 - 11:00 PM					0	0	0
11:00 - 12:00 PM					0	0	0
Total	**2644**	**0**	**6150**	**10736**	**19530**	**2644**	**16886**

Does the 85th Percentile Speed/Posted Speed Limit exceed 40 mph on the major street? No

Does the intersection lie within a built-up area of an isolated community having a population of less than 10,000? No

Your intersection **CANNOT** use the 70% option for this warrant, do you want to use it? No

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Dixie Highway and I-71/75 NB Ramps
City/State: Covington, KY
Date 7/8/2010 Performed by: AMW

Warrant 1 - Eight-Hour Vehicular Volume

Number of lanes of moving traffic for moving traffic on each approach:
Major Street: 2 Minor Street: 2

Vehicles per hour on major street (total of both approaches):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	1527
1:00 - 2:00 AM	0	1:00 - 2:00 PM	1527
2:00 - 3:00 AM	0	2:00 - 3:00 PM	1527
3:00 - 4:00 AM	0	3:00 - 4:00 PM	1527
4:00 - 5:00 AM	0	4:00 - 5:00 PM	2020
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	2650	7:00 - 8:00 PM	0
8:00 - 9:00 AM	1527	8:00 - 9:00 PM	0
9:00 - 10:00AM	1527	9:00 - 10:00PM	0
10:00 - 11:00 AM	1527	10:00 - 11:00 PM	0
11:00 - 12:00 PM	1527	11:00 - 12:00 PM	0

Vehicles per hour on higher-volume minor street approach (one direction only):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	248
1:00 - 2:00 AM	0	1:00 - 2:00 PM	248
2:00 - 3:00 AM	0	2:00 - 3:00 PM	248
3:00 - 4:00 AM	0	3:00 - 4:00 PM	248
4:00 - 5:00 AM	0	4:00 - 5:00 PM	380
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	280	7:00 - 8:00 PM	0
8:00 - 9:00 AM	248	8:00 - 9:00 PM	0
9:00 - 10:00AM	248	9:00 - 10:00PM	0
10:00 - 11:00 AM	248	10:00 - 11:00 PM	0
11:00 - 12:00 PM	248	11:00 - 12:00 PM	0

Is the intersection using the reduced volume criteria based on speed or population? No

A. Is the Minimum Vehicular Volume Warrant Met? Yes

B. Is the Interruption of Continuous Traffic Met? Yes

Combination of Warrants A and B Criteria Met? Yes
(Use only when Conditions A and B are both not satisified)

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Dixie Highway and I-71/75 NB Ramps
City/State: Covington, KY

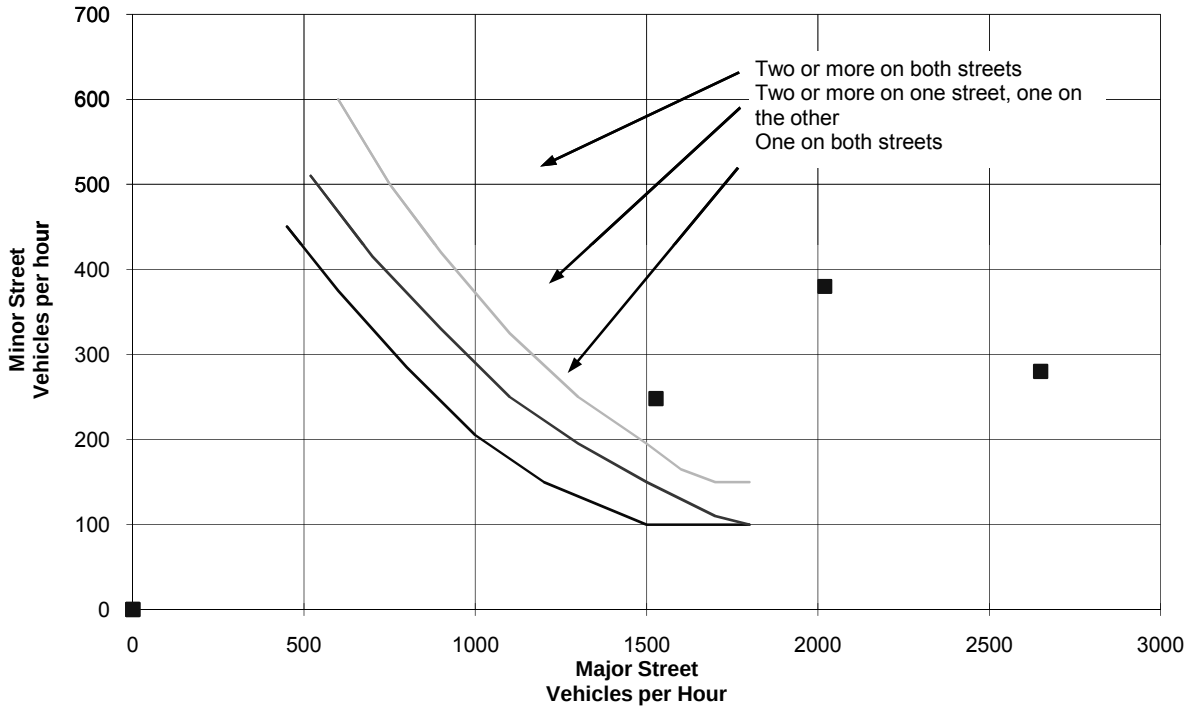
Warrant 3B - Peak Hour

The peak hour volume warrant is also intended for application when traffic conditions are such that for one hour of the day minor street traffic suffers undue traffic delay in entering or crossing the main street.

The peak hour volume warrant is satisfied when the plotted point representing vehicles per hour on the higher volume minor street for one hour falls above the curve in Figure 4C-3.

Figure 4C-4 may be used if the 85th percentile speed of the major street exceeds 40 mph or when the intersection lies within a built-up area of an isolated community having a population less than 10,000.

Peak Hour volume warrant - Major and Minor Streets for Urban Locations - Warrant 3B



Is Peak Hour Volume Warrant Met? **Yes**

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: W. 9th Street and Jillians Way

City/State: Covington, KY

Date: 7/8/2010 Performed By: AMW

	Minor (EB/NB) Approach	Minor (WB/SB) Approach	Major(EB/NB) Approach	Major(WB/SB) Approach	Total	Minor	Total Major
12:00 - 1:00 AM					0	0	0
1:00 - 2:00 AM					0	0	0
2:00 - 3:00 AM					0	0	0
3:00 - 4:00 AM					0	0	0
4:00 - 5:00 AM					0	0	0
5:00 - 6:00 AM					0	0	0
6:00 - 7:00 AM					0	0	0
7:00 - 8:00 AM	340		200	300	840	340	500
8:00 - 9:00 AM	287		61	170	518	287	231
9:00 - 10:00AM	287		61	170	518	287	231
10:00 - 11:00 AM	287		61	170	518	287	231
11:00 - 12:00 PM	287		61	170	518	287	231
12:00 - 1:00 PM	287		61	170	518	287	231
1:00 - 2:00 PM	287		61	170	518	287	231
2:00 - 3:00 PM	287		61	170	518	287	231
3:00 - 4:00 PM	287		61	170	518	287	231
4:00 - 5:00 PM	310		120	310	740	310	430
5:00 - 6:00 PM					0	0	0
6:00 - 7:00 PM					0	0	0
7:00 - 8:00 PM					0	0	0
8:00 - 9:00 PM					0	0	0
9:00 - 10:00PM					0	0	0
10:00 - 11:00 PM					0	0	0
11:00 - 12:00 PM					0	0	0
Total	**2946**	**0**	**808**	**1970**	**5724**	**2946**	**2778**

Does the 85th Percentile Speed/Posted Speed Limit exceed 40 mph on the major street? No

Does the intersection lie within a built-up area of an isolated community having a population of less than 10,000? No

Your intersection **CANNOT** use the 70% option for this warrant, do you want to use it? No

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: W. 9th Street and Jillians Way
City/State: Covington, KY
Date 7/8/2010 Performed by: AMW

Warrant 1 - Eight-Hour Vehicular Volume

Number of lanes of moving traffic for moving traffic on each approach:
Major Street: 1 Minor Street: 3

Vehicles per hour on major street (total of both approaches):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	231
1:00 - 2:00 AM	0	1:00 - 2:00 PM	231
2:00 - 3:00 AM	0	2:00 - 3:00 PM	231
3:00 - 4:00 AM	0	3:00 - 4:00 PM	231
4:00 - 5:00 AM	0	4:00 - 5:00 PM	430
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	500	7:00 - 8:00 PM	0
8:00 - 9:00 AM	231	8:00 - 9:00 PM	0
9:00 - 10:00AM	231	9:00 - 10:00PM	0
10:00 - 11:00 AM	231	10:00 - 11:00 PM	0
11:00 - 12:00 PM	231	11:00 - 12:00 PM	0

Vehicles per hour on higher-volume minor street approach (one direction only):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	287
1:00 - 2:00 AM	0	1:00 - 2:00 PM	287
2:00 - 3:00 AM	0	2:00 - 3:00 PM	287
3:00 - 4:00 AM	0	3:00 - 4:00 PM	287
4:00 - 5:00 AM	0	4:00 - 5:00 PM	310
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	340	7:00 - 8:00 PM	0
8:00 - 9:00 AM	287	8:00 - 9:00 PM	0
9:00 - 10:00AM	287	9:00 - 10:00PM	0
10:00 - 11:00 AM	287	10:00 - 11:00 PM	0
11:00 - 12:00 PM	287	11:00 - 12:00 PM	0

Is the intersection using the reduced volume criteria based on speed or population? No

A. Is the Minimum Vehicular Volume Warrant Met? No

B. Is the Interruption of Continuous Traffic Met? No

Combination of Warrants A and B Criteria Met? No
(Use only when Conditions A and B are both not satisified)

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: W. 9th Street and Jillians Way
City/State: Covington, KY

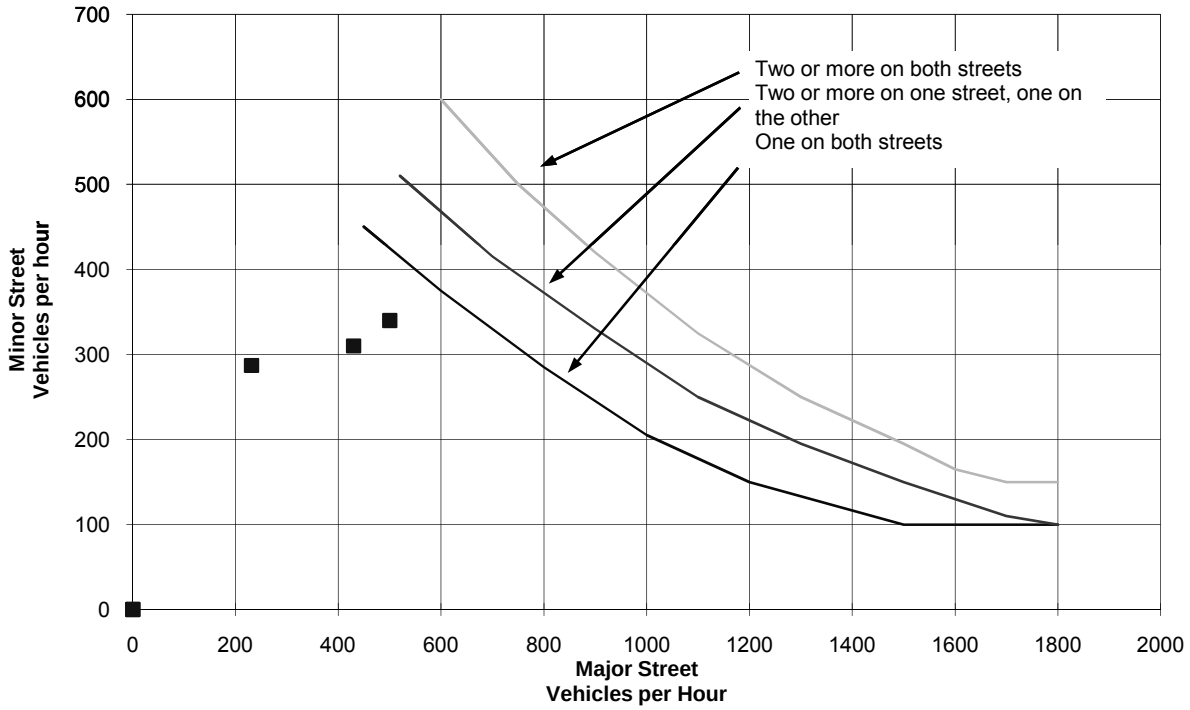
Warrant 3B - Peak Hour

The peak hour volume warrant is also intended for application when traffic conditions are such that for one hour of the day minor street traffic suffers undue traffic delay in entering or crossing the main street.

The peak hour volume warrant is satisfied when the plotted point representing vehicles per hour on the higher volume minor street for one hour falls above the curve in Figure 4C-3.

Figure 4C-4 may be used if the 85th percentile speed of the major street exceeds 40 mph or when the intersection lies within a built-up area of an isolated community having a population less than 10,000.

Peak Hour volume warrant - Major and Minor Streets for Urban Locations - Warrant 3B



Is Peak Hour Volume Warrant Met? **NO**

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: W. 9th Street and Bullock Street

City/State: Covington, KY

Date: 7/8/2010 Performed By: AMW

	Minor (EB/NB) Approach	Minor (WB/SB) Approach	Major(EB/NB) Approach	Major(WB/SB) Approach	Total	Minor	Total Major
12:00 - 1:00 AM					0	0	0
1:00 - 2:00 AM					0	0	0
2:00 - 3:00 AM					0	0	0
3:00 - 4:00 AM					0	0	0
4:00 - 5:00 AM					0	0	0
5:00 - 6:00 AM					0	0	0
6:00 - 7:00 AM					0	0	0
7:00 - 8:00 AM		800	240	250	1290	800	490
8:00 - 9:00 AM		536	114	155	805	536	269
9:00 - 10:00AM		536	114	155	805	536	269
10:00 - 11:00 AM		536	114	155	805	536	269
11:00 - 12:00 PM		536	114	155	805	536	269
12:00 - 1:00 PM		536	114	155	805	536	269
1:00 - 2:00 PM		536	114	155	805	536	269
2:00 - 3:00 PM		536	114	155	805	536	269
3:00 - 4:00 PM		536	114	155	805	536	269
4:00 - 5:00 PM		1180	250	260	1690	1180	510
5:00 - 6:00 PM					0	0	0
6:00 - 7:00 PM					0	0	0
7:00 - 8:00 PM					0	0	0
8:00 - 9:00 PM					0	0	0
9:00 - 10:00PM					0	0	0
10:00 - 11:00 PM					0	0	0
11:00 - 12:00 PM					0	0	0
Total	**0**	**6268**	**1402**	**1750**	**9420**	**6268**	**3152**

Does the 85th Percentile Speed/Posted Speed Limit exceed 40 mph on the major street? No

Does the intersection lie within a built-up area of an isolated community having a population of less than 10,000? No

Your intersection **CANNOT** use the 70% option for this warrant, do you want to use it? No

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: W. 9th Street and Bullock Street
City/State: Covington, KY
Date 7/8/2010 Performed by: AMW

Warrant 1 - Eight-Hour Vehicular Volume

Number of lanes of moving traffic for moving traffic on each approach:
Major Street: 1 Minor Street: 3

Vehicles per hour on major street (total of both approaches):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	269
1:00 - 2:00 AM	0	1:00 - 2:00 PM	269
2:00 - 3:00 AM	0	2:00 - 3:00 PM	269
3:00 - 4:00 AM	0	3:00 - 4:00 PM	269
4:00 - 5:00 AM	0	4:00 - 5:00 PM	510
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	490	7:00 - 8:00 PM	0
8:00 - 9:00 AM	269	8:00 - 9:00 PM	0
9:00 - 10:00AM	269	9:00 - 10:00PM	0
10:00 - 11:00 AM	269	10:00 - 11:00 PM	0
11:00 - 12:00 PM	269	11:00 - 12:00 PM	0

Vehicles per hour on higher-volume minor street approach (one direction only):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	536
1:00 - 2:00 AM	0	1:00 - 2:00 PM	536
2:00 - 3:00 AM	0	2:00 - 3:00 PM	536
3:00 - 4:00 AM	0	3:00 - 4:00 PM	536
4:00 - 5:00 AM	0	4:00 - 5:00 PM	1180
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	800	7:00 - 8:00 PM	0
8:00 - 9:00 AM	536	8:00 - 9:00 PM	0
9:00 - 10:00AM	536	9:00 - 10:00PM	0
10:00 - 11:00 AM	536	10:00 - 11:00 PM	0
11:00 - 12:00 PM	536	11:00 - 12:00 PM	0

Is the intersection using the reduced volume criteria based on speed or population? No

A. Is the Minimum Vehicular Volume Warrant Met? No

B. Is the Interruption of Continuous Traffic Met? No

Combination of Warrants A and B Criteria Met? No
(Use only when Conditions A and B are both not satisified)

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: W. 9th Street and Bullock Street
City/State: Covington, KY

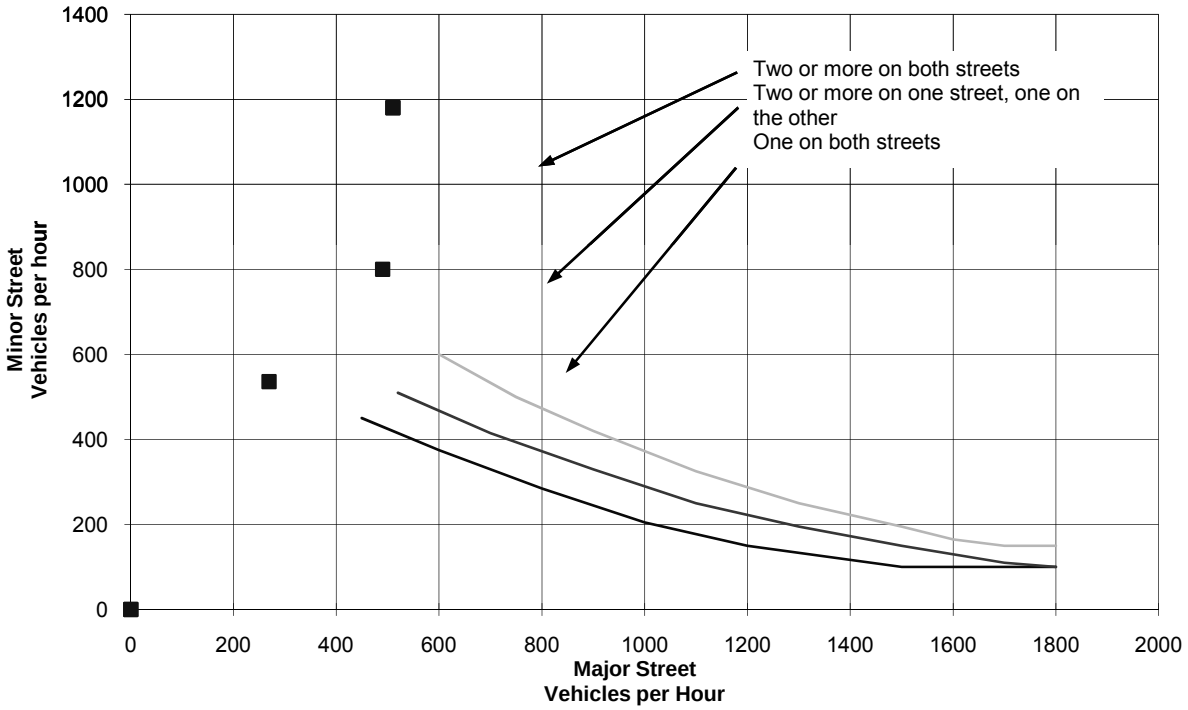
Warrant 3B - Peak Hour

The peak hour volume warrant is also intended for application when traffic conditions are such that for one hour of the day minor street traffic suffers undue traffic delay in entering or crossing the main street.

The peak hour volume warrant is satisfied when the plotted point representing vehicles per hour on the higher volume minor street for one hour falls above the curve in Figure 4C-3.

Figure 4C-4 may be used if the 85th percentile speed of the major street exceeds 40 mph or when the intersection lies within a built-up area of an isolated community having a population less than 10,000.

Peak Hour volume warrant - Major and Minor Streets for Urban Locations - Warrant 3B



Is Peak Hour Volume Warrant Met? **Yes**

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: W. 5th Street and Jillians Way

City/State: Covington, KY

Date: 7/8/2010 Performed By: AMW

	Minor (EB/NB) Approach	Minor (WB/SB) Approach	Major(EB/NB) Approach	Major(WB/SB) Approach	Total	Minor	Total Major
12:00 - 1:00 AM					0	0	0
1:00 - 2:00 AM					0	0	0
2:00 - 3:00 AM					0	0	0
3:00 - 4:00 AM					0	0	0
4:00 - 5:00 AM					0	0	0
5:00 - 6:00 AM					0	0	0
6:00 - 7:00 AM					0	0	0
7:00 - 8:00 AM	560		780		1340	560	780
8:00 - 9:00 AM	340		585		925	340	585
9:00 - 10:00AM	340		585		925	340	585
10:00 - 11:00 AM	340		585		925	340	585
11:00 - 12:00 PM	340		585		925	340	585
12:00 - 1:00 PM	340		585		925	340	585
1:00 - 2:00 PM	340		585		925	340	585
2:00 - 3:00 PM	340		585		925	340	585
3:00 - 4:00 PM	340		585		925	340	585
4:00 - 5:00 PM	430		530		960	430	530
5:00 - 6:00 PM					0	0	0
6:00 - 7:00 PM					0	0	0
7:00 - 8:00 PM					0	0	0
8:00 - 9:00 PM					0	0	0
9:00 - 10:00PM					0	0	0
10:00 - 11:00 PM					0	0	0
11:00 - 12:00 PM					0	0	0
Total	**3710**	**0**	**5990**	**0**	**9700**	**3710**	**5990**

Does the 85th Percentile Speed/Posted Speed Limit exceed 40 mph on the major street? No

Does the intersection lie within a built-up area of an isolated community having a population of less than 10,000? No

Your intersection **CANNOT** use the 70% option for this warrant, do you want to use it? No

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: W. 5th Street and Jillians Way
City/State: Covington, KY
Date 7/8/2010 Performed by: AMW

Warrant 1 - Eight-Hour Vehicular Volume

Number of lanes of moving traffic for moving traffic on each approach:
Major Street: 2 Minor Street: 2

Vehicles per hour on major street (total of both approaches):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	585
1:00 - 2:00 AM	0	1:00 - 2:00 PM	585
2:00 - 3:00 AM	0	2:00 - 3:00 PM	585
3:00 - 4:00 AM	0	3:00 - 4:00 PM	585
4:00 - 5:00 AM	0	4:00 - 5:00 PM	530
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	780	7:00 - 8:00 PM	0
8:00 - 9:00 AM	585	8:00 - 9:00 PM	0
9:00 - 10:00AM	585	9:00 - 10:00PM	0
10:00 - 11:00 AM	585	10:00 - 11:00 PM	0
11:00 - 12:00 PM	585	11:00 - 12:00 PM	0

Vehicles per hour on higher-volume minor street approach (one direction only):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	340
1:00 - 2:00 AM	0	1:00 - 2:00 PM	340
2:00 - 3:00 AM	0	2:00 - 3:00 PM	340
3:00 - 4:00 AM	0	3:00 - 4:00 PM	340
4:00 - 5:00 AM	0	4:00 - 5:00 PM	430
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	560	7:00 - 8:00 PM	0
8:00 - 9:00 AM	340	8:00 - 9:00 PM	0
9:00 - 10:00AM	340	9:00 - 10:00PM	0
10:00 - 11:00 AM	340	10:00 - 11:00 PM	0
11:00 - 12:00 PM	340	11:00 - 12:00 PM	0

Is the intersection using the reduced volume criteria based on speed or population? No

A. Is the Minimum Vehicular Volume Warrant Met? No

B. Is the Interruption of Continuous Traffic Met? No

Combination of Warrants A and B Criteria Met? No
(Use only when Conditions A and B are both not satisified)

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: W. 5th Street and Jillians Way
City/State: Covington, KY

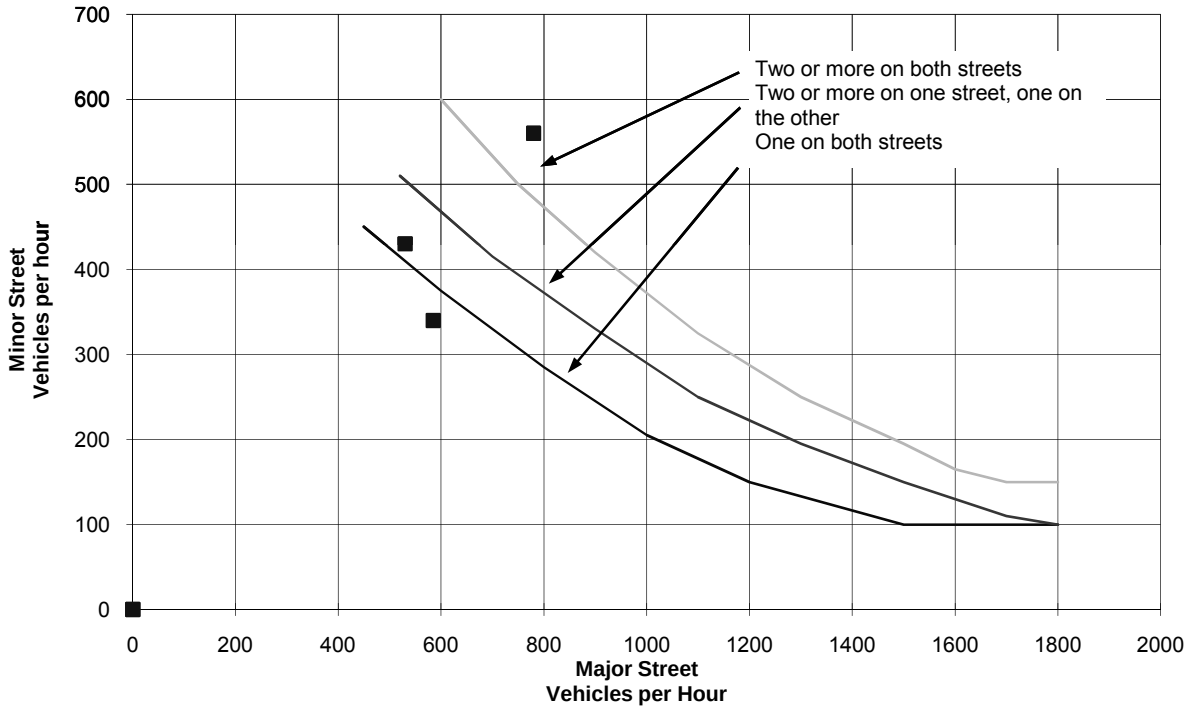
Warrant 3B - Peak Hour

The peak hour volume warrant is also intended for application when traffic conditions are such that for one hour of the day minor street traffic suffers undue traffic delay in entering or crossing the main street.

The peak hour volume warrant is satisfied when the plotted point representing vehicles per hour on the higher volume minor street for one hour falls above the curve in Figure 4C-3.

Figure 4C-4 may be used if the 85th percentile speed of the major street exceeds 40 mph or when the intersection lies within a built-up area of an isolated community having a population less than 10,000.

Peak Hour volume warrant - Major and Minor Streets for Urban Locations - Warrant 3B



Is Peak Hour Volume Warrant Met? **Yes**

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Findlay Street & Western Avenue

City/State: Cincinnati, Ohio

Date: 7/8/2010 Performed By: JRL

	Minor (EB/NB) Approach	Minor (WB/SB) Approach	Major(EB/NB) Approach	Major(WB/SB) Approach	Total	Minor	Total Major
12:00 - 1:00 AM					0	0	0
1:00 - 2:00 AM					0	0	0
2:00 - 3:00 AM					0	0	0
3:00 - 4:00 AM					0	0	0
4:00 - 5:00 AM					0	0	0
5:00 - 6:00 AM					0	0	0
6:00 - 7:00 AM					0	0	0
7:00 - 8:00 AM		670	140	110	920	670	250
8:00 - 9:00 AM		414	112	69	595	414	181
9:00 - 10:00AM		414	112	69	595	414	181
10:00 - 11:00 AM		414	112	69	595	414	181
11:00 - 12:00 PM		414	112	69	595	414	181
12:00 - 1:00 PM		414	112	69	595	414	181
1:00 - 2:00 PM		414	112	69	595	414	181
2:00 - 3:00 PM		414	112	69	595	414	181
3:00 - 4:00 PM		414	112	69	595	414	181
4:00 - 5:00 PM		410	250	80	740	410	330
5:00 - 6:00 PM					0	0	0
6:00 - 7:00 PM					0	0	0
7:00 - 8:00 PM					0	0	0
8:00 - 9:00 PM					0	0	0
9:00 - 10:00PM					0	0	0
10:00 - 11:00 PM					0	0	0
11:00 - 12:00 PM					0	0	0
Total	**0**	**4392**	**1286**	**742**	**6420**	**4392**	**2028**

Does the 85th Percentile Speed/Posted Speed Limit exceed 40 mph on the major street? No

Does the intersection lie within a built-up area of an isolated community having a population of less than 10,000? No

Your intersection **CANNOT** use the 70% option for this warrant, do you want to use it? No

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Findlay Street & Western Avenue
City/State: Cincinnati, Ohio
Date 7/8/2010 Performed by: JRL

Warrant 1 - Eight-Hour Vehicular Volume

Number of lanes of moving traffic for moving traffic on each approach:
Major Street: 2 Minor Street: 1

Vehicles per hour on major street (total of both approaches):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	181
1:00 - 2:00 AM	0	1:00 - 2:00 PM	181
2:00 - 3:00 AM	0	2:00 - 3:00 PM	181
3:00 - 4:00 AM	0	3:00 - 4:00 PM	181
4:00 - 5:00 AM	0	4:00 - 5:00 PM	330
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	250	7:00 - 8:00 PM	0
8:00 - 9:00 AM	181	8:00 - 9:00 PM	0
9:00 - 10:00AM	181	9:00 - 10:00PM	0
10:00 - 11:00 AM	181	10:00 - 11:00 PM	0
11:00 - 12:00 PM	181	11:00 - 12:00 PM	0

Vehicles per hour on higher-volume minor street approach (one direction only):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	414
1:00 - 2:00 AM	0	1:00 - 2:00 PM	414
2:00 - 3:00 AM	0	2:00 - 3:00 PM	414
3:00 - 4:00 AM	0	3:00 - 4:00 PM	414
4:00 - 5:00 AM	0	4:00 - 5:00 PM	410
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	670	7:00 - 8:00 PM	0
8:00 - 9:00 AM	414	8:00 - 9:00 PM	0
9:00 - 10:00AM	414	9:00 - 10:00PM	0
10:00 - 11:00 AM	414	10:00 - 11:00 PM	0
11:00 - 12:00 PM	414	11:00 - 12:00 PM	0

Is the intersection using the reduced volume criteria based on speed or population? No

A. Is the Minimum Vehicular Volume Warrant Met? No

B. Is the Interruption of Continuous Traffic Met? No

Combination of Warrants A and B Criteria Met? No
(Use only when Conditions A and B are both not satisified)

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Findlay Street & Western Avenue
City/State: Cincinnati, Ohio

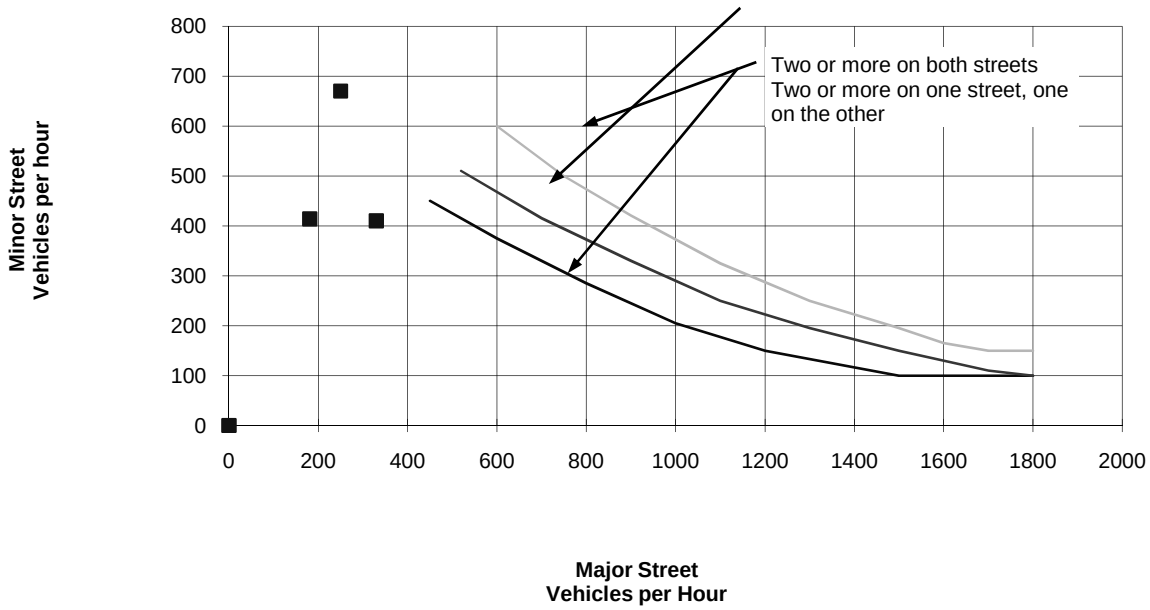
Warrant 3B - Peak Hour

The peak hour volume warrant is also intended for application when traffic conditions are such that for one hour of the day minor street traffic suffers undue traffic delay in entering or crossing the main street.

The peak hour volume warrant is satisfied when the plotted point representing vehicles per hour on the higher volume minor street for one hour falls above the curve in Figure 4C-3.

Figure 4C-4 may be used if the 85th percentile speed of the major street exceeds 40 mph or when the intersection lies within a built-up area of an isolated community having a population less than 10,000.

Peak Hour volume warrant - Major and Minor Streets for Urban Locations - Warrant 3B



Is Peak Hour Volume Warrant Met? **Yes**

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Findlay Street & Western Avenue

City/State: Cincinnati, Ohio

Date: 7/8/2010 Performed By: JRL

	Minor (EB/NB) Approach	Minor (WB/SB) Approach	Major(EB/NB) Approach	Major(WB/SB) Approach	Total	Minor	Total Major
12:00 - 1:00 AM					0	0	0
1:00 - 2:00 AM					0	0	0
2:00 - 3:00 AM					0	0	0
3:00 - 4:00 AM					0	0	0
4:00 - 5:00 AM					0	0	0
5:00 - 6:00 AM					0	0	0
6:00 - 7:00 AM					0	0	0
7:00 - 8:00 AM		270	220	120	610	270	340
8:00 - 9:00 AM		614	114	53	781	614	167
9:00 - 10:00AM		614	114	53	781	614	167
10:00 - 11:00 AM		614	114	53	781	614	167
11:00 - 12:00 PM		614	114	53	781	614	167
12:00 - 1:00 PM		614	114	53	781	614	167
1:00 - 2:00 PM		614	114	53	781	614	167
2:00 - 3:00 PM		614	114	53	781	614	167
3:00 - 4:00 PM		614	114	53	781	614	167
4:00 - 5:00 PM		350	200	70	620	350	270
5:00 - 6:00 PM					0	0	0
6:00 - 7:00 PM					0	0	0
7:00 - 8:00 PM					0	0	0
8:00 - 9:00 PM					0	0	0
9:00 - 10:00PM					0	0	0
10:00 - 11:00 PM					0	0	0
11:00 - 12:00 PM					0	0	0
Total	**0**	**5532**	**1332**	**614**	**7478**	**5532**	**1946**

Does the 85th Percentile Speed/Posted Speed Limit exceed 40 mph on the major street? No

Does the intersection lie within a built-up area of an isolated community having a population of less than 10,000? No

Your intersection **CANNOT** use the 70% option for this warrant, do you want to use it? No

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Findlay Street & Western Avenue
City/State: Cincinnati, Ohio
Date 7/8/2010 Performed by: JRL

Warrant 1 - Eight-Hour Vehicular Volume

Number of lanes of moving traffic for moving traffic on each approach:
Major Street: 2 Minor Street: 1

Vehicles per hour on major street (total of both approaches):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	167
1:00 - 2:00 AM	0	1:00 - 2:00 PM	167
2:00 - 3:00 AM	0	2:00 - 3:00 PM	167
3:00 - 4:00 AM	0	3:00 - 4:00 PM	167
4:00 - 5:00 AM	0	4:00 - 5:00 PM	270
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	340	7:00 - 8:00 PM	0
8:00 - 9:00 AM	167	8:00 - 9:00 PM	0
9:00 - 10:00AM	167	9:00 - 10:00PM	0
10:00 - 11:00 AM	167	10:00 - 11:00 PM	0
11:00 - 12:00 PM	167	11:00 - 12:00 PM	0

Vehicles per hour on higher-volume minor street approach (one direction only):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	614
1:00 - 2:00 AM	0	1:00 - 2:00 PM	614
2:00 - 3:00 AM	0	2:00 - 3:00 PM	614
3:00 - 4:00 AM	0	3:00 - 4:00 PM	614
4:00 - 5:00 AM	0	4:00 - 5:00 PM	350
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	270	7:00 - 8:00 PM	0
8:00 - 9:00 AM	614	8:00 - 9:00 PM	0
9:00 - 10:00AM	614	9:00 - 10:00PM	0
10:00 - 11:00 AM	614	10:00 - 11:00 PM	0
11:00 - 12:00 PM	614	11:00 - 12:00 PM	0

Is the intersection using the reduced volume criteria based on speed or population? No

A. Is the Minimum Vehicular Volume Warrant Met? No

B. Is the Interruption of Continuous Traffic Met? No

Combination of Warrants A and B Criteria Met? No
(Use only when Conditions A and B are both not satisified)

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Findlay Street & Western Avenue
City/State: Cincinnati, Ohio

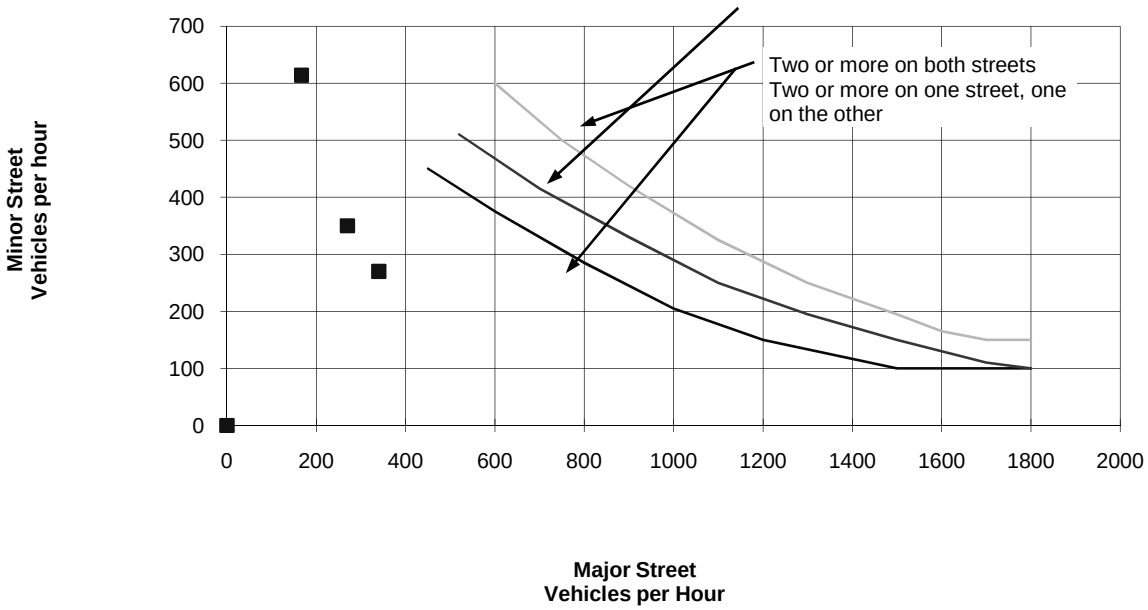
Warrant 3B - Peak Hour

The peak hour volume warrant is also intended for application when traffic conditions are such that for one hour of the day minor street traffic suffers undue traffic delay in entering or crossing the main street.

The peak hour volume warrant is satisfied when the plotted point representing vehicles per hour on the higher volume minor street for one hour falls above the curve in Figure 4C-3.

Figure 4C-4 may be used if the 85th percentile speed of the major street exceeds 40 mph or when the intersection lies within a built-up area of an isolated community having a population less than 10,000.

Peak Hour volume warrant - Major and Minor Streets for Urban Locations - Warrant 3B



Is Peak Hour Volume Warrant Met? **No**

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Findlay Street & Western Avenue

City/State: Cincinnati, Ohio

Date: 7/8/2010 Performed By: JRL

	Minor (EB/NB) Approach	Minor (WB/SB) Approach	Major(EB/NB) Approach	Major(WB/SB) Approach	Total	Minor	Total Major
12:00 - 1:00 AM					0	0	0
1:00 - 2:00 AM					0	0	0
2:00 - 3:00 AM					0	0	0
3:00 - 4:00 AM					0	0	0
4:00 - 5:00 AM					0	0	0
5:00 - 6:00 AM					0	0	0
6:00 - 7:00 AM					0	0	0
7:00 - 8:00 AM		280	360	160	800	280	520
8:00 - 9:00 AM		283	158	84	525	283	242
9:00 - 10:00AM		283	158	84	525	283	242
10:00 - 11:00 AM		283	158	84	525	283	242
11:00 - 12:00 PM		283	158	84	525	283	242
12:00 - 1:00 PM		283	158	84	525	283	242
1:00 - 2:00 PM		283	158	84	525	283	242
2:00 - 3:00 PM		283	158	84	525	283	242
3:00 - 4:00 PM		283	158	84	525	283	242
4:00 - 5:00 PM		450	270	100	820	450	370
5:00 - 6:00 PM					0	0	0
6:00 - 7:00 PM					0	0	0
7:00 - 8:00 PM					0	0	0
8:00 - 9:00 PM					0	0	0
9:00 - 10:00PM					0	0	0
10:00 - 11:00 PM					0	0	0
11:00 - 12:00 PM					0	0	0
Total	**0**	**2994**	**1894**	**932**	**5820**	**2994**	**2826**

Does the 85th Percentile Speed/Posted Speed Limit exceed 40 mph on the major street? No

Does the intersection lie within a built-up area of an isolated community having a population of less than 10,000? No

Your intersection **CANNOT** use the 70% option for this warrant, do you want to use it? No

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Findlay Street & Western Avenue
City/State: Cincinnati, Ohio
Date 7/8/2010 Performed by: JRL

Warrant 1 - Eight-Hour Vehicular Volume

Number of lanes of moving traffic for moving traffic on each approach:
Major Street: 2 Minor Street: 1

Vehicles per hour on major street (total of both approaches):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	242
1:00 - 2:00 AM	0	1:00 - 2:00 PM	242
2:00 - 3:00 AM	0	2:00 - 3:00 PM	242
3:00 - 4:00 AM	0	3:00 - 4:00 PM	242
4:00 - 5:00 AM	0	4:00 - 5:00 PM	370
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	520	7:00 - 8:00 PM	0
8:00 - 9:00 AM	242	8:00 - 9:00 PM	0
9:00 - 10:00AM	242	9:00 - 10:00PM	0
10:00 - 11:00 AM	242	10:00 - 11:00 PM	0
11:00 - 12:00 PM	242	11:00 - 12:00 PM	0

Vehicles per hour on higher-volume minor street approach (one direction only):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	283
1:00 - 2:00 AM	0	1:00 - 2:00 PM	283
2:00 - 3:00 AM	0	2:00 - 3:00 PM	283
3:00 - 4:00 AM	0	3:00 - 4:00 PM	283
4:00 - 5:00 AM	0	4:00 - 5:00 PM	450
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	280	7:00 - 8:00 PM	0
8:00 - 9:00 AM	283	8:00 - 9:00 PM	0
9:00 - 10:00AM	283	9:00 - 10:00PM	0
10:00 - 11:00 AM	283	10:00 - 11:00 PM	0
11:00 - 12:00 PM	283	11:00 - 12:00 PM	0

Is the intersection using the reduced volume criteria based on speed or population? No

A. Is the Minimum Vehicular Volume Warrant Met? No

B. Is the Interruption of Continuous Traffic Met? No

Combination of Warrants A and B Criteria Met? No
(Use only when Conditions A and B are both not satisified)

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Findlay Street & Western Avenue
City/State: Cincinnati, Ohio

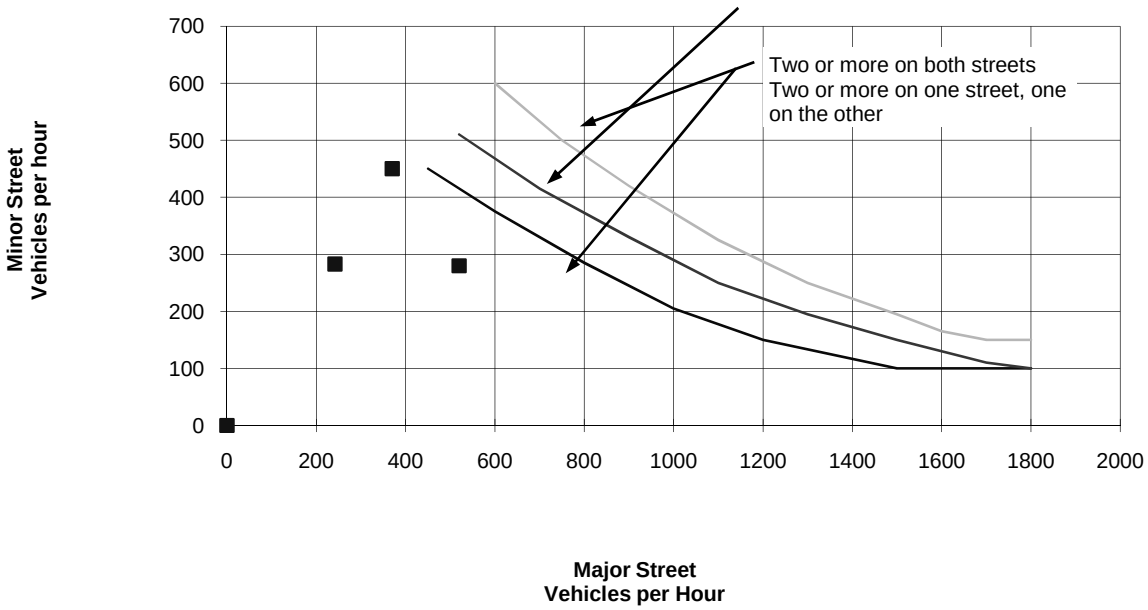
Warrant 3B - Peak Hour

The peak hour volume warrant is also intended for application when traffic conditions are such that for one hour of the day minor street traffic suffers undue traffic delay in entering or crossing the main street.

The peak hour volume warrant is satisfied when the plotted point representing vehicles per hour on the higher volume minor street for one hour falls above the curve in Figure 4C-3.

Figure 4C-4 may be used if the 85th percentile speed of the major street exceeds 40 mph or when the intersection lies within a built-up area of an isolated community having a population less than 10,000.

Peak Hour volume warrant - Major and Minor Streets for Urban Locations - Warrant 3B



Is Peak Hour Volume Warrant Met? **No**

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Gest Street & Freeman Avenue

City/State: Cincinnati, Ohio

Date: 7/8/2010 Performed By: JRL

	Minor (EB/NB) Approach	Minor (WB/SB) Approach	Major(EB/NB) Approach	Major(WB/SB) Approach	Total	Minor	Total Major
12:00 - 1:00 AM					0	0	0
1:00 - 2:00 AM					0	0	0
2:00 - 3:00 AM					0	0	0
3:00 - 4:00 AM					0	0	0
4:00 - 5:00 AM					0	0	0
5:00 - 6:00 AM					0	0	0
6:00 - 7:00 AM					0	0	0
7:00 - 8:00 AM	560	700	250	340	1850	700	590
8:00 - 9:00 AM	358	350	259	232	1199	358	491
9:00 - 10:00AM	358	350	259	232	1199	358	491
10:00 - 11:00 AM	358	350	259	232	1199	358	491
11:00 - 12:00 PM	358	350	259	232	1199	358	491
12:00 - 1:00 PM	358	350	259	232	1199	358	491
1:00 - 2:00 PM	358	350	259	232	1199	358	491
2:00 - 3:00 PM	358	350	259	232	1199	358	491
3:00 - 4:00 PM	358	350	259	232	1199	358	491
4:00 - 5:00 PM	420	530	430	280	1660	530	710
5:00 - 6:00 PM					0	0	0
6:00 - 7:00 PM					0	0	0
7:00 - 8:00 PM					0	0	0
8:00 - 9:00 PM					0	0	0
9:00 - 10:00PM					0	0	0
10:00 - 11:00 PM					0	0	0
11:00 - 12:00 PM					0	0	0
Total	**3844**	**4030**	**2752**	**2476**	**13102**	**4094**	**5228**

Does the 85th Percentile Speed/Posted Speed Limit exceed 40 mph on the major street? No

Does the intersection lie within a built-up area of an isolated community having a population of less than 10,000? No

Your intersection **CANNOT** use the 70% option for this warrant, do you want to use it? No

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Gest Street & Freeman Avenue
City/State: Cincinnati, Ohio
Date 7/8/2010 Performed by: JRL

Warrant 1 - Eight-Hour Vehicular Volume

Number of lanes of moving traffic for moving traffic on each approach:
Major Street: 2 Minor Street: 2

Vehicles per hour on major street (total of both approaches):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	491
1:00 - 2:00 AM	0	1:00 - 2:00 PM	491
2:00 - 3:00 AM	0	2:00 - 3:00 PM	491
3:00 - 4:00 AM	0	3:00 - 4:00 PM	491
4:00 - 5:00 AM	0	4:00 - 5:00 PM	710
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	590	7:00 - 8:00 PM	0
8:00 - 9:00 AM	491	8:00 - 9:00 PM	0
9:00 - 10:00AM	491	9:00 - 10:00PM	0
10:00 - 11:00 AM	491	10:00 - 11:00 PM	0
11:00 - 12:00 PM	491	11:00 - 12:00 PM	0

Vehicles per hour on higher-volume minor street approach (one direction only):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	358
1:00 - 2:00 AM	0	1:00 - 2:00 PM	358
2:00 - 3:00 AM	0	2:00 - 3:00 PM	358
3:00 - 4:00 AM	0	3:00 - 4:00 PM	358
4:00 - 5:00 AM	0	4:00 - 5:00 PM	530
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	700	7:00 - 8:00 PM	0
8:00 - 9:00 AM	358	8:00 - 9:00 PM	0
9:00 - 10:00AM	358	9:00 - 10:00PM	0
10:00 - 11:00 AM	358	10:00 - 11:00 PM	0
11:00 - 12:00 PM	358	11:00 - 12:00 PM	0

Is the intersection using the reduced volume criteria based on speed or population? No

A. Is the Minimum Vehicular Volume Warrant Met? No

B. Is the Interruption of Continuous Traffic Met? No

Combination of Warrants A and B Criteria Met? No
(Use only when Conditions A and B are both not satisified)

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Gest Street & Freeman Avenue
City/State: Cincinnati, Ohio

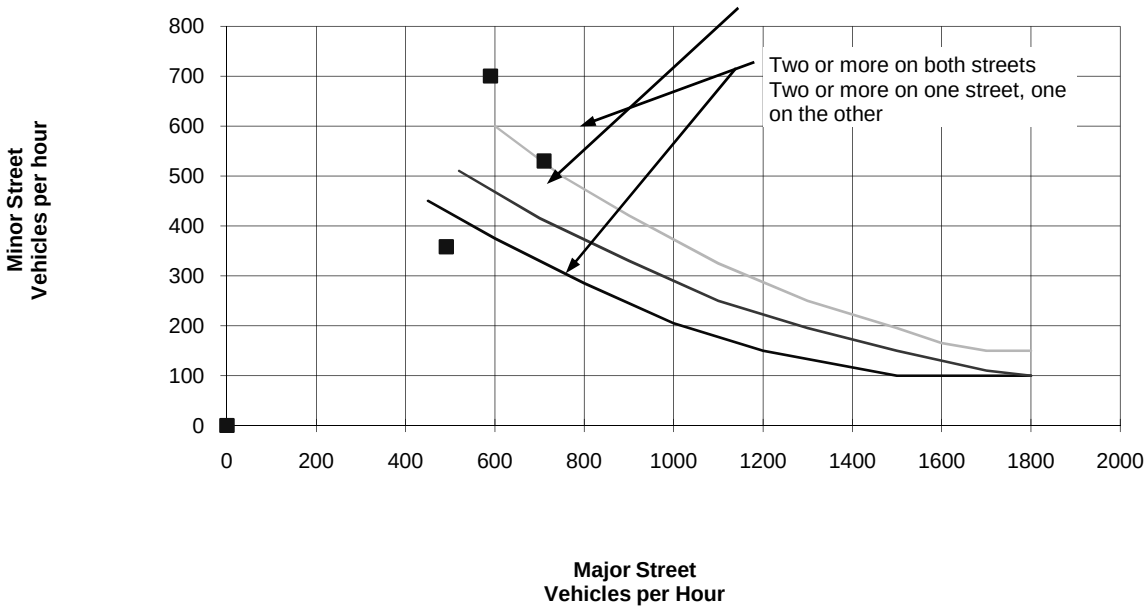
Warrant 3B - Peak Hour

The peak hour volume warrant is also intended for application when traffic conditions are such that for one hour of the day minor street traffic suffers undue traffic delay in entering or crossing the main street.

The peak hour volume warrant is satisfied when the plotted point representing vehicles per hour on the higher volume minor street for one hour falls above the curve in Figure 4C-3.

Figure 4C-4 may be used if the 85th percentile speed of the major street exceeds 40 mph or when the intersection lies within a built-up area of an isolated community having a population less than 10,000.

Peak Hour volume warrant - Major and Minor Streets for Urban Locations - Warrant 3B



Is Peak Hour Volume Warrant Met? **Yes**

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Gest Street & Freeman Avenue

City/State: Cincinnati, Ohio

Date: 7/8/2010 Performed By: JRL

	Minor (EB/NB) Approach	Minor (WB/SB) Approach	Major(EB/NB) Approach	Major(WB/SB) Approach	Total	Minor	Total Major
12:00 - 1:00 AM					0	0	0
1:00 - 2:00 AM					0	0	0
2:00 - 3:00 AM					0	0	0
3:00 - 4:00 AM					0	0	0
4:00 - 5:00 AM					0	0	0
5:00 - 6:00 AM					0	0	0
6:00 - 7:00 AM					0	0	0
7:00 - 8:00 AM	570	380	440	550	1940	570	990
8:00 - 9:00 AM	325	0	531	263	1119	325	794
9:00 - 10:00AM	325	0	531	263	1119	325	794
10:00 - 11:00 AM	325	0	531	263	1119	325	794
11:00 - 12:00 PM	325	0	531	263	1119	325	794
12:00 - 1:00 PM	325	0	531	263	1119	325	794
1:00 - 2:00 PM	325	0	531	263	1119	325	794
2:00 - 3:00 PM	325	0	531	263	1119	325	794
3:00 - 4:00 PM	325	0	531	263	1119	325	794
4:00 - 5:00 PM	440	450	600	430	1920	450	1030
5:00 - 6:00 PM					0	0	0
6:00 - 7:00 PM					0	0	0
7:00 - 8:00 PM					0	0	0
8:00 - 9:00 PM					0	0	0
9:00 - 10:00PM					0	0	0
10:00 - 11:00 PM					0	0	0
11:00 - 12:00 PM					0	0	0
Total	**3610**	**830**	**5288**	**3084**	**12812**	**3620**	**8372**

Does the 85th Percentile Speed/Posted Speed Limit exceed 40 mph on the major street? No

Does the intersection lie within a built-up area of an isolated community having a population of less than 10,000? No

Your intersection **CANNOT** use the 70% option for this warrant, do you want to use it? No

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Gest Street & Freeman Avenue
City/State: Cincinnati, Ohio
Date 7/8/2010 Performed by: JRL

Warrant 1 - Eight-Hour Vehicular Volume

Number of lanes of moving traffic for moving traffic on each approach:
Major Street: 2 Minor Street: 2

Vehicles per hour on major street (total of both approaches):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	794
1:00 - 2:00 AM	0	1:00 - 2:00 PM	794
2:00 - 3:00 AM	0	2:00 - 3:00 PM	794
3:00 - 4:00 AM	0	3:00 - 4:00 PM	794
4:00 - 5:00 AM	0	4:00 - 5:00 PM	1030
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	990	7:00 - 8:00 PM	0
8:00 - 9:00 AM	794	8:00 - 9:00 PM	0
9:00 - 10:00AM	794	9:00 - 10:00PM	0
10:00 - 11:00 AM	794	10:00 - 11:00 PM	0
11:00 - 12:00 PM	794	11:00 - 12:00 PM	0

Vehicles per hour on higher-volume minor street approach (one direction only):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	325
1:00 - 2:00 AM	0	1:00 - 2:00 PM	325
2:00 - 3:00 AM	0	2:00 - 3:00 PM	325
3:00 - 4:00 AM	0	3:00 - 4:00 PM	325
4:00 - 5:00 AM	0	4:00 - 5:00 PM	450
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	570	7:00 - 8:00 PM	0
8:00 - 9:00 AM	325	8:00 - 9:00 PM	0
9:00 - 10:00AM	325	9:00 - 10:00PM	0
10:00 - 11:00 AM	325	10:00 - 11:00 PM	0
11:00 - 12:00 PM	325	11:00 - 12:00 PM	0

Is the intersection using the reduced volume criteria based on speed or population? No

A. Is the Minimum Vehicular Volume Warrant Met? Yes

B. Is the Interruption of Continuous Traffic Met? No

Combination of Warrants A and B Criteria Met? Yes
(Use only when Conditions A and B are both not satisified)

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Gest Street & Freeman Avenue
City/State: Cincinnati, Ohio

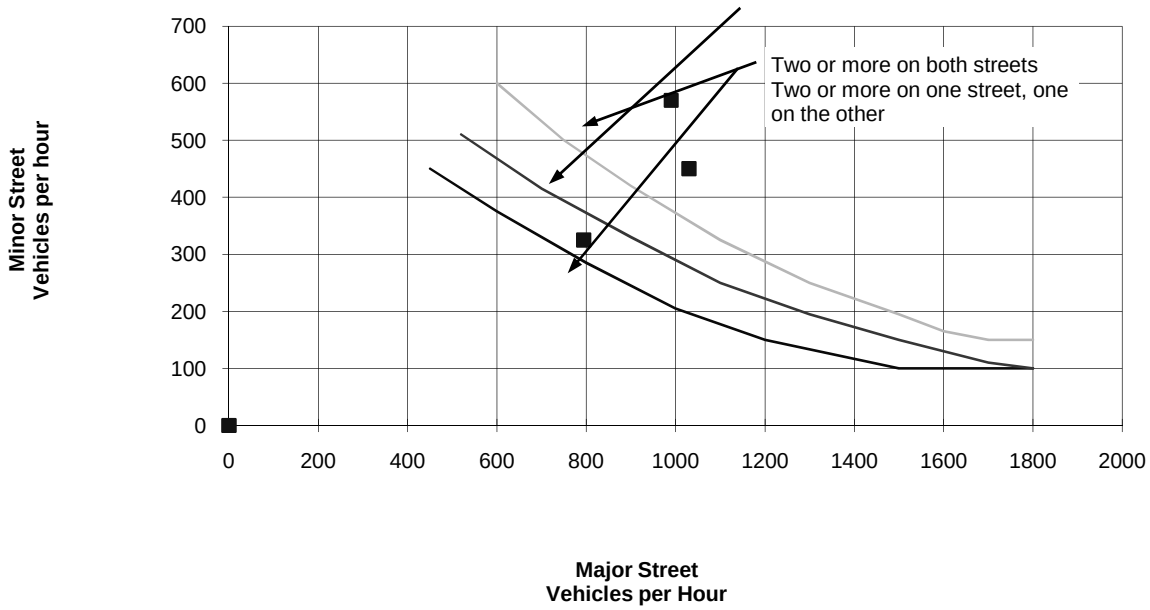
Warrant 3B - Peak Hour

The peak hour volume warrant is also intended for application when traffic conditions are such that for one hour of the day minor street traffic suffers undue traffic delay in entering or crossing the main street.

The peak hour volume warrant is satisfied when the plotted point representing vehicles per hour on the higher volume minor street for one hour falls above the curve in Figure 4C-3.

Figure 4C-4 may be used if the 85th percentile speed of the major street exceeds 40 mph or when the intersection lies within a built-up area of an isolated community having a population less than 10,000.

Peak Hour volume warrant - Major and Minor Streets for Urban Locations - Warrant 3B



Is Peak Hour Volume Warrant Met? **Yes**

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Gest Street & Freeman Avenue

City/State: Cincinnati, Ohio

Date: 7/9/2010 Performed By: JRL

	Minor (EB/NB) Approach	Minor (WB/SB) Approach	Major(EB/NB) Approach	Major(WB/SB) Approach	Total	Minor	Total Major
12:00 - 1:00 AM					0	0	0
1:00 - 2:00 AM					0	0	0
2:00 - 3:00 AM					0	0	0
3:00 - 4:00 AM					0	0	0
4:00 - 5:00 AM					0	0	0
5:00 - 6:00 AM					0	0	0
6:00 - 7:00 AM					0	0	0
7:00 - 8:00 AM	540	810	240	390	1980	810	630
8:00 - 9:00 AM	332	413	251	270	1266	413	521
9:00 - 10:00AM	332	413	251	270	1266	413	521
10:00 - 11:00 AM	332	413	251	270	1266	413	521
11:00 - 12:00 PM	332	413	251	270	1266	413	521
12:00 - 1:00 PM	332	413	251	270	1266	413	521
1:00 - 2:00 PM	332	413	251	270	1266	413	521
2:00 - 3:00 PM	332	413	251	270	1266	413	521
3:00 - 4:00 PM	332	413	251	270	1266	413	521
4:00 - 5:00 PM	460	610	410	390	1870	610	800
5:00 - 6:00 PM					0	0	0
6:00 - 7:00 PM					0	0	0
7:00 - 8:00 PM					0	0	0
8:00 - 9:00 PM					0	0	0
9:00 - 10:00PM					0	0	0
10:00 - 11:00 PM					0	0	0
11:00 - 12:00 PM					0	0	0
Total	**3656**	**4724**	**2658**	**2940**	**13978**	**4724**	**5598**

Does the 85th Percentile Speed/Posted Speed Limit exceed 40 mph on the major street? No

Does the intersection lie within a built-up area of an isolated community having a population of less than 10,000? No

Your intersection **CANNOT** use the 70% option for this warrant, do you want to use it? No

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Gest Street & Freeman Avenue
City/State: Cincinnati, Ohio
Date 7/9/2010 Performed by: JRL

Warrant 1 - Eight-Hour Vehicular Volume

Number of lanes of moving traffic for moving traffic on each approach:
Major Street: 2 Minor Street: 2

Vehicles per hour on major street (total of both approaches):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	521
1:00 - 2:00 AM	0	1:00 - 2:00 PM	521
2:00 - 3:00 AM	0	2:00 - 3:00 PM	521
3:00 - 4:00 AM	0	3:00 - 4:00 PM	521
4:00 - 5:00 AM	0	4:00 - 5:00 PM	800
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	630	7:00 - 8:00 PM	0
8:00 - 9:00 AM	521	8:00 - 9:00 PM	0
9:00 - 10:00AM	521	9:00 - 10:00PM	0
10:00 - 11:00 AM	521	10:00 - 11:00 PM	0
11:00 - 12:00 PM	521	11:00 - 12:00 PM	0

Vehicles per hour on higher-volume minor street approach (one direction only):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	413
1:00 - 2:00 AM	0	1:00 - 2:00 PM	413
2:00 - 3:00 AM	0	2:00 - 3:00 PM	413
3:00 - 4:00 AM	0	3:00 - 4:00 PM	413
4:00 - 5:00 AM	0	4:00 - 5:00 PM	610
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	810	7:00 - 8:00 PM	0
8:00 - 9:00 AM	413	8:00 - 9:00 PM	0
9:00 - 10:00AM	413	9:00 - 10:00PM	0
10:00 - 11:00 AM	413	10:00 - 11:00 PM	0
11:00 - 12:00 PM	413	11:00 - 12:00 PM	0

Is the intersection using the reduced volume criteria based on speed or population? No

A. Is the Minimum Vehicular Volume Warrant Met? No

B. Is the Interruption of Continuous Traffic Met? No

Combination of Warrants A and B Criteria Met? No
(Use only when Conditions A and B are both not satisified)

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Gest Street & Freeman Avenue
City/State: Cincinnati, Ohio

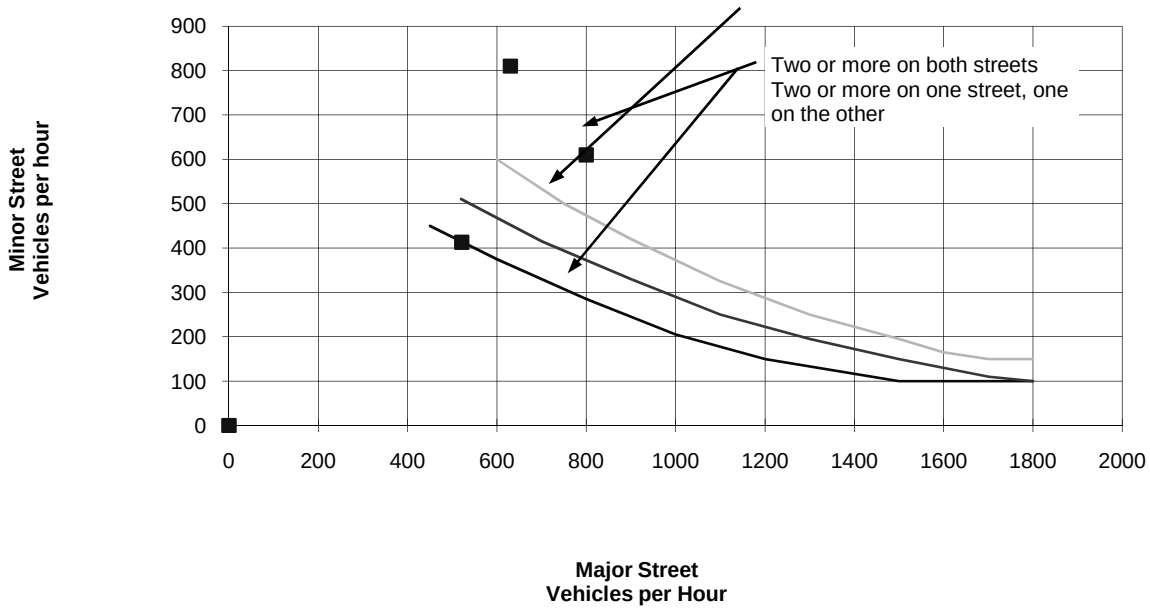
Warrant 3B - Peak Hour

The peak hour volume warrant is also intended for application when traffic conditions are such that for one hour of the day minor street traffic suffers undue traffic delay in entering or crossing the main street.

The peak hour volume warrant is satisfied when the plotted point representing vehicles per hour on the higher volume minor street for one hour falls above the curve in Figure 4C-3.

Figure 4C-4 may be used if the 85th percentile speed of the major street exceeds 40 mph or when the intersection lies within a built-up area of an isolated community having a population less than 10,000.

Peak Hour volume warrant - Major and Minor Streets for Urban Locations - Warrant 3B



Is Peak Hour Volume Warrant Met? **Yes**

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Western Hills Viaduct LOWER DECK & Spring Grove

City/State: Cincinnati, Ohio

Date: 7/9/2010 Performed By: JRL

	Minor (EB/NB) Approach	Minor (WB/SB) Approach	Major(EB/NB) Approach	Major(WB/SB) Approach	Total	Minor	Total Major
12:00 - 1:00 AM					0	0	0
1:00 - 2:00 AM					0	0	0
2:00 - 3:00 AM					0	0	0
3:00 - 4:00 AM					0	0	0
4:00 - 5:00 AM					0	0	0
5:00 - 6:00 AM					0	0	0
6:00 - 7:00 AM					0	0	0
7:00 - 8:00 AM	440		520	760	1720	440	1280
8:00 - 9:00 AM	276		650	528	1454	276	1178
9:00 - 10:00AM	276		650	528	1454	276	1178
10:00 - 11:00 AM	276		650	528	1454	276	1178
11:00 - 12:00 PM	276		650	528	1454	276	1178
12:00 - 1:00 PM	276		650	528	1454	276	1178
1:00 - 2:00 PM	276		650	528	1454	276	1178
2:00 - 3:00 PM	276		650	528	1454	276	1178
3:00 - 4:00 PM	276		650	528	1454	276	1178
4:00 - 5:00 PM	220		1550	840	2610	220	2390
5:00 - 6:00 PM					0	0	0
6:00 - 7:00 PM					0	0	0
7:00 - 8:00 PM					0	0	0
8:00 - 9:00 PM					0	0	0
9:00 - 10:00PM					0	0	0
10:00 - 11:00 PM					0	0	0
11:00 - 12:00 PM					0	0	0
Total	**2868**	**0**	**7270**	**5824**	**15962**	**2868**	**13094**

Does the 85th Percentile Speed/Posted Speed Limit exceed 40 mph on the major street? No

Does the intersection lie within a built-up area of an isolated community having a population of less than 10,000? No

Your intersection **CANNOT** use the 70% option for this warrant, do you want to use it? No

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Western Hills Viaduct LOWER DECK & Spring Grove
City/State: Cincinnati, Ohio
Date 7/9/2010 Performed by: JRL

Warrant 1 - Eight-Hour Vehicular Volume

Number of lanes of moving traffic for moving traffic on each approach:
Major Street: 2 Minor Street: 2

Vehicles per hour on major street (total of both approaches):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	1178
1:00 - 2:00 AM	0	1:00 - 2:00 PM	1178
2:00 - 3:00 AM	0	2:00 - 3:00 PM	1178
3:00 - 4:00 AM	0	3:00 - 4:00 PM	1178
4:00 - 5:00 AM	0	4:00 - 5:00 PM	2390
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	1280	7:00 - 8:00 PM	0
8:00 - 9:00 AM	1178	8:00 - 9:00 PM	0
9:00 - 10:00AM	1178	9:00 - 10:00PM	0
10:00 - 11:00 AM	1178	10:00 - 11:00 PM	0
11:00 - 12:00 PM	1178	11:00 - 12:00 PM	0

Vehicles per hour on higher-volume minor street approach (one direction only):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	276
1:00 - 2:00 AM	0	1:00 - 2:00 PM	276
2:00 - 3:00 AM	0	2:00 - 3:00 PM	276
3:00 - 4:00 AM	0	3:00 - 4:00 PM	276
4:00 - 5:00 AM	0	4:00 - 5:00 PM	220
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	440	7:00 - 8:00 PM	0
8:00 - 9:00 AM	276	8:00 - 9:00 PM	0
9:00 - 10:00AM	276	9:00 - 10:00PM	0
10:00 - 11:00 AM	276	10:00 - 11:00 PM	0
11:00 - 12:00 PM	276	11:00 - 12:00 PM	0

Is the intersection using the reduced volume criteria based on speed or population? No

A. Is the Minimum Vehicular Volume Warrant Met? Yes

B. Is the Interruption of Continuous Traffic Met? Yes

Combination of Warrants A and B Criteria Met? Yes
(Use only when Conditions A and B are both not satisified)

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Western Hills Viaduct LOWER DECK & Spring Grove
City/State: Cincinnati, Ohio

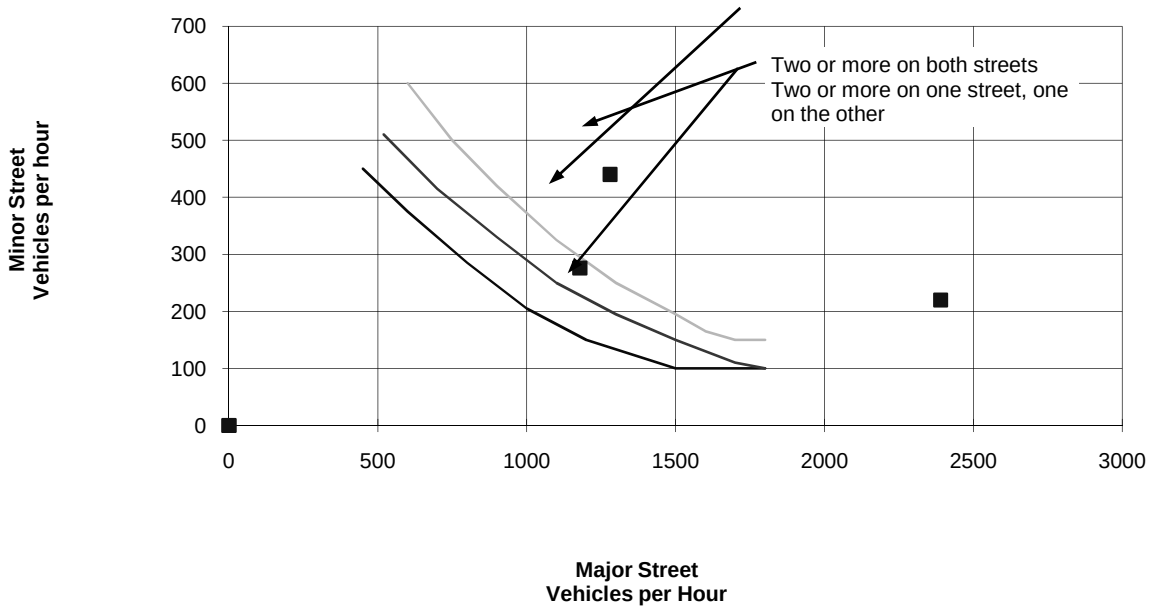
Warrant 3B - Peak Hour

The peak hour volume warrant is also intended for application when traffic conditions are such that for one hour of the day minor street traffic suffers undue traffic delay in entering or crossing the main street.

The peak hour volume warrant is satisfied when the plotted point representing vehicles per hour on the higher volume minor street for one hour falls above the curve in Figure 4C-3.

Figure 4C-4 may be used if the 85th percentile speed of the major street exceeds 40 mph or when the intersection lies within a built-up area of an isolated community having a population less than 10,000.

Peak Hour volume warrant - Major and Minor Streets for Urban Locations - Warrant 3B



Is Peak Hour Volume Warrant Met? **Yes**

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Western Hills Viaduct LOWER DECK & Spring Grove

City/State: Cincinnati, Ohio

Date: 7/9/2010 Performed By: JRL

	Minor (EB/NB) Approach	Minor (WB/SB) Approach	Major(EB/NB) Approach	Major(WB/SB) Approach	Total	Minor	Total Major
12:00 - 1:00 AM					0	0	0
1:00 - 2:00 AM					0	0	0
2:00 - 3:00 AM					0	0	0
3:00 - 4:00 AM					0	0	0
4:00 - 5:00 AM					0	0	0
5:00 - 6:00 AM					0	0	0
6:00 - 7:00 AM					0	0	0
7:00 - 8:00 AM	410		740	1080	2230	410	1820
8:00 - 9:00 AM	324		913	714	1951	324	1627
9:00 - 10:00AM	324		913	714	1951	324	1627
10:00 - 11:00 AM	324		913	714	1951	324	1627
11:00 - 12:00 PM	324		913	714	1951	324	1627
12:00 - 1:00 PM	324		913	714	1951	324	1627
1:00 - 2:00 PM	324		913	714	1951	324	1627
2:00 - 3:00 PM	324		913	714	1951	324	1627
3:00 - 4:00 PM	324		913	714	1951	324	1627
4:00 - 5:00 PM	310		2130	1040	3480	310	3170
5:00 - 6:00 PM					0	0	0
6:00 - 7:00 PM					0	0	0
7:00 - 8:00 PM					0	0	0
8:00 - 9:00 PM					0	0	0
9:00 - 10:00PM					0	0	0
10:00 - 11:00 PM					0	0	0
11:00 - 12:00 PM					0	0	0
Total	**3312**	**0**	**10174**	**7832**	**21318**	**3312**	**18006**

Does the 85th Percentile Speed/Posted Speed Limit exceed 40 mph on the major street? No

Does the intersection lie within a built-up area of an isolated community having a population of less than 10,000? No

Your intersection **CANNOT** use the 70% option for this warrant, do you want to use it? No

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Western Hills Viaduct LOWER DECK & Spring Grove
City/State: Cincinnati, Ohio
Date 7/9/2010 Performed by: JRL

Warrant 1 - Eight-Hour Vehicular Volume

Number of lanes of moving traffic for moving traffic on each approach:
Major Street: 2 Minor Street: 2

Vehicles per hour on major street (total of both approaches):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	1627
1:00 - 2:00 AM	0	1:00 - 2:00 PM	1627
2:00 - 3:00 AM	0	2:00 - 3:00 PM	1627
3:00 - 4:00 AM	0	3:00 - 4:00 PM	1627
4:00 - 5:00 AM	0	4:00 - 5:00 PM	3170
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	1820	7:00 - 8:00 PM	0
8:00 - 9:00 AM	1627	8:00 - 9:00 PM	0
9:00 - 10:00AM	1627	9:00 - 10:00PM	0
10:00 - 11:00 AM	1627	10:00 - 11:00 PM	0
11:00 - 12:00 PM	1627	11:00 - 12:00 PM	0

Vehicles per hour on higher-volume minor street approach (one direction only):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	324
1:00 - 2:00 AM	0	1:00 - 2:00 PM	324
2:00 - 3:00 AM	0	2:00 - 3:00 PM	324
3:00 - 4:00 AM	0	3:00 - 4:00 PM	324
4:00 - 5:00 AM	0	4:00 - 5:00 PM	310
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	410	7:00 - 8:00 PM	0
8:00 - 9:00 AM	324	8:00 - 9:00 PM	0
9:00 - 10:00AM	324	9:00 - 10:00PM	0
10:00 - 11:00 AM	324	10:00 - 11:00 PM	0
11:00 - 12:00 PM	324	11:00 - 12:00 PM	0

Is the intersection using the reduced volume criteria based on speed or population? No

A. Is the Minimum Vehicular Volume Warrant Met? Yes

B. Is the Interruption of Continuous Traffic Met? Yes

Combination of Warrants A and B Criteria Met? Yes
(Use only when Conditions A and B are both not satisified)

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Western Hills Viaduct LOWER DECK & Spring Grove
City/State: Cincinnati, Ohio

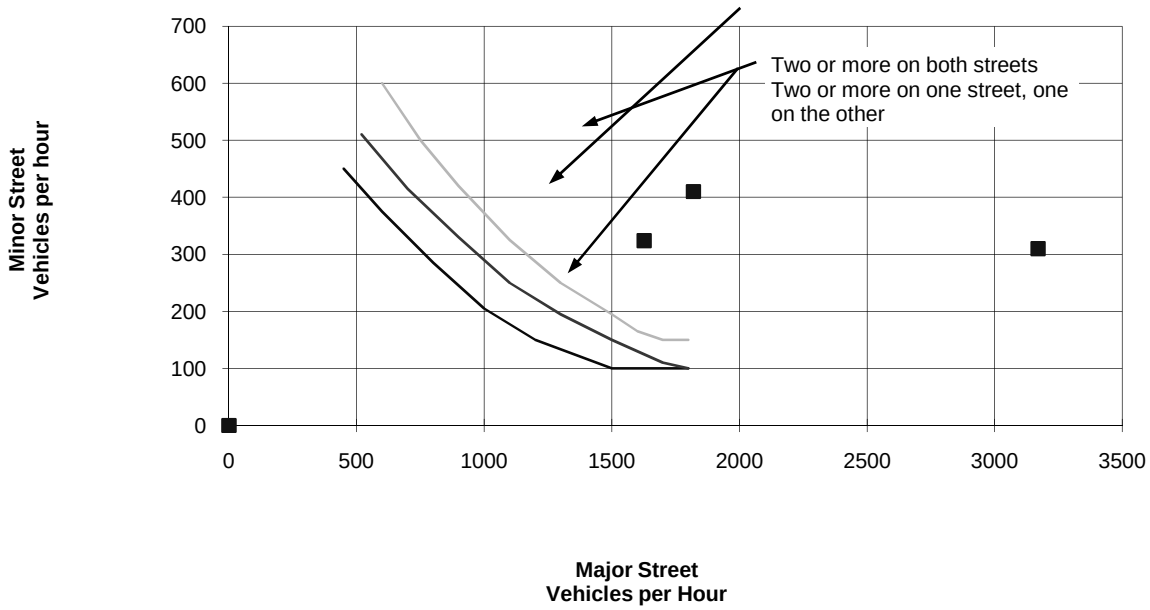
Warrant 3B - Peak Hour

The peak hour volume warrant is also intended for application when traffic conditions are such that for one hour of the day minor street traffic suffers undue traffic delay in entering or crossing the main street.

The peak hour volume warrant is satisfied when the plotted point representing vehicles per hour on the higher volume minor street for one hour falls above the curve in Figure 4C-3.

Figure 4C-4 may be used if the 85th percentile speed of the major street exceeds 40 mph or when the intersection lies within a built-up area of an isolated community having a population less than 10,000.

Peak Hour volume warrant - Major and Minor Streets for Urban Locations - Warrant 3B



Is Peak Hour Volume Warrant Met? **Yes**

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Western Hills Viaduct LOWER DECK & Spring Grove

City/State: Cincinnati, Ohio

Date: 7/9/2010 Performed By: JRL

	Minor (EB/NB) Approach	Minor (WB/SB) Approach	Major(EB/NB) Approach	Major(WB/SB) Approach	Total	Minor	Total Major
12:00 - 1:00 AM					0	0	0
1:00 - 2:00 AM					0	0	0
2:00 - 3:00 AM					0	0	0
3:00 - 4:00 AM					0	0	0
4:00 - 5:00 AM					0	0	0
5:00 - 6:00 AM					0	0	0
6:00 - 7:00 AM					0	0	0
7:00 - 8:00 AM	400		570	890	1860	400	1460
8:00 - 9:00 AM	228		703	605	1536	228	1308
9:00 - 10:00AM	228		703	605	1536	228	1308
10:00 - 11:00 AM	228		703	605	1536	228	1308
11:00 - 12:00 PM	228		703	605	1536	228	1308
12:00 - 1:00 PM	228		703	605	1536	228	1308
1:00 - 2:00 PM	228		703	605	1536	228	1308
2:00 - 3:00 PM	228		703	605	1536	228	1308
3:00 - 4:00 PM	228		703	605	1536	228	1308
4:00 - 5:00 PM	160		1650	940	2750	160	2590
5:00 - 6:00 PM					0	0	0
6:00 - 7:00 PM					0	0	0
7:00 - 8:00 PM					0	0	0
8:00 - 9:00 PM					0	0	0
9:00 - 10:00PM					0	0	0
10:00 - 11:00 PM					0	0	0
11:00 - 12:00 PM					0	0	0
Total	**2384**	**0**	**7844**	**6670**	**16898**	**2384**	**14514**

Does the 85th Percentile Speed/Posted Speed Limit exceed 40 mph on the major street? No

Does the intersection lie within a built-up area of an isolated community having a population of less than 10,000? No

Your intersection **CANNOT** use the 70% option for this warrant, do you want to use it? No

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Western Hills Viaduct LOWER DECK & Spring Grove
City/State: Cincinnati, Ohio
Date 7/9/2010 Performed by: JRL

Warrant 1 - Eight-Hour Vehicular Volume

Number of lanes of moving traffic for moving traffic on each approach:
Major Street: 2 Minor Street: 2

Vehicles per hour on major street (total of both approaches):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	1308
1:00 - 2:00 AM	0	1:00 - 2:00 PM	1308
2:00 - 3:00 AM	0	2:00 - 3:00 PM	1308
3:00 - 4:00 AM	0	3:00 - 4:00 PM	1308
4:00 - 5:00 AM	0	4:00 - 5:00 PM	2590
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	1460	7:00 - 8:00 PM	0
8:00 - 9:00 AM	1308	8:00 - 9:00 PM	0
9:00 - 10:00AM	1308	9:00 - 10:00PM	0
10:00 - 11:00 AM	1308	10:00 - 11:00 PM	0
11:00 - 12:00 PM	1308	11:00 - 12:00 PM	0

Vehicles per hour on higher-volume minor street approach (one direction only):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	228
1:00 - 2:00 AM	0	1:00 - 2:00 PM	228
2:00 - 3:00 AM	0	2:00 - 3:00 PM	228
3:00 - 4:00 AM	0	3:00 - 4:00 PM	228
4:00 - 5:00 AM	0	4:00 - 5:00 PM	160
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	400	7:00 - 8:00 PM	0
8:00 - 9:00 AM	228	8:00 - 9:00 PM	0
9:00 - 10:00AM	228	9:00 - 10:00PM	0
10:00 - 11:00 AM	228	10:00 - 11:00 PM	0
11:00 - 12:00 PM	228	11:00 - 12:00 PM	0

Is the intersection using the reduced volume criteria based on speed or population? No

A. Is the Minimum Vehicular Volume Warrant Met? Yes

B. Is the Interruption of Continuous Traffic Met? Yes

Combination of Warrants A and B Criteria Met? Yes
(Use only when Conditions A and B are both not satisified)

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Western Hills Viaduct LOWER DECK & Spring Grove
City/State: Cincinnati, Ohio

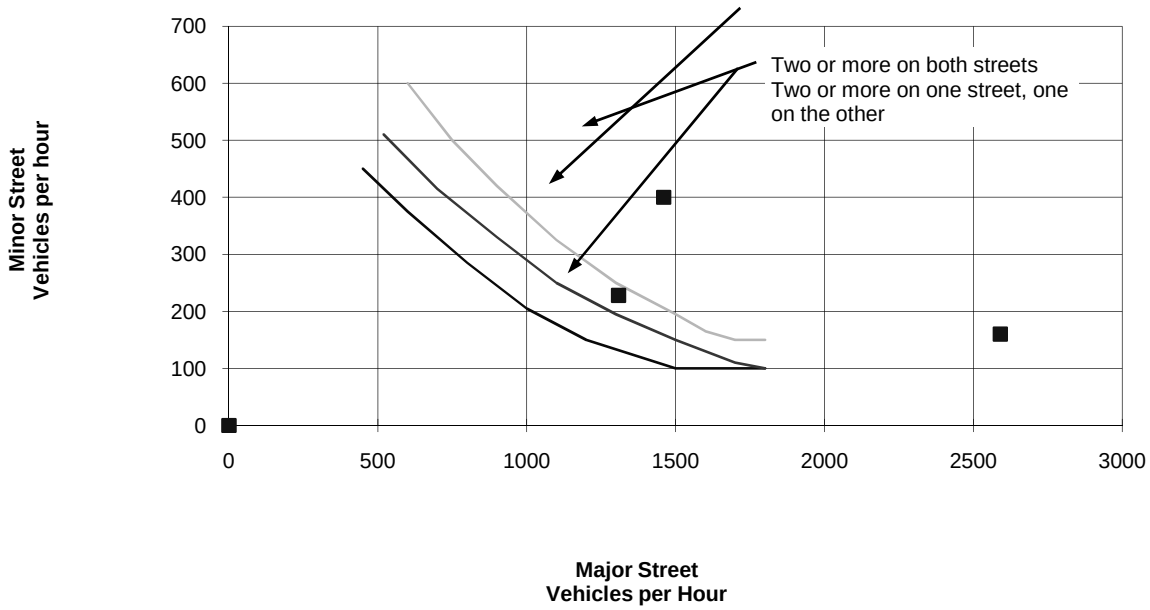
Warrant 3B - Peak Hour

The peak hour volume warrant is also intended for application when traffic conditions are such that for one hour of the day minor street traffic suffers undue traffic delay in entering or crossing the main street.

The peak hour volume warrant is satisfied when the plotted point representing vehicles per hour on the higher volume minor street for one hour falls above the curve in Figure 4C-3.

Figure 4C-4 may be used if the 85th percentile speed of the major street exceeds 40 mph or when the intersection lies within a built-up area of an isolated community having a population less than 10,000.

Peak Hour volume warrant - Major and Minor Streets for Urban Locations - Warrant 3B



Is Peak Hour Volume Warrant Met? **Yes**

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: 9th Street & Central Avenue

City/State: Cincinnati, Ohio

Date: 7/9/2010 Performed By: JRL

	Minor (EB/NB) Approach	Minor (WB/SB) Approach	Major(EB/NB) Approach	Major(WB/SB) Approach	Total	Minor	Total Major
12:00 - 1:00 AM					0	0	0
1:00 - 2:00 AM					0	0	0
2:00 - 3:00 AM					0	0	0
3:00 - 4:00 AM					0	0	0
4:00 - 5:00 AM					0	0	0
5:00 - 6:00 AM					0	0	0
6:00 - 7:00 AM					0	0	0
7:00 - 8:00 AM		430	500	20	950	430	520
8:00 - 9:00 AM		644	392	46	1082	644	438
9:00 - 10:00AM		644	392	46	1082	644	438
10:00 - 11:00 AM		644	392	46	1082	644	438
11:00 - 12:00 PM		644	392	46	1082	644	438
12:00 - 1:00 PM		644	392	46	1082	644	438
1:00 - 2:00 PM		644	392	46	1082	644	438
2:00 - 3:00 PM		644	392	46	1082	644	438
3:00 - 4:00 PM		644	392	46	1082	644	438
4:00 - 5:00 PM		1490	630	130	2250	1490	760
5:00 - 6:00 PM					0	0	0
6:00 - 7:00 PM					0	0	0
7:00 - 8:00 PM					0	0	0
8:00 - 9:00 PM					0	0	0
9:00 - 10:00PM					0	0	0
10:00 - 11:00 PM					0	0	0
11:00 - 12:00 PM					0	0	0
Total	**0**	**7072**	**4266**	**518**	**11856**	**7072**	**4784**

Does the 85th Percentile Speed/Posted Speed Limit exceed 40 mph on the major street? No

Does the intersection lie within a built-up area of an isolated community having a population of less than 10,000? No

Your intersection **CANNOT** use the 70% option for this warrant, do you want to use it? No

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: 9th Street & Central Avenue
City/State: Cincinnati, Ohio
Date 7/9/2010 Performed by: JRL

Warrant 1 - Eight-Hour Vehicular Volume

Number of lanes of moving traffic for moving traffic on each approach:
Major Street: 4 Minor Street: 4

Vehicles per hour on major street (total of both approaches):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	438
1:00 - 2:00 AM	0	1:00 - 2:00 PM	438
2:00 - 3:00 AM	0	2:00 - 3:00 PM	438
3:00 - 4:00 AM	0	3:00 - 4:00 PM	438
4:00 - 5:00 AM	0	4:00 - 5:00 PM	760
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	520	7:00 - 8:00 PM	0
8:00 - 9:00 AM	438	8:00 - 9:00 PM	0
9:00 - 10:00AM	438	9:00 - 10:00PM	0
10:00 - 11:00 AM	438	10:00 - 11:00 PM	0
11:00 - 12:00 PM	438	11:00 - 12:00 PM	0

Vehicles per hour on higher-volume minor street approach (one direction only):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	644
1:00 - 2:00 AM	0	1:00 - 2:00 PM	644
2:00 - 3:00 AM	0	2:00 - 3:00 PM	644
3:00 - 4:00 AM	0	3:00 - 4:00 PM	644
4:00 - 5:00 AM	0	4:00 - 5:00 PM	1490
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	430	7:00 - 8:00 PM	0
8:00 - 9:00 AM	644	8:00 - 9:00 PM	0
9:00 - 10:00AM	644	9:00 - 10:00PM	0
10:00 - 11:00 AM	644	10:00 - 11:00 PM	0
11:00 - 12:00 PM	644	11:00 - 12:00 PM	0

Is the intersection using the reduced volume criteria based on speed or population? No

A. Is the Minimum Vehicular Volume Warrant Met? No

B. Is the Interruption of Continuous Traffic Met? No

Combination of Warrants A and B Criteria Met? No
(Use only when Conditions A and B are both not satisified)

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: 9th Street & Central Avenue
City/State: Cincinnati, Ohio

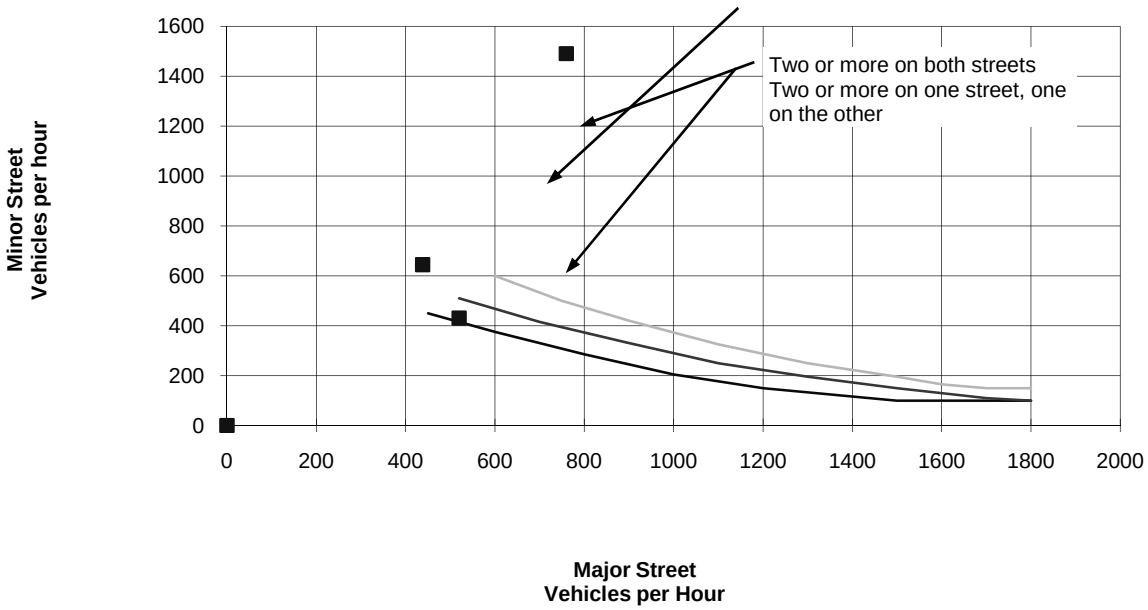
Warrant 3B - Peak Hour

The peak hour volume warrant is also intended for application when traffic conditions are such that for one hour of the day minor street traffic suffers undue traffic delay in entering or crossing the main street.

The peak hour volume warrant is satisfied when the plotted point representing vehicles per hour on the higher volume minor street for one hour falls above the curve in Figure 4C-3.

Figure 4C-4 may be used if the 85th percentile speed of the major street exceeds 40 mph or when the intersection lies within a built-up area of an isolated community having a population less than 10,000.

Peak Hour volume warrant - Major and Minor Streets for Urban Locations - Warrant 3B



Is Peak Hour Volume Warrant Met? **Yes**

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: 9th Street & Central Avenue

City/State: Cincinnati, Ohio

Date: 7/9/2010 Performed By: JRL

	Minor (EB/NB) Approach	Minor (WB/SB) Approach	Major(EB/NB) Approach	Major(WB/SB) Approach	Total	Minor	Total Major
12:00 - 1:00 AM					0	0	0
1:00 - 2:00 AM					0	0	0
2:00 - 3:00 AM					0	0	0
3:00 - 4:00 AM					0	0	0
4:00 - 5:00 AM					0	0	0
5:00 - 6:00 AM					0	0	0
6:00 - 7:00 AM					0	0	0
7:00 - 8:00 AM		290	350	20	660	290	370
8:00 - 9:00 AM		486	314	45	845	486	359
9:00 - 10:00AM		486	314	45	845	486	359
10:00 - 11:00 AM		486	314	45	845	486	359
11:00 - 12:00 PM		486	314	45	845	486	359
12:00 - 1:00 PM		486	314	45	845	486	359
1:00 - 2:00 PM		486	314	45	845	486	359
2:00 - 3:00 PM		486	314	45	845	486	359
3:00 - 4:00 PM		486	314	45	845	486	359
4:00 - 5:00 PM		870	380	70	1320	870	450
5:00 - 6:00 PM					0	0	0
6:00 - 7:00 PM					0	0	0
7:00 - 8:00 PM					0	0	0
8:00 - 9:00 PM					0	0	0
9:00 - 10:00PM					0	0	0
10:00 - 11:00 PM					0	0	0
11:00 - 12:00 PM					0	0	0
Total	**0**	**5048**	**3242**	**450**	**8740**	**5048**	**3692**

Does the 85th Percentile Speed/Posted Speed Limit exceed 40 mph on the major street? No

Does the intersection lie within a built-up area of an isolated community having a population of less than 10,000? No

Your intersection **CANNOT** use the 70% option for this warrant, do you want to use it? No

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: 9th Street & Central Avenue
City/State: Cincinnati, Ohio
Date 7/9/2010 Performed by: JRL

Warrant 1 - Eight-Hour Vehicular Volume

Number of lanes of moving traffic for moving traffic on each approach:
Major Street: 4 Minor Street: 4

Vehicles per hour on major street (total of both approaches):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	359
1:00 - 2:00 AM	0	1:00 - 2:00 PM	359
2:00 - 3:00 AM	0	2:00 - 3:00 PM	359
3:00 - 4:00 AM	0	3:00 - 4:00 PM	359
4:00 - 5:00 AM	0	4:00 - 5:00 PM	450
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	370	7:00 - 8:00 PM	0
8:00 - 9:00 AM	359	8:00 - 9:00 PM	0
9:00 - 10:00AM	359	9:00 - 10:00PM	0
10:00 - 11:00 AM	359	10:00 - 11:00 PM	0
11:00 - 12:00 PM	359	11:00 - 12:00 PM	0

Vehicles per hour on higher-volume minor street approach (one direction only):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	486
1:00 - 2:00 AM	0	1:00 - 2:00 PM	486
2:00 - 3:00 AM	0	2:00 - 3:00 PM	486
3:00 - 4:00 AM	0	3:00 - 4:00 PM	486
4:00 - 5:00 AM	0	4:00 - 5:00 PM	870
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	290	7:00 - 8:00 PM	0
8:00 - 9:00 AM	486	8:00 - 9:00 PM	0
9:00 - 10:00AM	486	9:00 - 10:00PM	0
10:00 - 11:00 AM	486	10:00 - 11:00 PM	0
11:00 - 12:00 PM	486	11:00 - 12:00 PM	0

Is the intersection using the reduced volume criteria based on speed or population? No

A. Is the Minimum Vehicular Volume Warrant Met? No

B. Is the Interruption of Continuous Traffic Met? No

Combination of Warrants A and B Criteria Met? No
(Use only when Conditions A and B are both not satisified)

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: 9th Street & Central Avenue
City/State: Cincinnati, Ohio

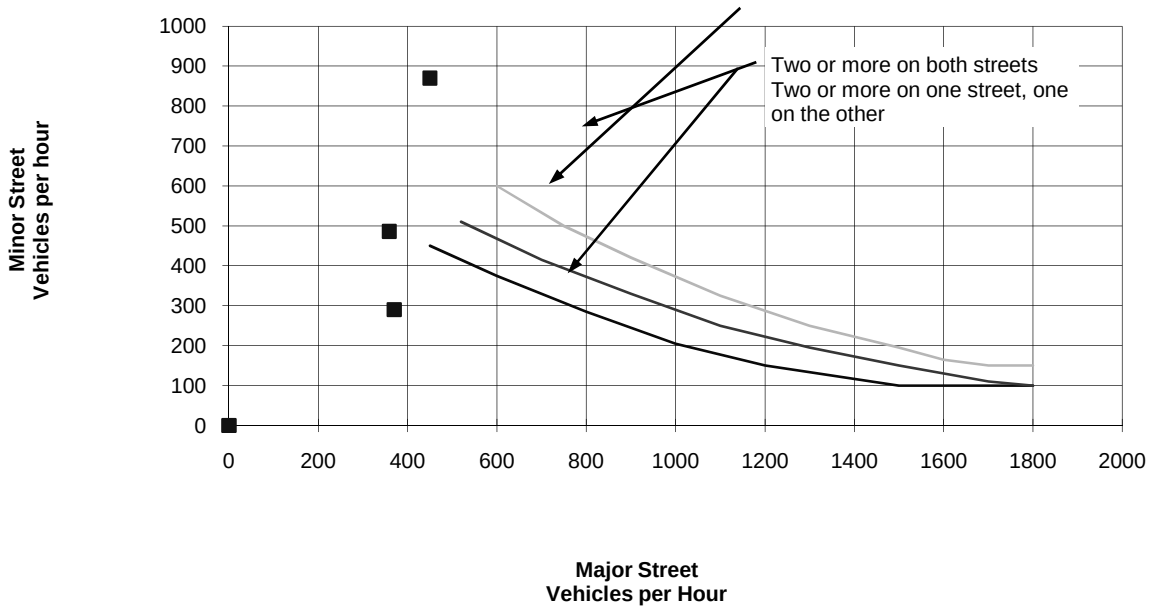
Warrant 3B - Peak Hour

The peak hour volume warrant is also intended for application when traffic conditions are such that for one hour of the day minor street traffic suffers undue traffic delay in entering or crossing the main street.

The peak hour volume warrant is satisfied when the plotted point representing vehicles per hour on the higher volume minor street for one hour falls above the curve in Figure 4C-3.

Figure 4C-4 may be used if the 85th percentile speed of the major street exceeds 40 mph or when the intersection lies within a built-up area of an isolated community having a population less than 10,000.

Peak Hour volume warrant - Major and Minor Streets for Urban Locations - Warrant 3B



Is Peak Hour Volume Warrant Met? **Yes**

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: 9th Street & Central Avenue

City/State: Cincinnati, Ohio

Date: 7/9/2010 Performed By: JRL

	Minor (EB/NB) Approach	Minor (WB/SB) Approach	Major(EB/NB) Approach	Major(WB/SB) Approach	Total	Minor	Total Major
12:00 - 1:00 AM					0	0	0
1:00 - 2:00 AM					0	0	0
2:00 - 3:00 AM					0	0	0
3:00 - 4:00 AM					0	0	0
4:00 - 5:00 AM					0	0	0
5:00 - 6:00 AM					0	0	0
6:00 - 7:00 AM					0	0	0
7:00 - 8:00 AM		310	420	30	760	310	450
8:00 - 9:00 AM		546	290	36	872	546	326
9:00 - 10:00AM		546	290	36	872	546	326
10:00 - 11:00 AM		546	290	36	872	546	326
11:00 - 12:00 PM		546	290	36	872	546	326
12:00 - 1:00 PM		546	290	36	872	546	326
1:00 - 2:00 PM		546	290	36	872	546	326
2:00 - 3:00 PM		546	290	36	872	546	326
3:00 - 4:00 PM		546	290	36	872	546	326
4:00 - 5:00 PM		1230	500	140	1870	1230	640
5:00 - 6:00 PM					0	0	0
6:00 - 7:00 PM					0	0	0
7:00 - 8:00 PM					0	0	0
8:00 - 9:00 PM					0	0	0
9:00 - 10:00PM					0	0	0
10:00 - 11:00 PM					0	0	0
11:00 - 12:00 PM					0	0	0
Total	**0**	**5908**	**3240**	**458**	**9606**	**5908**	**3698**

Does the 85th Percentile Speed/Posted Speed Limit exceed 40 mph on the major street? No

Does the intersection lie within a built-up area of an isolated community having a population of less than 10,000? No

Your intersection **CANNOT** use the 70% option for this warrant, do you want to use it? No

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: 9th Street & Central Avenue
City/State: Cincinnati, Ohio
Date 7/9/2010 Performed by: JRL

Warrant 1 - Eight-Hour Vehicular Volume

Number of lanes of moving traffic for moving traffic on each approach:
Major Street: 4 Minor Street: 4

Vehicles per hour on major street (total of both approaches):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	326
1:00 - 2:00 AM	0	1:00 - 2:00 PM	326
2:00 - 3:00 AM	0	2:00 - 3:00 PM	326
3:00 - 4:00 AM	0	3:00 - 4:00 PM	326
4:00 - 5:00 AM	0	4:00 - 5:00 PM	640
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	450	7:00 - 8:00 PM	0
8:00 - 9:00 AM	326	8:00 - 9:00 PM	0
9:00 - 10:00AM	326	9:00 - 10:00PM	0
10:00 - 11:00 AM	326	10:00 - 11:00 PM	0
11:00 - 12:00 PM	326	11:00 - 12:00 PM	0

Vehicles per hour on higher-volume minor street approach (one direction only):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	546
1:00 - 2:00 AM	0	1:00 - 2:00 PM	546
2:00 - 3:00 AM	0	2:00 - 3:00 PM	546
3:00 - 4:00 AM	0	3:00 - 4:00 PM	546
4:00 - 5:00 AM	0	4:00 - 5:00 PM	1230
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	310	7:00 - 8:00 PM	0
8:00 - 9:00 AM	546	8:00 - 9:00 PM	0
9:00 - 10:00AM	546	9:00 - 10:00PM	0
10:00 - 11:00 AM	546	10:00 - 11:00 PM	0
11:00 - 12:00 PM	546	11:00 - 12:00 PM	0

Is the intersection using the reduced volume criteria based on speed or population? No

A. Is the Minimum Vehicular Volume Warrant Met? No

B. Is the Interruption of Continuous Traffic Met? No

Combination of Warrants A and B Criteria Met? No
(Use only when Conditions A and B are both not satisified)

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: 9th Street & Central Avenue
City/State: Cincinnati, Ohio

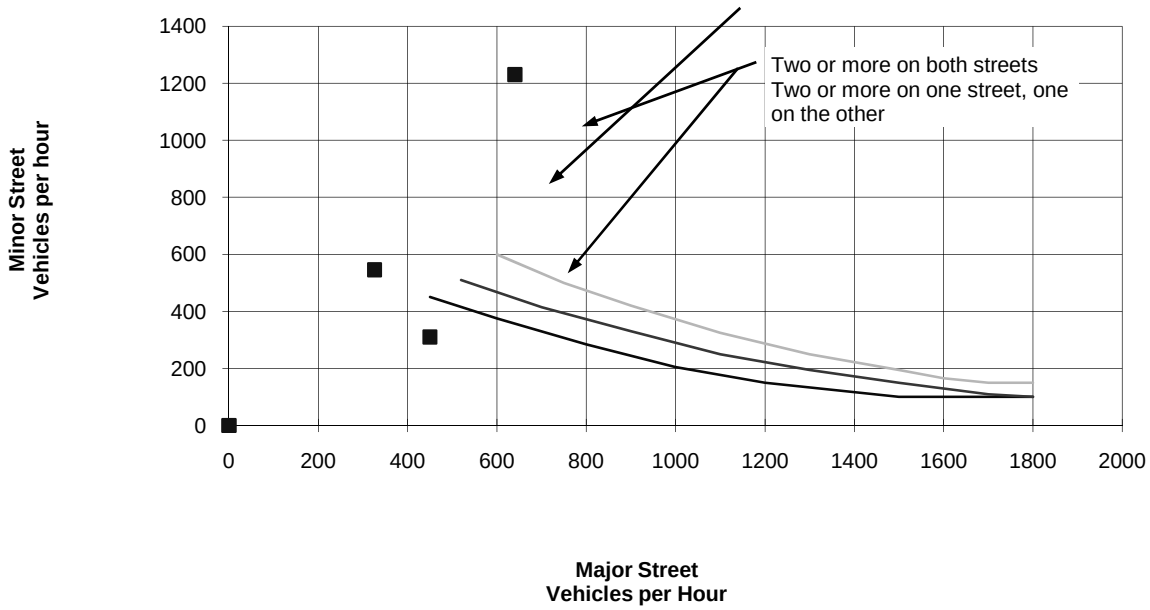
Warrant 3B - Peak Hour

The peak hour volume warrant is also intended for application when traffic conditions are such that for one hour of the day minor street traffic suffers undue traffic delay in entering or crossing the main street.

The peak hour volume warrant is satisfied when the plotted point representing vehicles per hour on the higher volume minor street for one hour falls above the curve in Figure 4C-3.

Figure 4C-4 may be used if the 85th percentile speed of the major street exceeds 40 mph or when the intersection lies within a built-up area of an isolated community having a population less than 10,000.

Peak Hour volume warrant - Major and Minor Streets for Urban Locations - Warrant 3B



Is Peak Hour Volume Warrant Met? **Yes**

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: 7th Street & Central Avenue

City/State: Cincinnati, Ohio

Date: 7/9/2010 Performed By: JRL

	Minor (EB/NB) Approach	Minor (WB/SB) Approach	Major(EB/NB) Approach	Major(WB/SB) Approach	Total	Minor	Total Major
12:00 - 1:00 AM					0	0	0
1:00 - 2:00 AM					0	0	0
2:00 - 3:00 AM					0	0	0
3:00 - 4:00 AM					0	0	0
4:00 - 5:00 AM					0	0	0
5:00 - 6:00 AM					0	0	0
6:00 - 7:00 AM					0	0	0
7:00 - 8:00 AM	2120		410		2530	2120	410
8:00 - 9:00 AM	890		254		1144	890	254
9:00 - 10:00AM	890		254		1144	890	254
10:00 - 11:00 AM	890		254		1144	890	254
11:00 - 12:00 PM	890		254		1144	890	254
12:00 - 1:00 PM	890		254		1144	890	254
1:00 - 2:00 PM	890		254		1144	890	254
2:00 - 3:00 PM	890		254		1144	890	254
3:00 - 4:00 PM	890		254		1144	890	254
4:00 - 5:00 PM	690		350		1040	690	350
5:00 - 6:00 PM					0	0	0
6:00 - 7:00 PM					0	0	0
7:00 - 8:00 PM					0	0	0
8:00 - 9:00 PM					0	0	0
9:00 - 10:00PM					0	0	0
10:00 - 11:00 PM					0	0	0
11:00 - 12:00 PM					0	0	0
Total	**9930**	**0**	**2792**	**0**	**12722**	**9930**	**2792**

Does the 85th Percentile Speed/Posted Speed Limit exceed 40 mph on the major street? No

Does the intersection lie within a built-up area of an isolated community having a population of less than 10,000? No

Your intersection **CANNOT** use the 70% option for this warrant, do you want to use it? No

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: 7th Street & Central Avenue
City/State: Cincinnati, Ohio
Date 7/9/2010 Performed by: JRL

Warrant 1 - Eight-Hour Vehicular Volume

Number of lanes of moving traffic for moving traffic on each approach:
Major Street: 3 Minor Street: 4

Vehicles per hour on major street (total of both approaches):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	254
1:00 - 2:00 AM	0	1:00 - 2:00 PM	254
2:00 - 3:00 AM	0	2:00 - 3:00 PM	254
3:00 - 4:00 AM	0	3:00 - 4:00 PM	254
4:00 - 5:00 AM	0	4:00 - 5:00 PM	350
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	410	7:00 - 8:00 PM	0
8:00 - 9:00 AM	254	8:00 - 9:00 PM	0
9:00 - 10:00AM	254	9:00 - 10:00PM	0
10:00 - 11:00 AM	254	10:00 - 11:00 PM	0
11:00 - 12:00 PM	254	11:00 - 12:00 PM	0

Vehicles per hour on higher-volume minor street approach (one direction only):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	890
1:00 - 2:00 AM	0	1:00 - 2:00 PM	890
2:00 - 3:00 AM	0	2:00 - 3:00 PM	890
3:00 - 4:00 AM	0	3:00 - 4:00 PM	890
4:00 - 5:00 AM	0	4:00 - 5:00 PM	690
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	2120	7:00 - 8:00 PM	0
8:00 - 9:00 AM	890	8:00 - 9:00 PM	0
9:00 - 10:00AM	890	9:00 - 10:00PM	0
10:00 - 11:00 AM	890	10:00 - 11:00 PM	0
11:00 - 12:00 PM	890	11:00 - 12:00 PM	0

Is the intersection using the reduced volume criteria based on speed or population? No

A. Is the Minimum Vehicular Volume Warrant Met? No

B. Is the Interruption of Continuous Traffic Met? No

Combination of Warrants A and B Criteria Met? No
(Use only when Conditions A and B are both not satisified)

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: 7th Street & Central Avenue
City/State: Cincinnati, Ohio

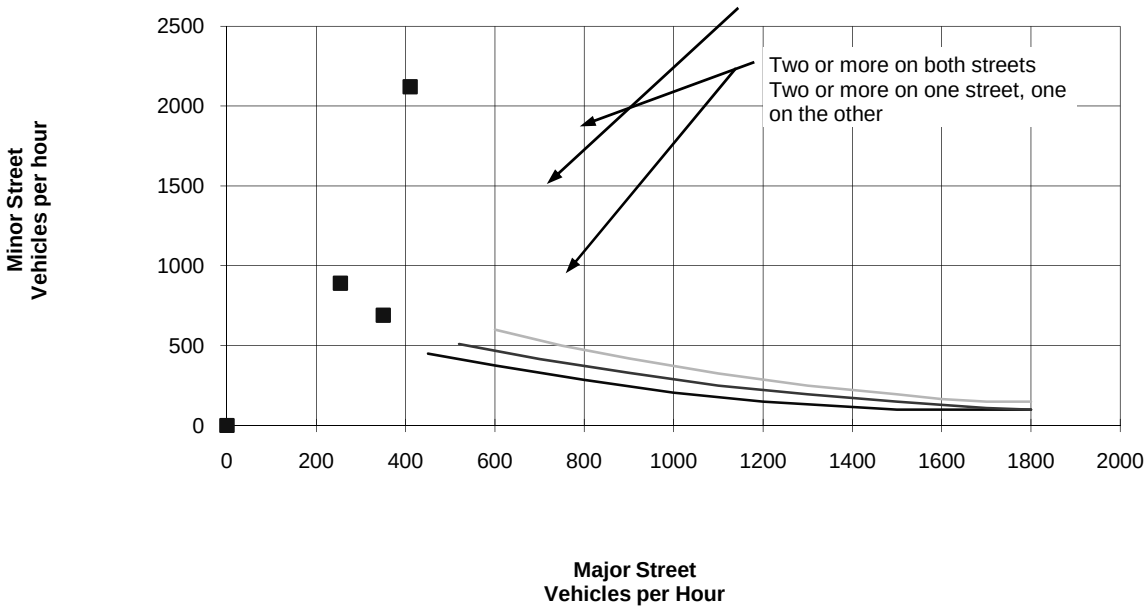
Warrant 3B - Peak Hour

The peak hour volume warrant is also intended for application when traffic conditions are such that for one hour of the day minor street traffic suffers undue traffic delay in entering or crossing the main street.

The peak hour volume warrant is satisfied when the plotted point representing vehicles per hour on the higher volume minor street for one hour falls above the curve in Figure 4C-3.

Figure 4C-4 may be used if the 85th percentile speed of the major street exceeds 40 mph or when the intersection lies within a built-up area of an isolated community having a population less than 10,000.

Peak Hour volume warrant - Major and Minor Streets for Urban Locations - Warrant 3B



Is Peak Hour Volume Warrant Met? **Yes**

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: 7th Street & Central Avenue

City/State: Cincinnati, Ohio

Date: 7/9/2010 Performed By: JRL

	Minor (EB/NB) Approach	Minor (WB/SB) Approach	Major(EB/NB) Approach	Major(WB/SB) Approach	Total	Minor	Total Major
12:00 - 1:00 AM					0	0	0
1:00 - 2:00 AM					0	0	0
2:00 - 3:00 AM					0	0	0
3:00 - 4:00 AM					0	0	0
4:00 - 5:00 AM					0	0	0
5:00 - 6:00 AM					0	0	0
6:00 - 7:00 AM					0	0	0
7:00 - 8:00 AM	2200		630		2830	2200	630
8:00 - 9:00 AM	876		320		1196	876	320
9:00 - 10:00AM	876		320		1196	876	320
10:00 - 11:00 AM	876		320		1196	876	320
11:00 - 12:00 PM	876		320		1196	876	320
12:00 - 1:00 PM	876		320		1196	876	320
1:00 - 2:00 PM	876		320		1196	876	320
2:00 - 3:00 PM	876		320		1196	876	320
3:00 - 4:00 PM	876		320		1196	876	320
4:00 - 5:00 PM	700		500		1200	700	500
5:00 - 6:00 PM					0	0	0
6:00 - 7:00 PM					0	0	0
7:00 - 8:00 PM					0	0	0
8:00 - 9:00 PM					0	0	0
9:00 - 10:00PM					0	0	0
10:00 - 11:00 PM					0	0	0
11:00 - 12:00 PM					0	0	0
Total	**9908**	**0**	**3690**	**0**	**13598**	**9908**	**3690**

Does the 85th Percentile Speed/Posted Speed Limit exceed 40 mph on the major street? No

Does the intersection lie within a built-up area of an isolated community having a population of less than 10,000? No

Your intersection **CANNOT** use the 70% option for this warrant, do you want to use it? No

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: 7th Street & Central Avenue
City/State: Cincinnati, Ohio
Date 7/9/2010 Performed by: JRL

Warrant 1 - Eight-Hour Vehicular Volume

Number of lanes of moving traffic for moving traffic on each approach:
Major Street: 3 Minor Street: 4

Vehicles per hour on major street (total of both approaches):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	320
1:00 - 2:00 AM	0	1:00 - 2:00 PM	320
2:00 - 3:00 AM	0	2:00 - 3:00 PM	320
3:00 - 4:00 AM	0	3:00 - 4:00 PM	320
4:00 - 5:00 AM	0	4:00 - 5:00 PM	500
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	630	7:00 - 8:00 PM	0
8:00 - 9:00 AM	320	8:00 - 9:00 PM	0
9:00 - 10:00AM	320	9:00 - 10:00PM	0
10:00 - 11:00 AM	320	10:00 - 11:00 PM	0
11:00 - 12:00 PM	320	11:00 - 12:00 PM	0

Vehicles per hour on higher-volume minor street approach (one direction only):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	876
1:00 - 2:00 AM	0	1:00 - 2:00 PM	876
2:00 - 3:00 AM	0	2:00 - 3:00 PM	876
3:00 - 4:00 AM	0	3:00 - 4:00 PM	876
4:00 - 5:00 AM	0	4:00 - 5:00 PM	700
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	2200	7:00 - 8:00 PM	0
8:00 - 9:00 AM	876	8:00 - 9:00 PM	0
9:00 - 10:00AM	876	9:00 - 10:00PM	0
10:00 - 11:00 AM	876	10:00 - 11:00 PM	0
11:00 - 12:00 PM	876	11:00 - 12:00 PM	0

Is the intersection using the reduced volume criteria based on speed or population? No

A. Is the Minimum Vehicular Volume Warrant Met? No

B. Is the Interruption of Continuous Traffic Met? No

Combination of Warrants A and B Criteria Met? No
(Use only when Conditions A and B are both not satisified)

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: 7th Street & Central Avenue
City/State: Cincinnati, Ohio

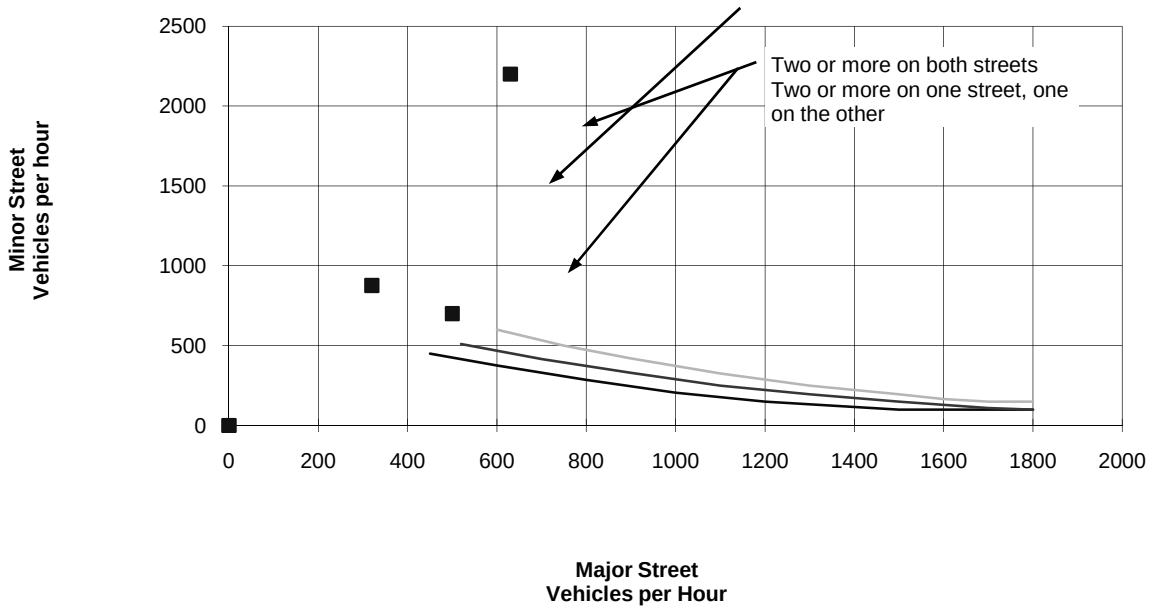
Warrant 3B - Peak Hour

The peak hour volume warrant is also intended for application when traffic conditions are such that for one hour of the day minor street traffic suffers undue traffic delay in entering or crossing the main street.

The peak hour volume warrant is satisfied when the plotted point representing vehicles per hour on the higher volume minor street for one hour falls above the curve in Figure 4C-3.

Figure 4C-4 may be used if the 85th percentile speed of the major street exceeds 40 mph or when the intersection lies within a built-up area of an isolated community having a population less than 10,000.

Peak Hour volume warrant - Major and Minor Streets for Urban Locations - Warrant 3B



Is Peak Hour Volume Warrant Met? **Yes**

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: 7th Street & Central Avenue

City/State: Cincinnati, Ohio

Date: 7/9/2010 Performed By: JRL

	Minor (EB/NB) Approach	Minor (WB/SB) Approach	Major(EB/NB) Approach	Major(WB/SB) Approach	Total	Minor	Total Major
12:00 - 1:00 AM					0	0	0
1:00 - 2:00 AM					0	0	0
2:00 - 3:00 AM					0	0	0
3:00 - 4:00 AM					0	0	0
4:00 - 5:00 AM					0	0	0
5:00 - 6:00 AM					0	0	0
6:00 - 7:00 AM					0	0	0
7:00 - 8:00 AM	2220		390		2610	2220	390
8:00 - 9:00 AM	938		234		1172	938	234
9:00 - 10:00AM	938		234		1172	938	234
10:00 - 11:00 AM	938		234		1172	938	234
11:00 - 12:00 PM	938		234		1172	938	234
12:00 - 1:00 PM	938		234		1172	938	234
1:00 - 2:00 PM	938		234		1172	938	234
2:00 - 3:00 PM	938		234		1172	938	234
3:00 - 4:00 PM	938		234		1172	938	234
4:00 - 5:00 PM	750		320		1070	750	320
5:00 - 6:00 PM					0	0	0
6:00 - 7:00 PM					0	0	0
7:00 - 8:00 PM					0	0	0
8:00 - 9:00 PM					0	0	0
9:00 - 10:00PM					0	0	0
10:00 - 11:00 PM					0	0	0
11:00 - 12:00 PM					0	0	0
Total	**10474**	**0**	**2582**	**0**	**13056**	**10474**	**2582**

Does the 85th Percentile Speed/Posted Speed Limit exceed 40 mph on the major street? No

Does the intersection lie within a built-up area of an isolated community having a population of less than 10,000? No

Your intersection **CANNOT** use the 70% option for this warrant, do you want to use it? No

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: 7th Street & Central Avenue
City/State: Cincinnati, Ohio
Date 7/9/2010 Performed by: JRL

Warrant 1 - Eight-Hour Vehicular Volume

Number of lanes of moving traffic for moving traffic on each approach:
Major Street: 3 Minor Street: 4

Vehicles per hour on major street (total of both approaches):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	234
1:00 - 2:00 AM	0	1:00 - 2:00 PM	234
2:00 - 3:00 AM	0	2:00 - 3:00 PM	234
3:00 - 4:00 AM	0	3:00 - 4:00 PM	234
4:00 - 5:00 AM	0	4:00 - 5:00 PM	320
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	390	7:00 - 8:00 PM	0
8:00 - 9:00 AM	234	8:00 - 9:00 PM	0
9:00 - 10:00AM	234	9:00 - 10:00PM	0
10:00 - 11:00 AM	234	10:00 - 11:00 PM	0
11:00 - 12:00 PM	234	11:00 - 12:00 PM	0

Vehicles per hour on higher-volume minor street approach (one direction only):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	938
1:00 - 2:00 AM	0	1:00 - 2:00 PM	938
2:00 - 3:00 AM	0	2:00 - 3:00 PM	938
3:00 - 4:00 AM	0	3:00 - 4:00 PM	938
4:00 - 5:00 AM	0	4:00 - 5:00 PM	750
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	2220	7:00 - 8:00 PM	0
8:00 - 9:00 AM	938	8:00 - 9:00 PM	0
9:00 - 10:00AM	938	9:00 - 10:00PM	0
10:00 - 11:00 AM	938	10:00 - 11:00 PM	0
11:00 - 12:00 PM	938	11:00 - 12:00 PM	0

Is the intersection using the reduced volume criteria based on speed or population? No

A. Is the Minimum Vehicular Volume Warrant Met? No

B. Is the Interruption of Continuous Traffic Met? No

Combination of Warrants A and B Criteria Met? No
(Use only when Conditions A and B are both not satisified)

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: 7th Street & Central Avenue
City/State: Cincinnati, Ohio

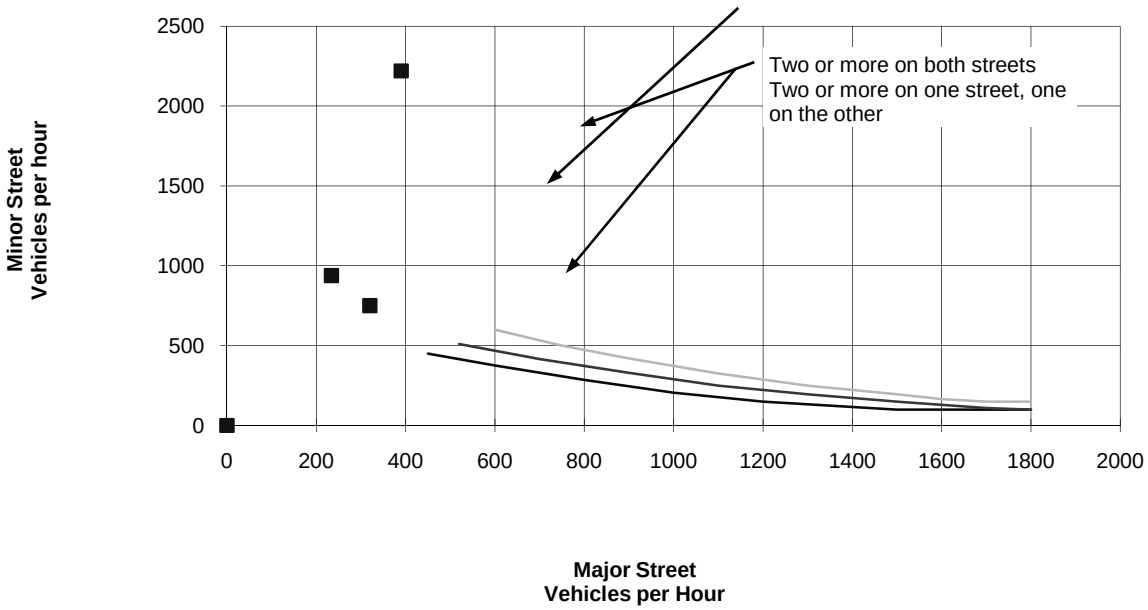
Warrant 3B - Peak Hour

The peak hour volume warrant is also intended for application when traffic conditions are such that for one hour of the day minor street traffic suffers undue traffic delay in entering or crossing the main street.

The peak hour volume warrant is satisfied when the plotted point representing vehicles per hour on the higher volume minor street for one hour falls above the curve in Figure 4C-3.

Figure 4C-4 may be used if the 85th percentile speed of the major street exceeds 40 mph or when the intersection lies within a built-up area of an isolated community having a population less than 10,000.

Peak Hour volume warrant - Major and Minor Streets for Urban Locations - Warrant 3B



Is Peak Hour Volume Warrant Met? **Yes**

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: 6th Street & Central Avenue

City/State: Cincinnati, Ohio

Date: 7/9/2010 Performed By: JRL

	Minor (EB/NB) Approach	Minor (WB/SB) Approach	Major(EB/NB) Approach	Major(WB/SB) Approach	Total	Minor	Total Major
12:00 - 1:00 AM					0	0	0
1:00 - 2:00 AM					0	0	0
2:00 - 3:00 AM					0	0	0
3:00 - 4:00 AM					0	0	0
4:00 - 5:00 AM					0	0	0
5:00 - 6:00 AM					0	0	0
6:00 - 7:00 AM					0	0	0
7:00 - 8:00 AM		540	310		850	540	310
8:00 - 9:00 AM		577	195		772	577	195
9:00 - 10:00AM		577	195		772	577	195
10:00 - 11:00 AM		577	195		772	577	195
11:00 - 12:00 PM		577	195		772	577	195
12:00 - 1:00 PM		577	195		772	577	195
1:00 - 2:00 PM		577	195		772	577	195
2:00 - 3:00 PM		577	195		772	577	195
3:00 - 4:00 PM		577	195		772	577	195
4:00 - 5:00 PM		1460	330		1790	1460	330
5:00 - 6:00 PM					0	0	0
6:00 - 7:00 PM					0	0	0
7:00 - 8:00 PM					0	0	0
8:00 - 9:00 PM					0	0	0
9:00 - 10:00PM					0	0	0
10:00 - 11:00 PM					0	0	0
11:00 - 12:00 PM					0	0	0
Total	**0**	**6616**	**2200**	**0**	**8816**	**6616**	**2200**

Does the 85th Percentile Speed/Posted Speed Limit exceed 40 mph on the major street? No

Does the intersection lie within a built-up area of an isolated community having a population of less than 10,000? No

Your intersection **CANNOT** use the 70% option for this warrant, do you want to use it? No

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: 6th Street & Central Avenue
City/State: Cincinnati, Ohio
Date 7/9/2010 Performed by: JRL

Warrant 1 - Eight-Hour Vehicular Volume

Number of lanes of moving traffic for moving traffic on each approach:
Major Street: 2 Minor Street: 4

Vehicles per hour on major street (total of both approaches):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	195
1:00 - 2:00 AM	0	1:00 - 2:00 PM	195
2:00 - 3:00 AM	0	2:00 - 3:00 PM	195
3:00 - 4:00 AM	0	3:00 - 4:00 PM	195
4:00 - 5:00 AM	0	4:00 - 5:00 PM	330
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	310	7:00 - 8:00 PM	0
8:00 - 9:00 AM	195	8:00 - 9:00 PM	0
9:00 - 10:00AM	195	9:00 - 10:00PM	0
10:00 - 11:00 AM	195	10:00 - 11:00 PM	0
11:00 - 12:00 PM	195	11:00 - 12:00 PM	0

Vehicles per hour on higher-volume minor street approach (one direction only):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	577
1:00 - 2:00 AM	0	1:00 - 2:00 PM	577
2:00 - 3:00 AM	0	2:00 - 3:00 PM	577
3:00 - 4:00 AM	0	3:00 - 4:00 PM	577
4:00 - 5:00 AM	0	4:00 - 5:00 PM	1460
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	540	7:00 - 8:00 PM	0
8:00 - 9:00 AM	577	8:00 - 9:00 PM	0
9:00 - 10:00AM	577	9:00 - 10:00PM	0
10:00 - 11:00 AM	577	10:00 - 11:00 PM	0
11:00 - 12:00 PM	577	11:00 - 12:00 PM	0

Is the intersection using the reduced volume criteria based on speed or population? No

A. Is the Minimum Vehicular Volume Warrant Met? No

B. Is the Interruption of Continuous Traffic Met? No

Combination of Warrants A and B Criteria Met? No
(Use only when Conditions A and B are both not satisified)

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: 6th Street & Central Avenue
City/State: Cincinnati, Ohio

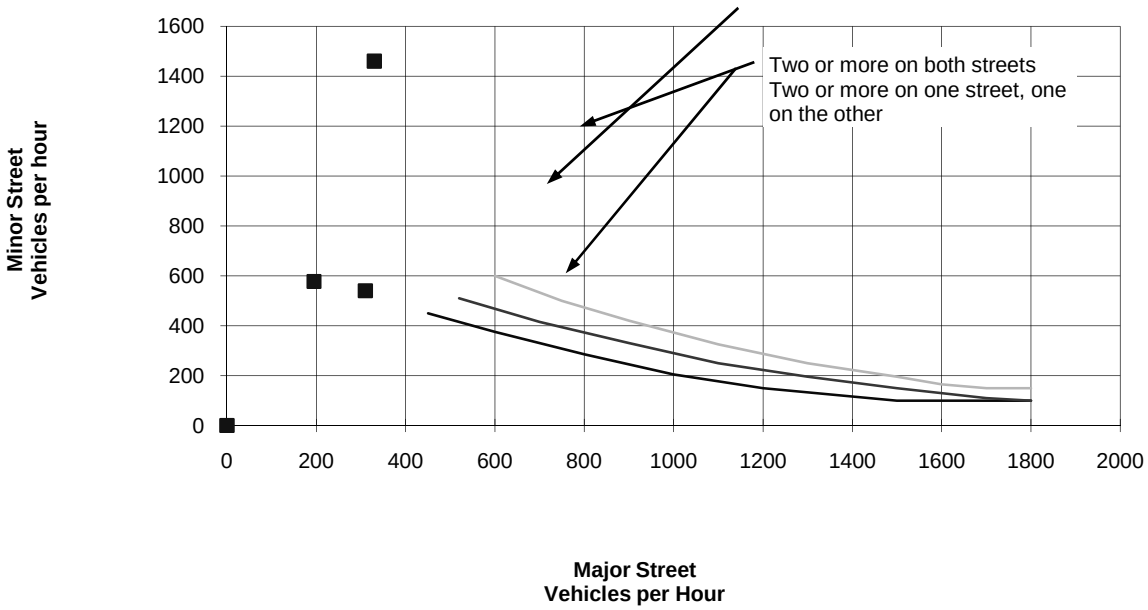
Warrant 3B - Peak Hour

The peak hour volume warrant is also intended for application when traffic conditions are such that for one hour of the day minor street traffic suffers undue traffic delay in entering or crossing the main street.

The peak hour volume warrant is satisfied when the plotted point representing vehicles per hour on the higher volume minor street for one hour falls above the curve in Figure 4C-3.

Figure 4C-4 may be used if the 85th percentile speed of the major street exceeds 40 mph or when the intersection lies within a built-up area of an isolated community having a population less than 10,000.

Peak Hour volume warrant - Major and Minor Streets for Urban Locations - Warrant 3B



Is Peak Hour Volume Warrant Met? **Yes**

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: 6th Street & Central Avenue

City/State: Cincinnati, Ohio

Date: 7/9/2010 Performed By: JRL

	Minor (EB/NB) Approach	Minor (WB/SB) Approach	Major(EB/NB) Approach	Major(WB/SB) Approach	Total	Minor	Total Major
12:00 - 1:00 AM					0	0	0
1:00 - 2:00 AM					0	0	0
2:00 - 3:00 AM					0	0	0
3:00 - 4:00 AM					0	0	0
4:00 - 5:00 AM					0	0	0
5:00 - 6:00 AM					0	0	0
6:00 - 7:00 AM					0	0	0
7:00 - 8:00 AM	820	540	400		1760	820	400
8:00 - 9:00 AM	396	659	262		1317	659	262
9:00 - 10:00AM	396	659	262		1317	659	262
10:00 - 11:00 AM	396	659	262		1317	659	262
11:00 - 12:00 PM	396	659	262		1317	659	262
12:00 - 1:00 PM	396	659	262		1317	659	262
1:00 - 2:00 PM	396	659	262		1317	659	262
2:00 - 3:00 PM	396	659	262		1317	659	262
3:00 - 4:00 PM	396	659	262		1317	659	262
4:00 - 5:00 PM	560	1150	360		2070	1150	360
5:00 - 6:00 PM					0	0	0
6:00 - 7:00 PM					0	0	0
7:00 - 8:00 PM					0	0	0
8:00 - 9:00 PM					0	0	0
9:00 - 10:00PM					0	0	0
10:00 - 11:00 PM					0	0	0
11:00 - 12:00 PM					0	0	0
Total	**4548**	**6962**	**2856**	**0**	**14366**	**7242**	**2856**

Does the 85th Percentile Speed/Posted Speed Limit exceed 40 mph on the major street? No

Does the intersection lie within a built-up area of an isolated community having a population of less than 10,000? No

Your intersection **CANNOT** use the 70% option for this warrant, do you want to use it? No

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: 6th Street & Central Avenue
City/State: Cincinnati, Ohio
Date 7/9/2010 Performed by: JRL

Warrant 1 - Eight-Hour Vehicular Volume

Number of lanes of moving traffic for moving traffic on each approach:
Major Street: 2 Minor Street: 4

Vehicles per hour on major street (total of both approaches):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	262
1:00 - 2:00 AM	0	1:00 - 2:00 PM	262
2:00 - 3:00 AM	0	2:00 - 3:00 PM	262
3:00 - 4:00 AM	0	3:00 - 4:00 PM	262
4:00 - 5:00 AM	0	4:00 - 5:00 PM	360
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	400	7:00 - 8:00 PM	0
8:00 - 9:00 AM	262	8:00 - 9:00 PM	0
9:00 - 10:00AM	262	9:00 - 10:00PM	0
10:00 - 11:00 AM	262	10:00 - 11:00 PM	0
11:00 - 12:00 PM	262	11:00 - 12:00 PM	0

Vehicles per hour on higher-volume minor street approach (one direction only):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	659
1:00 - 2:00 AM	0	1:00 - 2:00 PM	659
2:00 - 3:00 AM	0	2:00 - 3:00 PM	659
3:00 - 4:00 AM	0	3:00 - 4:00 PM	659
4:00 - 5:00 AM	0	4:00 - 5:00 PM	1150
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	820	7:00 - 8:00 PM	0
8:00 - 9:00 AM	659	8:00 - 9:00 PM	0
9:00 - 10:00AM	659	9:00 - 10:00PM	0
10:00 - 11:00 AM	659	10:00 - 11:00 PM	0
11:00 - 12:00 PM	659	11:00 - 12:00 PM	0

Is the intersection using the reduced volume criteria based on speed or population? No

A. Is the Minimum Vehicular Volume Warrant Met? No

B. Is the Interruption of Continuous Traffic Met? No

Combination of Warrants A and B Criteria Met? No
(Use only when Conditions A and B are both not satisified)

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: 6th Street & Central Avenue
City/State: Cincinnati, Ohio

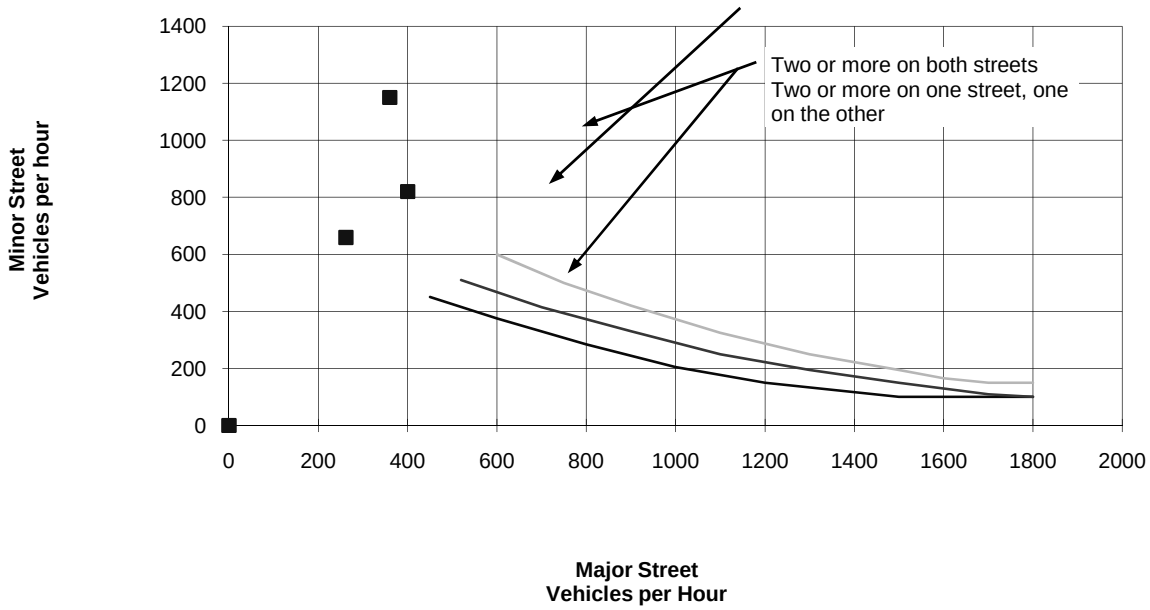
Warrant 3B - Peak Hour

The peak hour volume warrant is also intended for application when traffic conditions are such that for one hour of the day minor street traffic suffers undue traffic delay in entering or crossing the main street.

The peak hour volume warrant is satisfied when the plotted point representing vehicles per hour on the higher volume minor street for one hour falls above the curve in Figure 4C-3.

Figure 4C-4 may be used if the 85th percentile speed of the major street exceeds 40 mph or when the intersection lies within a built-up area of an isolated community having a population less than 10,000.

Peak Hour volume warrant - Major and Minor Streets for Urban Locations - Warrant 3B



Is Peak Hour Volume Warrant Met? **Yes**

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: 6th Street & Central Avenue

City/State: Cincinnati, Ohio

Date: 7/9/2010 Performed By: JRL

	Minor (EB/NB) Approach	Minor (WB/SB) Approach	Major(EB/NB) Approach	Major(WB/SB) Approach	Total	Minor	Total Major
12:00 - 1:00 AM					0	0	0
1:00 - 2:00 AM					0	0	0
2:00 - 3:00 AM					0	0	0
3:00 - 4:00 AM					0	0	0
4:00 - 5:00 AM					0	0	0
5:00 - 6:00 AM					0	0	0
6:00 - 7:00 AM					0	0	0
7:00 - 8:00 AM		370	290		660	370	290
8:00 - 9:00 AM		463	184		647	463	184
9:00 - 10:00AM		463	184		647	463	184
10:00 - 11:00 AM		463	184		647	463	184
11:00 - 12:00 PM		463	184		647	463	184
12:00 - 1:00 PM		463	184		647	463	184
1:00 - 2:00 PM		463	184		647	463	184
2:00 - 3:00 PM		463	184		647	463	184
3:00 - 4:00 PM		463	184		647	463	184
4:00 - 5:00 PM		1180	290		1470	1180	290
5:00 - 6:00 PM					0	0	0
6:00 - 7:00 PM					0	0	0
7:00 - 8:00 PM					0	0	0
8:00 - 9:00 PM					0	0	0
9:00 - 10:00PM					0	0	0
10:00 - 11:00 PM					0	0	0
11:00 - 12:00 PM					0	0	0
Total	**0**	**5254**	**2052**	**0**	**7306**	**5254**	**2052**

Does the 85th Percentile Speed/Posted Speed Limit exceed 40 mph on the major street? No

Does the intersection lie within a built-up area of an isolated community having a population of less than 10,000? No

Your intersection **CANNOT** use the 70% option for this warrant, do you want to use it? No

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: 6th Street & Central Avenue
City/State: Cincinnati, Ohio
Date 7/9/2010 Performed by: JRL

Warrant 1 - Eight-Hour Vehicular Volume

Number of lanes of moving traffic for moving traffic on each approach:
Major Street: 2 Minor Street: 4

Vehicles per hour on major street (total of both approaches):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	184
1:00 - 2:00 AM	0	1:00 - 2:00 PM	184
2:00 - 3:00 AM	0	2:00 - 3:00 PM	184
3:00 - 4:00 AM	0	3:00 - 4:00 PM	184
4:00 - 5:00 AM	0	4:00 - 5:00 PM	290
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	290	7:00 - 8:00 PM	0
8:00 - 9:00 AM	184	8:00 - 9:00 PM	0
9:00 - 10:00AM	184	9:00 - 10:00PM	0
10:00 - 11:00 AM	184	10:00 - 11:00 PM	0
11:00 - 12:00 PM	184	11:00 - 12:00 PM	0

Vehicles per hour on higher-volume minor street approach (one direction only):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	463
1:00 - 2:00 AM	0	1:00 - 2:00 PM	463
2:00 - 3:00 AM	0	2:00 - 3:00 PM	463
3:00 - 4:00 AM	0	3:00 - 4:00 PM	463
4:00 - 5:00 AM	0	4:00 - 5:00 PM	1180
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	370	7:00 - 8:00 PM	0
8:00 - 9:00 AM	463	8:00 - 9:00 PM	0
9:00 - 10:00AM	463	9:00 - 10:00PM	0
10:00 - 11:00 AM	463	10:00 - 11:00 PM	0
11:00 - 12:00 PM	463	11:00 - 12:00 PM	0

Is the intersection using the reduced volume criteria based on speed or population? No

A. Is the Minimum Vehicular Volume Warrant Met? No

B. Is the Interruption of Continuous Traffic Met? No

Combination of Warrants A and B Criteria Met? No
(Use only when Conditions A and B are both not satisified)

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: 6th Street & Central Avenue
City/State: Cincinnati, Ohio

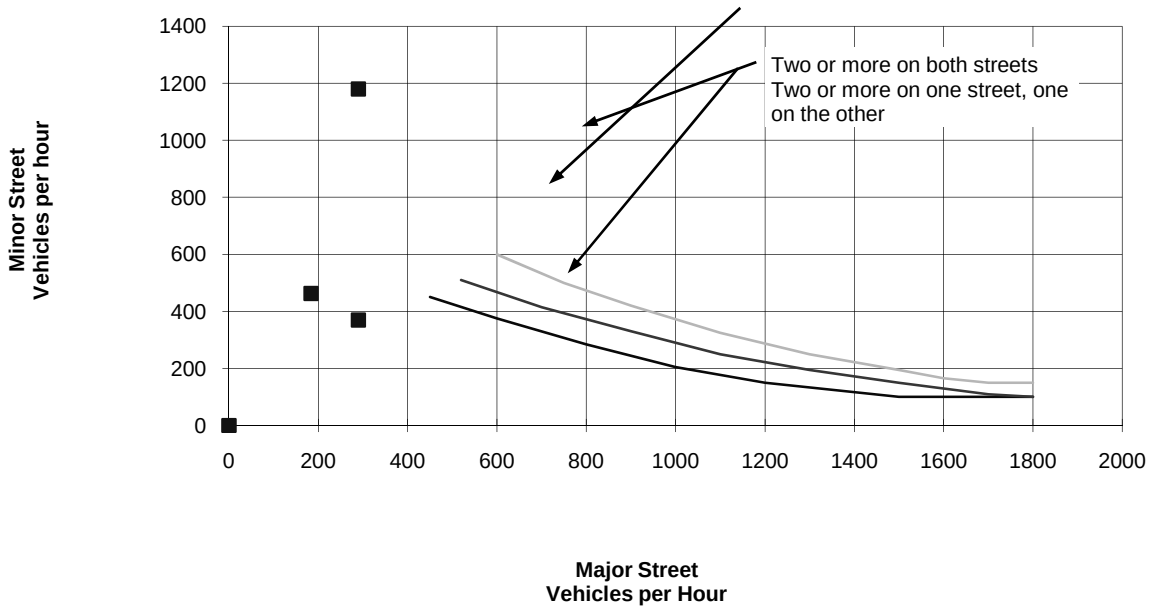
Warrant 3B - Peak Hour

The peak hour volume warrant is also intended for application when traffic conditions are such that for one hour of the day minor street traffic suffers undue traffic delay in entering or crossing the main street.

The peak hour volume warrant is satisfied when the plotted point representing vehicles per hour on the higher volume minor street for one hour falls above the curve in Figure 4C-3.

Figure 4C-4 may be used if the 85th percentile speed of the major street exceeds 40 mph or when the intersection lies within a built-up area of an isolated community having a population less than 10,000.

Peak Hour volume warrant - Major and Minor Streets for Urban Locations - Warrant 3B



Is Peak Hour Volume Warrant Met? **Yes**

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: 5th Street & Central Avenue

City/State: Cincinnati, Ohio

Date: 7/9/2010 Performed By: JRL

	Minor (EB/NB) Approach	Minor (WB/SB) Approach	Major(EB/NB) Approach	Major(WB/SB) Approach	Total	Minor	Total Major
12:00 - 1:00 AM					0	0	0
1:00 - 2:00 AM					0	0	0
2:00 - 3:00 AM					0	0	0
3:00 - 4:00 AM					0	0	0
4:00 - 5:00 AM					0	0	0
5:00 - 6:00 AM					0	0	0
6:00 - 7:00 AM					0	0	0
7:00 - 8:00 AM	1730		300	90	2120	1730	390
8:00 - 9:00 AM	632		249	89	970	632	338
9:00 - 10:00AM	632		249	89	970	632	338
10:00 - 11:00 AM	632		249	89	970	632	338
11:00 - 12:00 PM	632		249	89	970	632	338
12:00 - 1:00 PM	632		249	89	970	632	338
1:00 - 2:00 PM	632		249	89	970	632	338
2:00 - 3:00 PM	632		249	89	970	632	338
3:00 - 4:00 PM	632		249	89	970	632	338
4:00 - 5:00 PM	650		480	200	1330	650	680
5:00 - 6:00 PM					0	0	0
6:00 - 7:00 PM					0	0	0
7:00 - 8:00 PM					0	0	0
8:00 - 9:00 PM					0	0	0
9:00 - 10:00PM					0	0	0
10:00 - 11:00 PM					0	0	0
11:00 - 12:00 PM					0	0	0
Total	**7436**	**0**	**2772**	**1002**	**11210**	**7436**	**3774**

Does the 85th Percentile Speed/Posted Speed Limit exceed 40 mph on the major street? No

Does the intersection lie within a built-up area of an isolated community having a population of less than 10,000? No

Your intersection **CANNOT** use the 70% option for this warrant, do you want to use it? No

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: 5th Street & Central Avenue
City/State: Cincinnati, Ohio
Date 7/9/2010 Performed by: JRL

Warrant 1 - Eight-Hour Vehicular Volume

Number of lanes of moving traffic for moving traffic on each approach:
Major Street: 2 Minor Street: 4

Vehicles per hour on major street (total of both approaches):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	338
1:00 - 2:00 AM	0	1:00 - 2:00 PM	338
2:00 - 3:00 AM	0	2:00 - 3:00 PM	338
3:00 - 4:00 AM	0	3:00 - 4:00 PM	338
4:00 - 5:00 AM	0	4:00 - 5:00 PM	680
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	390	7:00 - 8:00 PM	0
8:00 - 9:00 AM	338	8:00 - 9:00 PM	0
9:00 - 10:00AM	338	9:00 - 10:00PM	0
10:00 - 11:00 AM	338	10:00 - 11:00 PM	0
11:00 - 12:00 PM	338	11:00 - 12:00 PM	0

Vehicles per hour on higher-volume minor street approach (one direction only):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	632
1:00 - 2:00 AM	0	1:00 - 2:00 PM	632
2:00 - 3:00 AM	0	2:00 - 3:00 PM	632
3:00 - 4:00 AM	0	3:00 - 4:00 PM	632
4:00 - 5:00 AM	0	4:00 - 5:00 PM	650
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	1730	7:00 - 8:00 PM	0
8:00 - 9:00 AM	632	8:00 - 9:00 PM	0
9:00 - 10:00AM	632	9:00 - 10:00PM	0
10:00 - 11:00 AM	632	10:00 - 11:00 PM	0
11:00 - 12:00 PM	632	11:00 - 12:00 PM	0

Is the intersection using the reduced volume criteria based on speed or population? No

A. Is the Minimum Vehicular Volume Warrant Met? No

B. Is the Interruption of Continuous Traffic Met? No

Combination of Warrants A and B Criteria Met? No
(Use only when Conditions A and B are both not satisified)

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: 5th Street & Central Avenue
City/State: Cincinnati, Ohio

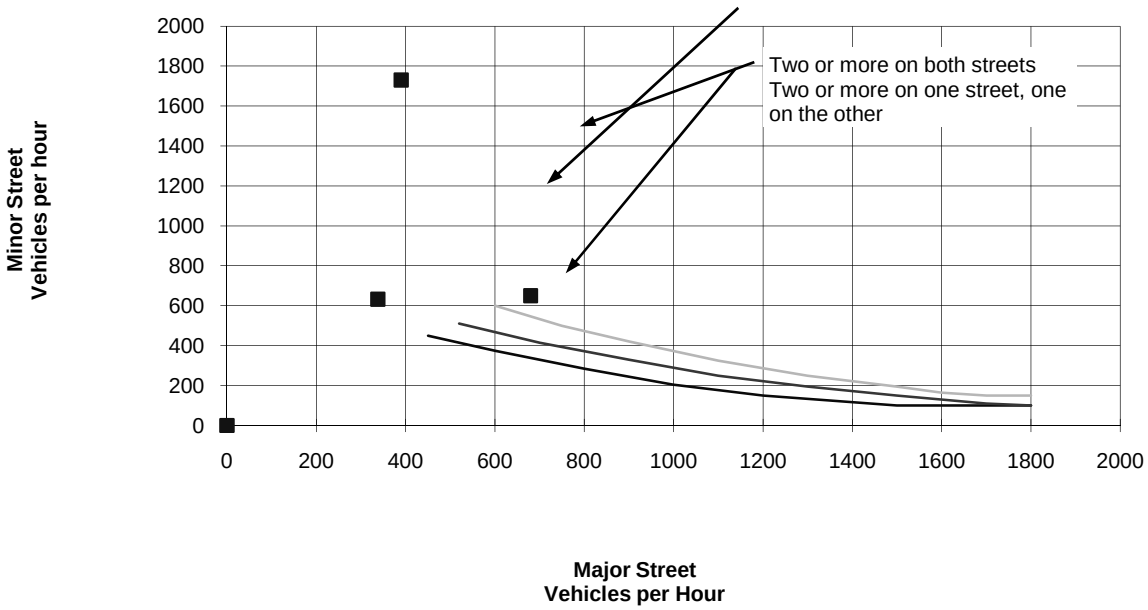
Warrant 3B - Peak Hour

The peak hour volume warrant is also intended for application when traffic conditions are such that for one hour of the day minor street traffic suffers undue traffic delay in entering or crossing the main street.

The peak hour volume warrant is satisfied when the plotted point representing vehicles per hour on the higher volume minor street for one hour falls above the curve in Figure 4C-3.

Figure 4C-4 may be used if the 85th percentile speed of the major street exceeds 40 mph or when the intersection lies within a built-up area of an isolated community having a population less than 10,000.

Peak Hour volume warrant - Major and Minor Streets for Urban Locations - Warrant 3B



Is Peak Hour Volume Warrant Met? **Yes**

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: 5th Street & Central Avenue

City/State: Cincinnati, Ohio

Date: 7/9/2010 Performed By: JRL

	Minor (EB/NB) Approach	Minor (WB/SB) Approach	Major(EB/NB) Approach	Major(WB/SB) Approach	Total	Minor	Total Major
12:00 - 1:00 AM					0	0	0
1:00 - 2:00 AM					0	0	0
2:00 - 3:00 AM					0	0	0
3:00 - 4:00 AM					0	0	0
4:00 - 5:00 AM					0	0	0
5:00 - 6:00 AM					0	0	0
6:00 - 7:00 AM					0	0	0
7:00 - 8:00 AM	1790		620	510	2920	1790	1130
8:00 - 9:00 AM	711		482	271	1464	711	753
9:00 - 10:00AM	711		482	271	1464	711	753
10:00 - 11:00 AM	711		482	271	1464	711	753
11:00 - 12:00 PM	711		482	271	1464	711	753
12:00 - 1:00 PM	711		482	271	1464	711	753
1:00 - 2:00 PM	711		482	271	1464	711	753
2:00 - 3:00 PM	711		482	271	1464	711	753
3:00 - 4:00 PM	711		482	271	1464	711	753
4:00 - 5:00 PM	630		890	280	1800	630	1170
5:00 - 6:00 PM					0	0	0
6:00 - 7:00 PM					0	0	0
7:00 - 8:00 PM					0	0	0
8:00 - 9:00 PM					0	0	0
9:00 - 10:00PM					0	0	0
10:00 - 11:00 PM					0	0	0
11:00 - 12:00 PM					0	0	0
Total	**8108**	**0**	**5366**	**2958**	**16432**	**8108**	**8324**

Does the 85th Percentile Speed/Posted Speed Limit exceed 40 mph on the major street? No

Does the intersection lie within a built-up area of an isolated community having a population of less than 10,000? No

Your intersection **CANNOT** use the 70% option for this warrant, do you want to use it? No

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: 5th Street & Central Avenue
City/State: Cincinnati, Ohio
Date 7/9/2010 Performed by: JRL

Warrant 1 - Eight-Hour Vehicular Volume

Number of lanes of moving traffic for moving traffic on each approach:
Major Street: 2 Minor Street: 4

Vehicles per hour on major street (total of both approaches):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	753
1:00 - 2:00 AM	0	1:00 - 2:00 PM	753
2:00 - 3:00 AM	0	2:00 - 3:00 PM	753
3:00 - 4:00 AM	0	3:00 - 4:00 PM	753
4:00 - 5:00 AM	0	4:00 - 5:00 PM	1170
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	1130	7:00 - 8:00 PM	0
8:00 - 9:00 AM	753	8:00 - 9:00 PM	0
9:00 - 10:00AM	753	9:00 - 10:00PM	0
10:00 - 11:00 AM	753	10:00 - 11:00 PM	0
11:00 - 12:00 PM	753	11:00 - 12:00 PM	0

Vehicles per hour on higher-volume minor street approach (one direction only):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	711
1:00 - 2:00 AM	0	1:00 - 2:00 PM	711
2:00 - 3:00 AM	0	2:00 - 3:00 PM	711
3:00 - 4:00 AM	0	3:00 - 4:00 PM	711
4:00 - 5:00 AM	0	4:00 - 5:00 PM	630
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	1790	7:00 - 8:00 PM	0
8:00 - 9:00 AM	711	8:00 - 9:00 PM	0
9:00 - 10:00AM	711	9:00 - 10:00PM	0
10:00 - 11:00 AM	711	10:00 - 11:00 PM	0
11:00 - 12:00 PM	711	11:00 - 12:00 PM	0

Is the intersection using the reduced volume criteria based on speed or population? No

A. Is the Minimum Vehicular Volume Warrant Met? Yes

B. Is the Interruption of Continuous Traffic Met? No

Combination of Warrants A and B Criteria Met? Yes
(Use only when Conditions A and B are both not satisified)

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: 5th Street & Central Avenue
City/State: Cincinnati, Ohio

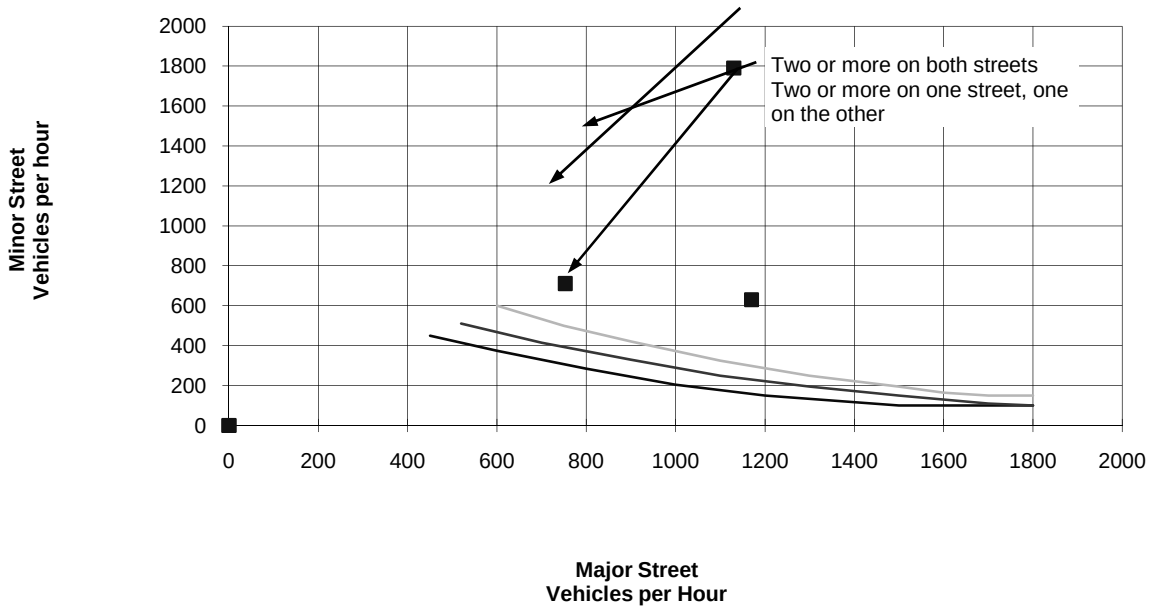
Warrant 3B - Peak Hour

The peak hour volume warrant is also intended for application when traffic conditions are such that for one hour of the day minor street traffic suffers undue traffic delay in entering or crossing the main street.

The peak hour volume warrant is satisfied when the plotted point representing vehicles per hour on the higher volume minor street for one hour falls above the curve in Figure 4C-3.

Figure 4C-4 may be used if the 85th percentile speed of the major street exceeds 40 mph or when the intersection lies within a built-up area of an isolated community having a population less than 10,000.

Peak Hour volume warrant - Major and Minor Streets for Urban Locations - Warrant 3B



Is Peak Hour Volume Warrant Met? **Yes**

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: 5th Street & Central Avenue

City/State: Cincinnati, Ohio

Date: 7/9/2010 Performed By: JRL

	Minor (EB/NB) Approach	Minor (WB/SB) Approach	Major(EB/NB) Approach	Major(WB/SB) Approach	Total	Minor	Total Major
12:00 - 1:00 AM					0	0	0
1:00 - 2:00 AM					0	0	0
2:00 - 3:00 AM					0	0	0
3:00 - 4:00 AM					0	0	0
4:00 - 5:00 AM					0	0	0
5:00 - 6:00 AM					0	0	0
6:00 - 7:00 AM					0	0	0
7:00 - 8:00 AM	1520		410	80	2010	1520	490
8:00 - 9:00 AM	612		331	84	1027	612	415
9:00 - 10:00AM	612		331	84	1027	612	415
10:00 - 11:00 AM	612		331	84	1027	612	415
11:00 - 12:00 PM	612		331	84	1027	612	415
12:00 - 1:00 PM	612		331	84	1027	612	415
1:00 - 2:00 PM	612		331	84	1027	612	415
2:00 - 3:00 PM	612		331	84	1027	612	415
3:00 - 4:00 PM	612		331	84	1027	612	415
4:00 - 5:00 PM	540		590	190	1320	540	780
5:00 - 6:00 PM					0	0	0
6:00 - 7:00 PM					0	0	0
7:00 - 8:00 PM					0	0	0
8:00 - 9:00 PM					0	0	0
9:00 - 10:00PM					0	0	0
10:00 - 11:00 PM					0	0	0
11:00 - 12:00 PM					0	0	0
Total	**6956**	**0**	**3648**	**942**	**11546**	**6956**	**4590**

Does the 85th Percentile Speed/Posted Speed Limit exceed 40 mph on the major street? No

Does the intersection lie within a built-up area of an isolated community having a population of less than 10,000? No

Your intersection **CANNOT** use the 70% option for this warrant, do you want to use it? No

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: 5th Street & Central Avenue
City/State: Cincinnati, Ohio
Date 7/9/2010 Performed by: JRL

Warrant 1 - Eight-Hour Vehicular Volume

Number of lanes of moving traffic for moving traffic on each approach:
Major Street: 2 Minor Street: 4

Vehicles per hour on major street (total of both approaches):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	415
1:00 - 2:00 AM	0	1:00 - 2:00 PM	415
2:00 - 3:00 AM	0	2:00 - 3:00 PM	415
3:00 - 4:00 AM	0	3:00 - 4:00 PM	415
4:00 - 5:00 AM	0	4:00 - 5:00 PM	780
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	490	7:00 - 8:00 PM	0
8:00 - 9:00 AM	415	8:00 - 9:00 PM	0
9:00 - 10:00AM	415	9:00 - 10:00PM	0
10:00 - 11:00 AM	415	10:00 - 11:00 PM	0
11:00 - 12:00 PM	415	11:00 - 12:00 PM	0

Vehicles per hour on higher-volume minor street approach (one direction only):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	612
1:00 - 2:00 AM	0	1:00 - 2:00 PM	612
2:00 - 3:00 AM	0	2:00 - 3:00 PM	612
3:00 - 4:00 AM	0	3:00 - 4:00 PM	612
4:00 - 5:00 AM	0	4:00 - 5:00 PM	540
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	1520	7:00 - 8:00 PM	0
8:00 - 9:00 AM	612	8:00 - 9:00 PM	0
9:00 - 10:00AM	612	9:00 - 10:00PM	0
10:00 - 11:00 AM	612	10:00 - 11:00 PM	0
11:00 - 12:00 PM	612	11:00 - 12:00 PM	0

Is the intersection using the reduced volume criteria based on speed or population? No

A. Is the Minimum Vehicular Volume Warrant Met? No

B. Is the Interruption of Continuous Traffic Met? No

Combination of Warrants A and B Criteria Met? No
(Use only when Conditions A and B are both not satisified)

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: 5th Street & Central Avenue
City/State: Cincinnati, Ohio

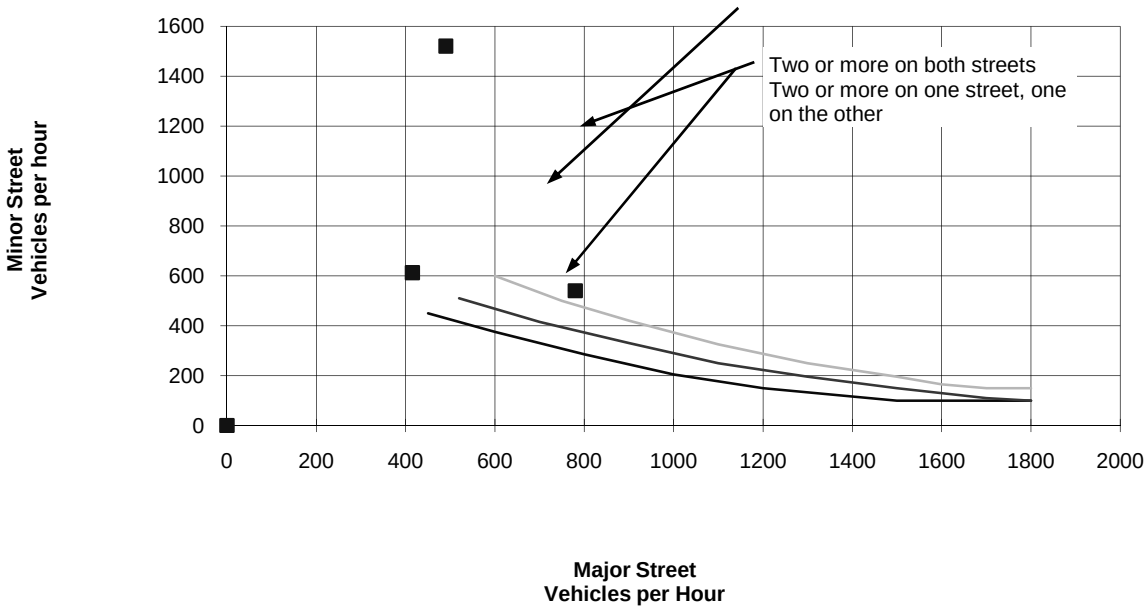
Warrant 3B - Peak Hour

The peak hour volume warrant is also intended for application when traffic conditions are such that for one hour of the day minor street traffic suffers undue traffic delay in entering or crossing the main street.

The peak hour volume warrant is satisfied when the plotted point representing vehicles per hour on the higher volume minor street for one hour falls above the curve in Figure 4C-3.

Figure 4C-4 may be used if the 85th percentile speed of the major street exceeds 40 mph or when the intersection lies within a built-up area of an isolated community having a population less than 10,000.

Peak Hour volume warrant - Major and Minor Streets for Urban Locations - Warrant 3B



Is Peak Hour Volume Warrant Met? **Yes**

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: 4th Street & Central Avenue

City/State: Cincinnati, Ohio

Date: 7/9/2010 Performed By: JRL

	Minor (EB/NB) Approach	Minor (WB/SB) Approach	Major(EB/NB) Approach	Major(WB/SB) Approach	Total	Minor	Total Major
12:00 - 1:00 AM					0	0	0
1:00 - 2:00 AM					0	0	0
2:00 - 3:00 AM					0	0	0
3:00 - 4:00 AM					0	0	0
4:00 - 5:00 AM					0	0	0
5:00 - 6:00 AM					0	0	0
6:00 - 7:00 AM					0	0	0
7:00 - 8:00 AM		300	270	100	670	300	370
8:00 - 9:00 AM		421	447	80	948	421	527
9:00 - 10:00AM		421	447	80	948	421	527
10:00 - 11:00 AM		421	447	80	948	421	527
11:00 - 12:00 PM		421	447	80	948	421	527
12:00 - 1:00 PM		421	447	80	948	421	527
1:00 - 2:00 PM		421	447	80	948	421	527
2:00 - 3:00 PM		421	447	80	948	421	527
3:00 - 4:00 PM		421	447	80	948	421	527
4:00 - 5:00 PM		840	1020	130	1990	840	1150
5:00 - 6:00 PM					0	0	0
6:00 - 7:00 PM					0	0	0
7:00 - 8:00 PM					0	0	0
8:00 - 9:00 PM					0	0	0
9:00 - 10:00PM					0	0	0
10:00 - 11:00 PM					0	0	0
11:00 - 12:00 PM					0	0	0
Total	**0**	**4508**	**4866**	**870**	**10244**	**4508**	**5736**

Does the 85th Percentile Speed/Posted Speed Limit exceed 40 mph on the major street? No

Does the intersection lie within a built-up area of an isolated community having a population of less than 10,000? No

Your intersection **CANNOT** use the 70% option for this warrant, do you want to use it? No

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: 4th Street & Central Avenue
City/State: Cincinnati, Ohio
Date 7/9/2010 Performed by: JRL

Warrant 1 - Eight-Hour Vehicular Volume

Number of lanes of moving traffic for moving traffic on each approach:
Major Street: 2 Minor Street: 4

Vehicles per hour on major street (total of both approaches):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	527
1:00 - 2:00 AM	0	1:00 - 2:00 PM	527
2:00 - 3:00 AM	0	2:00 - 3:00 PM	527
3:00 - 4:00 AM	0	3:00 - 4:00 PM	527
4:00 - 5:00 AM	0	4:00 - 5:00 PM	1150
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	370	7:00 - 8:00 PM	0
8:00 - 9:00 AM	527	8:00 - 9:00 PM	0
9:00 - 10:00AM	527	9:00 - 10:00PM	0
10:00 - 11:00 AM	527	10:00 - 11:00 PM	0
11:00 - 12:00 PM	527	11:00 - 12:00 PM	0

Vehicles per hour on higher-volume minor street approach (one direction only):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	421
1:00 - 2:00 AM	0	1:00 - 2:00 PM	421
2:00 - 3:00 AM	0	2:00 - 3:00 PM	421
3:00 - 4:00 AM	0	3:00 - 4:00 PM	421
4:00 - 5:00 AM	0	4:00 - 5:00 PM	840
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	300	7:00 - 8:00 PM	0
8:00 - 9:00 AM	421	8:00 - 9:00 PM	0
9:00 - 10:00AM	421	9:00 - 10:00PM	0
10:00 - 11:00 AM	421	10:00 - 11:00 PM	0
11:00 - 12:00 PM	421	11:00 - 12:00 PM	0

Is the intersection using the reduced volume criteria based on speed or population? No

A. Is the Minimum Vehicular Volume Warrant Met? No

B. Is the Interruption of Continuous Traffic Met? No

Combination of Warrants A and B Criteria Met? No
(Use only when Conditions A and B are both not satisified)

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: 4th Street & Central Avenue
City/State: Cincinnati, Ohio

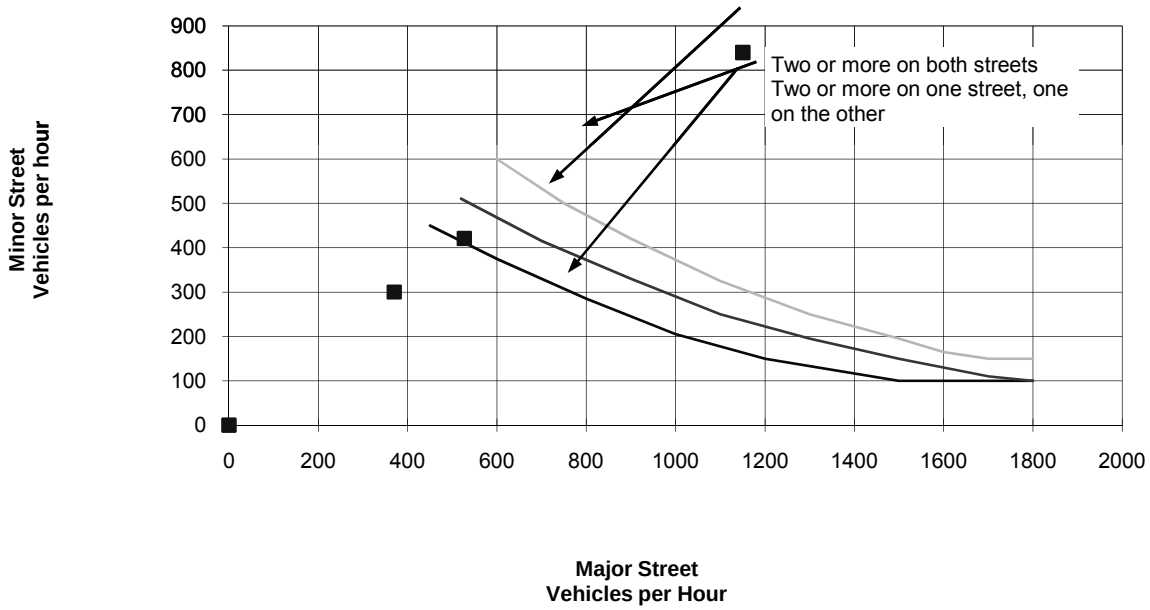
Warrant 3B - Peak Hour

The peak hour volume warrant is also intended for application when traffic conditions are such that for one hour of the day minor street traffic suffers undue traffic delay in entering or crossing the main street.

The peak hour volume warrant is satisfied when the plotted point representing vehicles per hour on the higher volume minor street for one hour falls above the curve in Figure 4C-3.

Figure 4C-4 may be used if the 85th percentile speed of the major street exceeds 40 mph or when the intersection lies within a built-up area of an isolated community having a population less than 10,000.

Peak Hour volume warrant - Major and Minor Streets for Urban Locations - Warrant 3B



Is Peak Hour Volume Warrant Met? **Yes**

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: 4th Street & Central Avenue

City/State: Cincinnati, Ohio

Date: 7/9/2010 Performed By: JRL

	Minor (EB/NB) Approach	Minor (WB/SB) Approach	Major(EB/NB) Approach	Major(WB/SB) Approach	Total	Minor	Total Major
12:00 - 1:00 AM					0	0	0
1:00 - 2:00 AM					0	0	0
2:00 - 3:00 AM					0	0	0
3:00 - 4:00 AM					0	0	0
4:00 - 5:00 AM					0	0	0
5:00 - 6:00 AM					0	0	0
6:00 - 7:00 AM					0	0	0
7:00 - 8:00 AM		560	310	220	1090	560	530
8:00 - 9:00 AM		762	525	188	1475	762	713
9:00 - 10:00AM		762	525	188	1475	762	713
10:00 - 11:00 AM		762	525	188	1475	762	713
11:00 - 12:00 PM		762	525	188	1475	762	713
12:00 - 1:00 PM		762	525	188	1475	762	713
1:00 - 2:00 PM		762	525	188	1475	762	713
2:00 - 3:00 PM		762	525	188	1475	762	713
3:00 - 4:00 PM		762	525	188	1475	762	713
4:00 - 5:00 PM		1660	1310	280	3250	1660	1590
5:00 - 6:00 PM					0	0	0
6:00 - 7:00 PM					0	0	0
7:00 - 8:00 PM					0	0	0
8:00 - 9:00 PM					0	0	0
9:00 - 10:00PM					0	0	0
10:00 - 11:00 PM					0	0	0
11:00 - 12:00 PM					0	0	0
Total	**0**	**8316**	**5820**	**2004**	**16140**	**8316**	**7824**

Does the 85th Percentile Speed/Posted Speed Limit exceed 40 mph on the major street? No

Does the intersection lie within a built-up area of an isolated community having a population of less than 10,000? No

Your intersection **CANNOT** use the 70% option for this warrant, do you want to use it? No

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: 4th Street & Central Avenue
City/State: Cincinnati, Ohio
Date 7/9/2010 Performed by: JRL

Warrant 1 - Eight-Hour Vehicular Volume

Number of lanes of moving traffic for moving traffic on each approach:
Major Street: 2 Minor Street: 4

Vehicles per hour on major street (total of both approaches):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	713
1:00 - 2:00 AM	0	1:00 - 2:00 PM	713
2:00 - 3:00 AM	0	2:00 - 3:00 PM	713
3:00 - 4:00 AM	0	3:00 - 4:00 PM	713
4:00 - 5:00 AM	0	4:00 - 5:00 PM	1590
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	530	7:00 - 8:00 PM	0
8:00 - 9:00 AM	713	8:00 - 9:00 PM	0
9:00 - 10:00AM	713	9:00 - 10:00PM	0
10:00 - 11:00 AM	713	10:00 - 11:00 PM	0
11:00 - 12:00 PM	713	11:00 - 12:00 PM	0

Vehicles per hour on higher-volume minor street approach (one direction only):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	762
1:00 - 2:00 AM	0	1:00 - 2:00 PM	762
2:00 - 3:00 AM	0	2:00 - 3:00 PM	762
3:00 - 4:00 AM	0	3:00 - 4:00 PM	762
4:00 - 5:00 AM	0	4:00 - 5:00 PM	1660
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	560	7:00 - 8:00 PM	0
8:00 - 9:00 AM	762	8:00 - 9:00 PM	0
9:00 - 10:00AM	762	9:00 - 10:00PM	0
10:00 - 11:00 AM	762	10:00 - 11:00 PM	0
11:00 - 12:00 PM	762	11:00 - 12:00 PM	0

Is the intersection using the reduced volume criteria based on speed or population? No

A. Is the Minimum Vehicular Volume Warrant Met? Yes

B. Is the Interruption of Continuous Traffic Met? No

Combination of Warrants A and B Criteria Met? No
(Use only when Conditions A and B are both not satisified)

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: 4th Street & Central Avenue
City/State: Cincinnati, Ohio

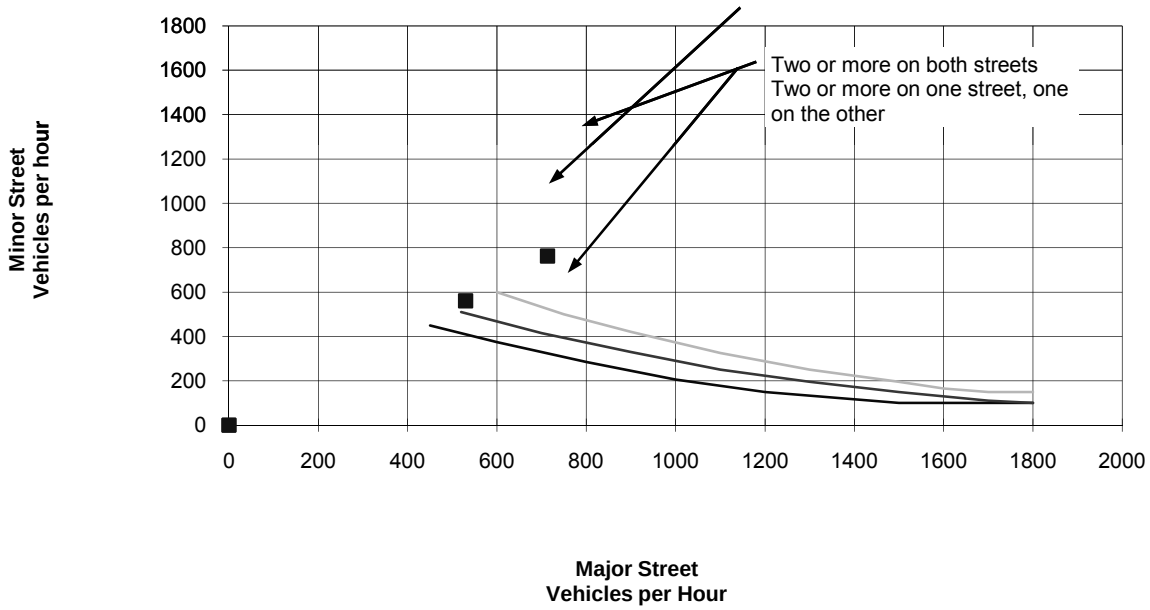
Warrant 3B - Peak Hour

The peak hour volume warrant is also intended for application when traffic conditions are such that for one hour of the day minor street traffic suffers undue traffic delay in entering or crossing the main street.

The peak hour volume warrant is satisfied when the plotted point representing vehicles per hour on the higher volume minor street for one hour falls above the curve in Figure 4C-3.

Figure 4C-4 may be used if the 85th percentile speed of the major street exceeds 40 mph or when the intersection lies within a built-up area of an isolated community having a population less than 10,000.

Peak Hour volume warrant - Major and Minor Streets for Urban Locations - Warrant 3B



Is Peak Hour Volume Warrant Met? **Yes**

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: 4th Street & Central Avenue

City/State: Cincinnati, Ohio

Date: 7/9/2010 Performed By: JRL

	Minor (EB/NB) Approach	Minor (WB/SB) Approach	Major(EB/NB) Approach	Major(WB/SB) Approach	Total	Minor	Total Major
12:00 - 1:00 AM					0	0	0
1:00 - 2:00 AM					0	0	0
2:00 - 3:00 AM					0	0	0
3:00 - 4:00 AM					0	0	0
4:00 - 5:00 AM					0	0	0
5:00 - 6:00 AM					0	0	0
6:00 - 7:00 AM					0	0	0
7:00 - 8:00 AM		430	190	130	750	430	320
8:00 - 9:00 AM		638	344	108	1090	638	452
9:00 - 10:00AM		638	344	108	1090	638	452
10:00 - 11:00 AM		638	344	108	1090	638	452
11:00 - 12:00 PM		638	344	108	1090	638	452
12:00 - 1:00 PM		638	344	108	1090	638	452
1:00 - 2:00 PM		638	344	108	1090	638	452
2:00 - 3:00 PM		638	344	108	1090	638	452
3:00 - 4:00 PM		638	344	108	1090	638	452
4:00 - 5:00 PM		1320	810	180	2310	1320	990
5:00 - 6:00 PM					0	0	0
6:00 - 7:00 PM					0	0	0
7:00 - 8:00 PM					0	0	0
8:00 - 9:00 PM					0	0	0
9:00 - 10:00PM					0	0	0
10:00 - 11:00 PM					0	0	0
11:00 - 12:00 PM					0	0	0
Total	**0**	**6854**	**3752**	**1174**	**11780**	**6854**	**4926**

Does the 85th Percentile Speed/Posted Speed Limit exceed 40 mph on the major street? No

Does the intersection lie within a built-up area of an isolated community having a population of less than 10,000? No

Your intersection **CANNOT** use the 70% option for this warrant, do you want to use it? No

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: 4th Street & Central Avenue
City/State: Cincinnati, Ohio
Date 7/9/2010 Performed by: JRL

Warrant 1 - Eight-Hour Vehicular Volume

Number of lanes of moving traffic for moving traffic on each approach:
Major Street: 2 Minor Street: 4

Vehicles per hour on major street (total of both approaches):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	452
1:00 - 2:00 AM	0	1:00 - 2:00 PM	452
2:00 - 3:00 AM	0	2:00 - 3:00 PM	452
3:00 - 4:00 AM	0	3:00 - 4:00 PM	452
4:00 - 5:00 AM	0	4:00 - 5:00 PM	990
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	320	7:00 - 8:00 PM	0
8:00 - 9:00 AM	452	8:00 - 9:00 PM	0
9:00 - 10:00AM	452	9:00 - 10:00PM	0
10:00 - 11:00 AM	452	10:00 - 11:00 PM	0
11:00 - 12:00 PM	452	11:00 - 12:00 PM	0

Vehicles per hour on higher-volume minor street approach (one direction only):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	638
1:00 - 2:00 AM	0	1:00 - 2:00 PM	638
2:00 - 3:00 AM	0	2:00 - 3:00 PM	638
3:00 - 4:00 AM	0	3:00 - 4:00 PM	638
4:00 - 5:00 AM	0	4:00 - 5:00 PM	1320
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	430	7:00 - 8:00 PM	0
8:00 - 9:00 AM	638	8:00 - 9:00 PM	0
9:00 - 10:00AM	638	9:00 - 10:00PM	0
10:00 - 11:00 AM	638	10:00 - 11:00 PM	0
11:00 - 12:00 PM	638	11:00 - 12:00 PM	0

Is the intersection using the reduced volume criteria based on speed or population? No

A. Is the Minimum Vehicular Volume Warrant Met? No

B. Is the Interruption of Continuous Traffic Met? No

Combination of Warrants A and B Criteria Met? No
(Use only when Conditions A and B are both not satisified)

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: 4th Street & Central Avenue
City/State: Cincinnati, Ohio

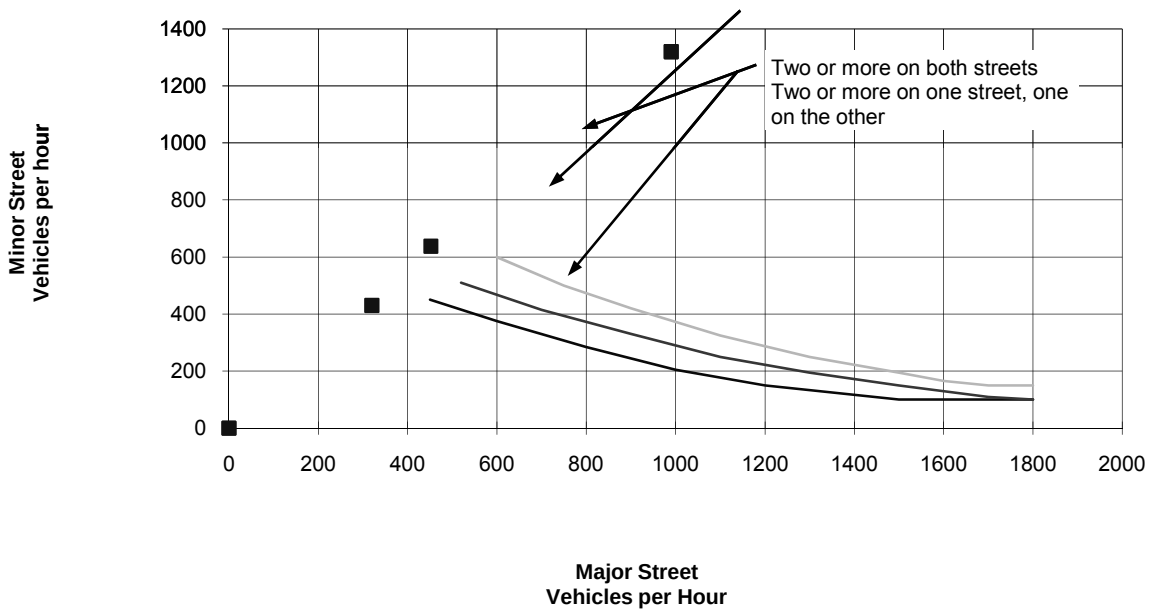
Warrant 3B - Peak Hour

The peak hour volume warrant is also intended for application when traffic conditions are such that for one hour of the day minor street traffic suffers undue traffic delay in entering or crossing the main street.

The peak hour volume warrant is satisfied when the plotted point representing vehicles per hour on the higher volume minor street for one hour falls above the curve in Figure 4C-3.

Figure 4C-4 may be used if the 85th percentile speed of the major street exceeds 40 mph or when the intersection lies within a built-up area of an isolated community having a population less than 10,000.

Peak Hour volume warrant - Major and Minor Streets for Urban Locations - Warrant 3B



Is Peak Hour Volume Warrant Met? **Yes**

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: 3rd Street & Clay Wade Bailey Bridge

City/State: Cincinnati, Ohio

Date: 7/9/2010 Performed By: JRL

	Minor (EB/NB) Approach	Minor (WB/SB) Approach	Major(EB/NB) Approach	Major(WB/SB) Approach	Total	Minor	Total Major
12:00 - 1:00 AM					0	0	0
1:00 - 2:00 AM					0	0	0
2:00 - 3:00 AM					0	0	0
3:00 - 4:00 AM					0	0	0
4:00 - 5:00 AM					0	0	0
5:00 - 6:00 AM					0	0	0
6:00 - 7:00 AM					0	0	0
7:00 - 8:00 AM	500		230	180	910	500	410
8:00 - 9:00 AM	268		264	321	853	268	585
9:00 - 10:00AM	268		264	321	853	268	585
10:00 - 11:00 AM	268		264	321	853	268	585
11:00 - 12:00 PM	268		264	321	853	268	585
12:00 - 1:00 PM	268		264	321	853	268	585
1:00 - 2:00 PM	268		264	321	853	268	585
2:00 - 3:00 PM	268		264	321	853	268	585
3:00 - 4:00 PM	268		264	321	853	268	585
4:00 - 5:00 PM	300		550	790	1640	300	1340
5:00 - 6:00 PM					0	0	0
6:00 - 7:00 PM					0	0	0
7:00 - 8:00 PM					0	0	0
8:00 - 9:00 PM					0	0	0
9:00 - 10:00PM					0	0	0
10:00 - 11:00 PM					0	0	0
11:00 - 12:00 PM					0	0	0
Total	**2944**	**0**	**2892**	**3538**	**9374**	**2944**	**6430**

Does the 85th Percentile Speed/Posted Speed Limit exceed 40 mph on the major street? No

Does the intersection lie within a built-up area of an isolated community having a population of less than 10,000? No

Your intersection **CANNOT** use the 70% option for this warrant, do you want to use it? No

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: 3rd Street & Clay Wade Bailey Bridge
City/State: Cincinnati, Ohio
Date 7/9/2010 Performed by: JRL

Warrant 1 - Eight-Hour Vehicular Volume

Number of lanes of moving traffic for moving traffic on each approach:
Major Street: 2 Minor Street: 2

Vehicles per hour on major street (total of both approaches):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	585
1:00 - 2:00 AM	0	1:00 - 2:00 PM	585
2:00 - 3:00 AM	0	2:00 - 3:00 PM	585
3:00 - 4:00 AM	0	3:00 - 4:00 PM	585
4:00 - 5:00 AM	0	4:00 - 5:00 PM	1340
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	410	7:00 - 8:00 PM	0
8:00 - 9:00 AM	585	8:00 - 9:00 PM	0
9:00 - 10:00AM	585	9:00 - 10:00PM	0
10:00 - 11:00 AM	585	10:00 - 11:00 PM	0
11:00 - 12:00 PM	585	11:00 - 12:00 PM	0

Vehicles per hour on higher-volume minor street approach (one direction only):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	268
1:00 - 2:00 AM	0	1:00 - 2:00 PM	268
2:00 - 3:00 AM	0	2:00 - 3:00 PM	268
3:00 - 4:00 AM	0	3:00 - 4:00 PM	268
4:00 - 5:00 AM	0	4:00 - 5:00 PM	300
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	500	7:00 - 8:00 PM	0
8:00 - 9:00 AM	268	8:00 - 9:00 PM	0
9:00 - 10:00AM	268	9:00 - 10:00PM	0
10:00 - 11:00 AM	268	10:00 - 11:00 PM	0
11:00 - 12:00 PM	268	11:00 - 12:00 PM	0

Is the intersection using the reduced volume criteria based on speed or population? No

A. Is the Minimum Vehicular Volume Warrant Met? No

B. Is the Interruption of Continuous Traffic Met? No

Combination of Warrants A and B Criteria Met? No
(Use only when Conditions A and B are both not satisified)

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: 3rd Street & Clay Wade Bailey Bridge
City/State: Cincinnati, Ohio

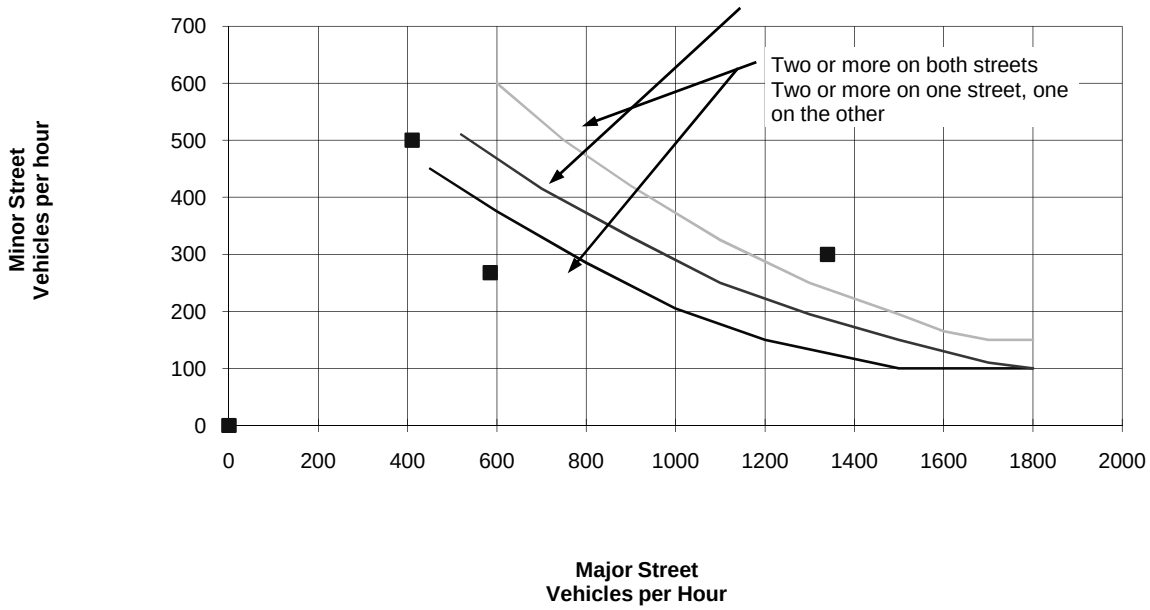
Warrant 3B - Peak Hour

The peak hour volume warrant is also intended for application when traffic conditions are such that for one hour of the day minor street traffic suffers undue traffic delay in entering or crossing the main street.

The peak hour volume warrant is satisfied when the plotted point representing vehicles per hour on the higher volume minor street for one hour falls above the curve in Figure 4C-3.

Figure 4C-4 may be used if the 85th percentile speed of the major street exceeds 40 mph or when the intersection lies within a built-up area of an isolated community having a population less than 10,000.

Peak Hour volume warrant - Major and Minor Streets for Urban Locations - Warrant 3B



Is Peak Hour Volume Warrant Met? **Yes**

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: 3rd Street & Clay Wade Bailey Bridge

City/State: Cincinnati, Ohio

Date: 7/9/2010 Performed By: JRL

	Minor (EB/NB) Approach	Minor (WB/SB) Approach	Major(EB/NB) Approach	Major(WB/SB) Approach	Total	Minor	Total Major
12:00 - 1:00 AM					0	0	0
1:00 - 2:00 AM					0	0	0
2:00 - 3:00 AM					0	0	0
3:00 - 4:00 AM					0	0	0
4:00 - 5:00 AM					0	0	0
5:00 - 6:00 AM					0	0	0
6:00 - 7:00 AM					0	0	0
7:00 - 8:00 AM	600		230	200	1030	600	430
8:00 - 9:00 AM	459		262	564	1285	459	826
9:00 - 10:00AM	459		262	564	1285	459	826
10:00 - 11:00 AM	459		262	564	1285	459	826
11:00 - 12:00 PM	459		262	564	1285	459	826
12:00 - 1:00 PM	459		262	564	1285	459	826
1:00 - 2:00 PM	459		262	564	1285	459	826
2:00 - 3:00 PM	459		262	564	1285	459	826
3:00 - 4:00 PM	459		262	564	1285	459	826
4:00 - 5:00 PM	400		600	980	1980	400	1580
5:00 - 6:00 PM					0	0	0
6:00 - 7:00 PM					0	0	0
7:00 - 8:00 PM					0	0	0
8:00 - 9:00 PM					0	0	0
9:00 - 10:00PM					0	0	0
10:00 - 11:00 PM					0	0	0
11:00 - 12:00 PM					0	0	0
Total	**4672**	**0**	**2926**	**5692**	**13290**	**4672**	**8618**

Does the 85th Percentile Speed/Posted Speed Limit exceed 40 mph on the major street? No

Does the intersection lie within a built-up area of an isolated community having a population of less than 10,000? No

Your intersection **CANNOT** use the 70% option for this warrant, do you want to use it? No

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: 3rd Street & Clay Wade Bailey Bridge
City/State: Cincinnati, Ohio
Date 7/9/2010 Performed by: JRL

Warrant 1 - Eight-Hour Vehicular Volume

Number of lanes of moving traffic for moving traffic on each approach:
Major Street: 2 Minor Street: 2

Vehicles per hour on major street (total of both approaches):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	826
1:00 - 2:00 AM	0	1:00 - 2:00 PM	826
2:00 - 3:00 AM	0	2:00 - 3:00 PM	826
3:00 - 4:00 AM	0	3:00 - 4:00 PM	826
4:00 - 5:00 AM	0	4:00 - 5:00 PM	1580
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	430	7:00 - 8:00 PM	0
8:00 - 9:00 AM	826	8:00 - 9:00 PM	0
9:00 - 10:00AM	826	9:00 - 10:00PM	0
10:00 - 11:00 AM	826	10:00 - 11:00 PM	0
11:00 - 12:00 PM	826	11:00 - 12:00 PM	0

Vehicles per hour on higher-volume minor street approach (one direction only):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	459
1:00 - 2:00 AM	0	1:00 - 2:00 PM	459
2:00 - 3:00 AM	0	2:00 - 3:00 PM	459
3:00 - 4:00 AM	0	3:00 - 4:00 PM	459
4:00 - 5:00 AM	0	4:00 - 5:00 PM	400
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	600	7:00 - 8:00 PM	0
8:00 - 9:00 AM	459	8:00 - 9:00 PM	0
9:00 - 10:00AM	459	9:00 - 10:00PM	0
10:00 - 11:00 AM	459	10:00 - 11:00 PM	0
11:00 - 12:00 PM	459	11:00 - 12:00 PM	0

Is the intersection using the reduced volume criteria based on speed or population? No

A. Is the Minimum Vehicular Volume Warrant Met? Yes

B. Is the Interruption of Continuous Traffic Met? No

Combination of Warrants A and B Criteria Met? Yes
(Use only when Conditions A and B are both not satisified)

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: 3rd Street & Clay Wade Bailey Bridge
City/State: Cincinnati, Ohio

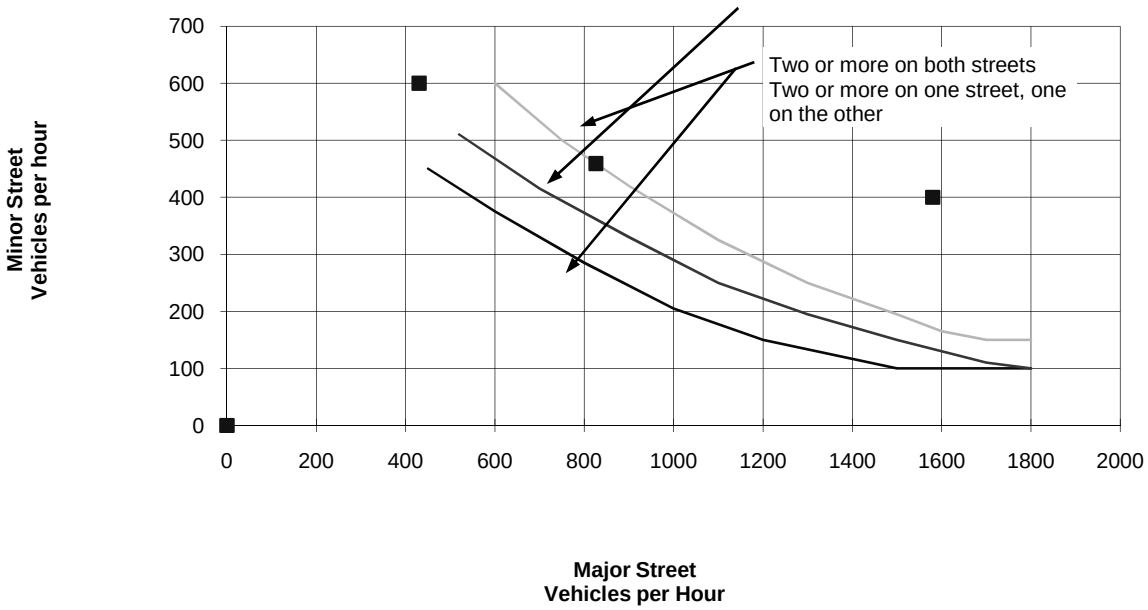
Warrant 3B - Peak Hour

The peak hour volume warrant is also intended for application when traffic conditions are such that for one hour of the day minor street traffic suffers undue traffic delay in entering or crossing the main street.

The peak hour volume warrant is satisfied when the plotted point representing vehicles per hour on the higher volume minor street for one hour falls above the curve in Figure 4C-3.

Figure 4C-4 may be used if the 85th percentile speed of the major street exceeds 40 mph or when the intersection lies within a built-up area of an isolated community having a population less than 10,000.

Peak Hour volume warrant - Major and Minor Streets for Urban Locations - Warrant 3B



Is Peak Hour Volume Warrant Met? **Yes**

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: 3rd Street & Clay Wade Bailey Bridge

City/State: Cincinnati, Ohio

Date: 7/9/2010 Performed By: JRL

	Minor (EB/NB) Approach	Minor (WB/SB) Approach	Major(EB/NB) Approach	Major(WB/SB) Approach	Total	Minor	Total Major
12:00 - 1:00 AM					0	0	0
1:00 - 2:00 AM					0	0	0
2:00 - 3:00 AM					0	0	0
3:00 - 4:00 AM					0	0	0
4:00 - 5:00 AM					0	0	0
5:00 - 6:00 AM					0	0	0
6:00 - 7:00 AM					0	0	0
7:00 - 8:00 AM	680	200	260	320	1460	680	580
8:00 - 9:00 AM	538	52	284	618	1492	538	902
9:00 - 10:00AM	538	52	284	618	1492	538	902
10:00 - 11:00 AM	538	52	284	618	1492	538	902
11:00 - 12:00 PM	538	52	284	618	1492	538	902
12:00 - 1:00 PM	538	52	284	618	1492	538	902
1:00 - 2:00 PM	538	52	284	618	1492	538	902
2:00 - 3:00 PM	538	52	284	618	1492	538	902
3:00 - 4:00 PM	538	52	284	618	1492	538	902
4:00 - 5:00 PM	400	260	550	900	2110	400	1450
5:00 - 6:00 PM					0	0	0
6:00 - 7:00 PM					0	0	0
7:00 - 8:00 PM					0	0	0
8:00 - 9:00 PM					0	0	0
9:00 - 10:00PM					0	0	0
10:00 - 11:00 PM					0	0	0
11:00 - 12:00 PM					0	0	0
Total	**5384**	**876**	**3082**	**6164**	**15506**	**5384**	**9246**

Does the 85th Percentile Speed/Posted Speed Limit exceed 40 mph on the major street? No

Does the intersection lie within a built-up area of an isolated community having a population of less than 10,000? No

Your intersection **CANNOT** use the 70% option for this warrant, do you want to use it? No

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: 3rd Street & Clay Wade Bailey Bridge
City/State: Cincinnati, Ohio
Date 7/9/2010 Performed by: JRL

Warrant 1 - Eight-Hour Vehicular Volume

Number of lanes of moving traffic for moving traffic on each approach:
Major Street: 2 Minor Street: 2

Vehicles per hour on major street (total of both approaches):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	902
1:00 - 2:00 AM	0	1:00 - 2:00 PM	902
2:00 - 3:00 AM	0	2:00 - 3:00 PM	902
3:00 - 4:00 AM	0	3:00 - 4:00 PM	902
4:00 - 5:00 AM	0	4:00 - 5:00 PM	1450
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	580	7:00 - 8:00 PM	0
8:00 - 9:00 AM	902	8:00 - 9:00 PM	0
9:00 - 10:00AM	902	9:00 - 10:00PM	0
10:00 - 11:00 AM	902	10:00 - 11:00 PM	0
11:00 - 12:00 PM	902	11:00 - 12:00 PM	0

Vehicles per hour on higher-volume minor street approach (one direction only):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	538
1:00 - 2:00 AM	0	1:00 - 2:00 PM	538
2:00 - 3:00 AM	0	2:00 - 3:00 PM	538
3:00 - 4:00 AM	0	3:00 - 4:00 PM	538
4:00 - 5:00 AM	0	4:00 - 5:00 PM	400
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	680	7:00 - 8:00 PM	0
8:00 - 9:00 AM	538	8:00 - 9:00 PM	0
9:00 - 10:00AM	538	9:00 - 10:00PM	0
10:00 - 11:00 AM	538	10:00 - 11:00 PM	0
11:00 - 12:00 PM	538	11:00 - 12:00 PM	0

Is the intersection using the reduced volume criteria based on speed or population? No

A. Is the Minimum Vehicular Volume Warrant Met? Yes

B. Is the Interruption of Continuous Traffic Met? Yes

Combination of Warrants A and B Criteria Met? Yes
(Use only when Conditions A and B are both not satisified)

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: 3rd Street & Clay Wade Bailey Bridge
City/State: Cincinnati, Ohio

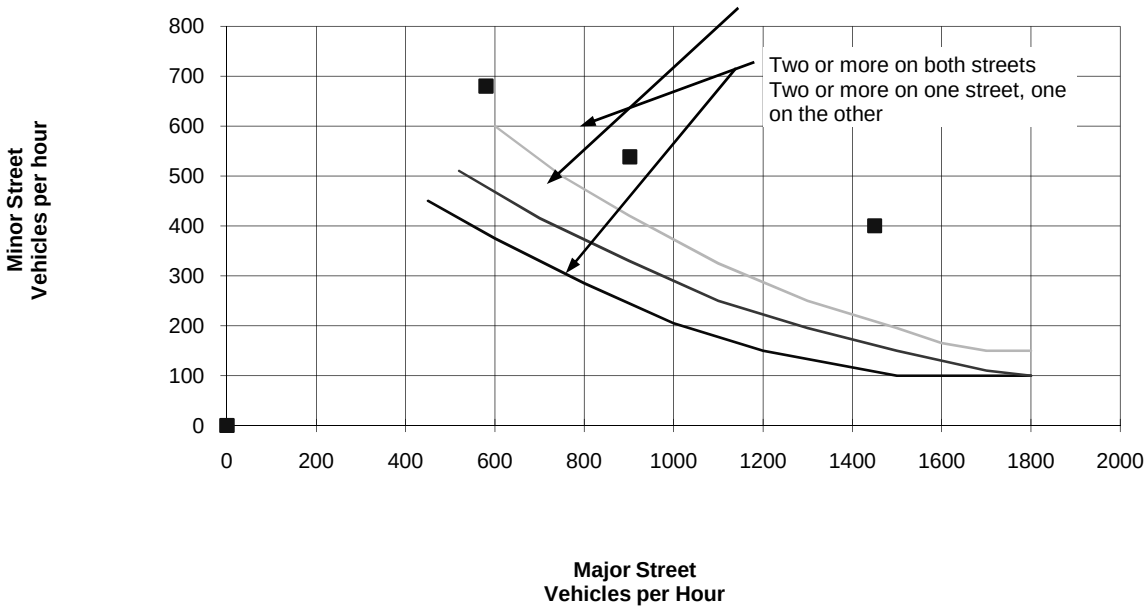
Warrant 3B - Peak Hour

The peak hour volume warrant is also intended for application when traffic conditions are such that for one hour of the day minor street traffic suffers undue traffic delay in entering or crossing the main street.

The peak hour volume warrant is satisfied when the plotted point representing vehicles per hour on the higher volume minor street for one hour falls above the curve in Figure 4C-3.

Figure 4C-4 may be used if the 85th percentile speed of the major street exceeds 40 mph or when the intersection lies within a built-up area of an isolated community having a population less than 10,000.

Peak Hour volume warrant - Major and Minor Streets for Urban Locations - Warrant 3B



Is Peak Hour Volume Warrant Met? **Yes**

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: McMillian Street & Central Parkway

City/State: Cincinnati, Ohio

Date: 7/9/2010 Performed By: JRL

	Minor (EB/NB) Approach	Minor (WB/SB) Approach	Major(EB/NB) Approach	Major(WB/SB) Approach	Total	Minor	Total Major
12:00 - 1:00 AM					0	0	0
1:00 - 2:00 AM					0	0	0
2:00 - 3:00 AM					0	0	0
3:00 - 4:00 AM					0	0	0
4:00 - 5:00 AM					0	0	0
5:00 - 6:00 AM					0	0	0
6:00 - 7:00 AM					0	0	0
7:00 - 8:00 AM	300	630	1530	210	2670	630	1740
8:00 - 9:00 AM	539	395	601	328	1863	539	929
9:00 - 10:00AM	539	395	601	328	1863	539	929
10:00 - 11:00 AM	539	395	601	328	1863	539	929
11:00 - 12:00 PM	539	395	601	328	1863	539	929
12:00 - 1:00 PM	539	395	601	328	1863	539	929
1:00 - 2:00 PM	539	395	601	328	1863	539	929
2:00 - 3:00 PM	539	395	601	328	1863	539	929
3:00 - 4:00 PM	539	395	601	328	1863	539	929
4:00 - 5:00 PM	1340	710	610	620	3280	1340	1230
5:00 - 6:00 PM					0	0	0
6:00 - 7:00 PM					0	0	0
7:00 - 8:00 PM					0	0	0
8:00 - 9:00 PM					0	0	0
9:00 - 10:00PM					0	0	0
10:00 - 11:00 PM					0	0	0
11:00 - 12:00 PM					0	0	0
Total	**5952**	**4500**	**6948**	**3454**	**20854**	**6282**	**10402**

Does the 85th Percentile Speed/Posted Speed Limit exceed 40 mph on the major street? No

Does the intersection lie within a built-up area of an isolated community having a population of less than 10,000? No

Your intersection **CANNOT** use the 70% option for this warrant, do you want to use it? No

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: McMillian Street & Central Parkway
City/State: Cincinnati, Ohio
Date 7/9/2010 Performed by: JRL

Warrant 1 - Eight-Hour Vehicular Volume

Number of lanes of moving traffic for moving traffic on each approach:
Major Street: 3 Minor Street: 3

Vehicles per hour on major street (total of both approaches):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	929
1:00 - 2:00 AM	0	1:00 - 2:00 PM	929
2:00 - 3:00 AM	0	2:00 - 3:00 PM	929
3:00 - 4:00 AM	0	3:00 - 4:00 PM	929
4:00 - 5:00 AM	0	4:00 - 5:00 PM	1230
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	1740	7:00 - 8:00 PM	0
8:00 - 9:00 AM	929	8:00 - 9:00 PM	0
9:00 - 10:00AM	929	9:00 - 10:00PM	0
10:00 - 11:00 AM	929	10:00 - 11:00 PM	0
11:00 - 12:00 PM	929	11:00 - 12:00 PM	0

Vehicles per hour on higher-volume minor street approach (one direction only):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	539
1:00 - 2:00 AM	0	1:00 - 2:00 PM	539
2:00 - 3:00 AM	0	2:00 - 3:00 PM	539
3:00 - 4:00 AM	0	3:00 - 4:00 PM	539
4:00 - 5:00 AM	0	4:00 - 5:00 PM	1340
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	630	7:00 - 8:00 PM	0
8:00 - 9:00 AM	539	8:00 - 9:00 PM	0
9:00 - 10:00AM	539	9:00 - 10:00PM	0
10:00 - 11:00 AM	539	10:00 - 11:00 PM	0
11:00 - 12:00 PM	539	11:00 - 12:00 PM	0

Is the intersection using the reduced volume criteria based on speed or population? No

A. Is the Minimum Vehicular Volume Warrant Met? Yes

B. Is the Interruption of Continuous Traffic Met? Yes

Combination of Warrants A and B Criteria Met? Yes
(Use only when Conditions A and B are both not satisified)

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: McMillian Street & Central Parkway
City/State: Cincinnati, Ohio

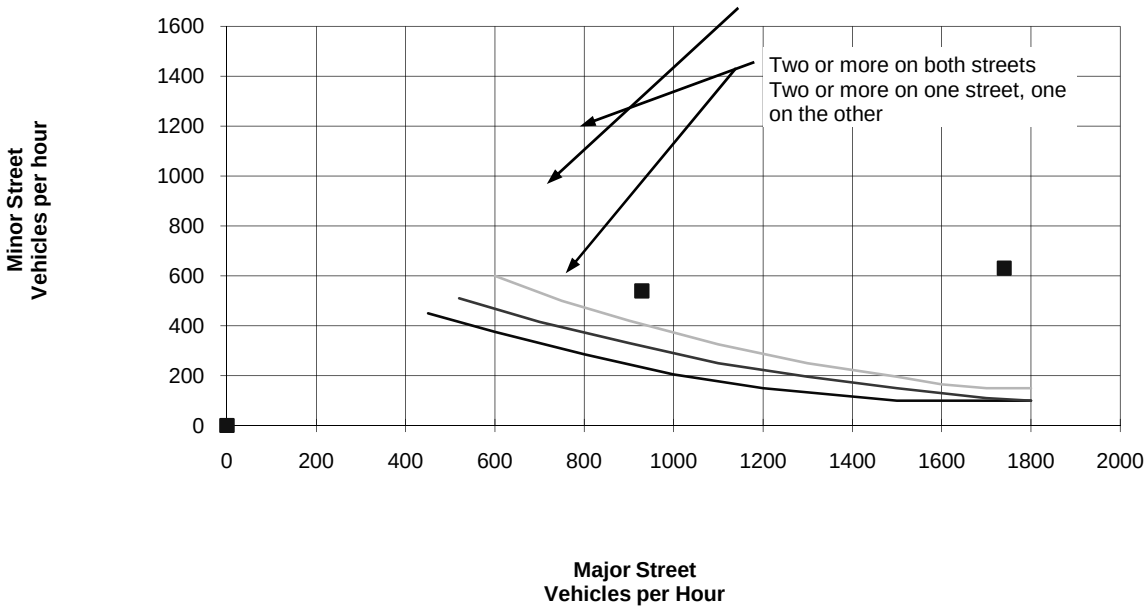
Warrant 3B - Peak Hour

The peak hour volume warrant is also intended for application when traffic conditions are such that for one hour of the day minor street traffic suffers undue traffic delay in entering or crossing the main street.

The peak hour volume warrant is satisfied when the plotted point representing vehicles per hour on the higher volume minor street for one hour falls above the curve in Figure 4C-3.

Figure 4C-4 may be used if the 85th percentile speed of the major street exceeds 40 mph or when the intersection lies within a built-up area of an isolated community having a population less than 10,000.

Peak Hour volume warrant - Major and Minor Streets for Urban Locations - Warrant 3B



Is Peak Hour Volume Warrant Met? **Yes**

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: McMillian Street & Central Parkway

City/State: Cincinnati, Ohio

Date: 7/9/2010 Performed By: JRL

	Minor (EB/NB) Approach	Minor (WB/SB) Approach	Major(EB/NB) Approach	Major(WB/SB) Approach	Total	Minor	Total Major
12:00 - 1:00 AM					0	0	0
1:00 - 2:00 AM					0	0	0
2:00 - 3:00 AM					0	0	0
3:00 - 4:00 AM					0	0	0
4:00 - 5:00 AM					0	0	0
5:00 - 6:00 AM					0	0	0
6:00 - 7:00 AM					0	0	0
7:00 - 8:00 AM	350		2390	300	3040	350	2690
8:00 - 9:00 AM	528		988	455	1971	528	1443
9:00 - 10:00AM	528		988	455	1971	528	1443
10:00 - 11:00 AM	528		988	455	1971	528	1443
11:00 - 12:00 PM	528		988	455	1971	528	1443
12:00 - 1:00 PM	528		988	455	1971	528	1443
1:00 - 2:00 PM	528		988	455	1971	528	1443
2:00 - 3:00 PM	528		988	455	1971	528	1443
3:00 - 4:00 PM	528		988	455	1971	528	1443
4:00 - 5:00 PM	1290		1130	890	3310	1290	2020
5:00 - 6:00 PM					0	0	0
6:00 - 7:00 PM					0	0	0
7:00 - 8:00 PM					0	0	0
8:00 - 9:00 PM					0	0	0
9:00 - 10:00PM					0	0	0
10:00 - 11:00 PM					0	0	0
11:00 - 12:00 PM					0	0	0
Total	**5864**	**0**	**11424**	**4830**	**22118**	**5864**	**16254**

Does the 85th Percentile Speed/Posted Speed Limit exceed 40 mph on the major street? No

Does the intersection lie within a built-up area of an isolated community having a population of less than 10,000? No

Your intersection **CANNOT** use the 70% option for this warrant, do you want to use it? No

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: McMillian Street & Central Parkway
City/State: Cincinnati, Ohio
Date 7/9/2010 Performed by: JRL

Warrant 1 - Eight-Hour Vehicular Volume

Number of lanes of moving traffic for moving traffic on each approach:
Major Street: 3 Minor Street: 3

Vehicles per hour on major street (total of both approaches):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	1443
1:00 - 2:00 AM	0	1:00 - 2:00 PM	1443
2:00 - 3:00 AM	0	2:00 - 3:00 PM	1443
3:00 - 4:00 AM	0	3:00 - 4:00 PM	1443
4:00 - 5:00 AM	0	4:00 - 5:00 PM	2020
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	2690	7:00 - 8:00 PM	0
8:00 - 9:00 AM	1443	8:00 - 9:00 PM	0
9:00 - 10:00AM	1443	9:00 - 10:00PM	0
10:00 - 11:00 AM	1443	10:00 - 11:00 PM	0
11:00 - 12:00 PM	1443	11:00 - 12:00 PM	0

Vehicles per hour on higher-volume minor street approach (one direction only):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	528
1:00 - 2:00 AM	0	1:00 - 2:00 PM	528
2:00 - 3:00 AM	0	2:00 - 3:00 PM	528
3:00 - 4:00 AM	0	3:00 - 4:00 PM	528
4:00 - 5:00 AM	0	4:00 - 5:00 PM	1290
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	350	7:00 - 8:00 PM	0
8:00 - 9:00 AM	528	8:00 - 9:00 PM	0
9:00 - 10:00AM	528	9:00 - 10:00PM	0
10:00 - 11:00 AM	528	10:00 - 11:00 PM	0
11:00 - 12:00 PM	528	11:00 - 12:00 PM	0

Is the intersection using the reduced volume criteria based on speed or population? No

A. Is the Minimum Vehicular Volume Warrant Met? Yes

B. Is the Interruption of Continuous Traffic Met? Yes

Combination of Warrants A and B Criteria Met? Yes
(Use only when Conditions A and B are both not satisified)

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: McMillian Street & Central Parkway
City/State: Cincinnati, Ohio

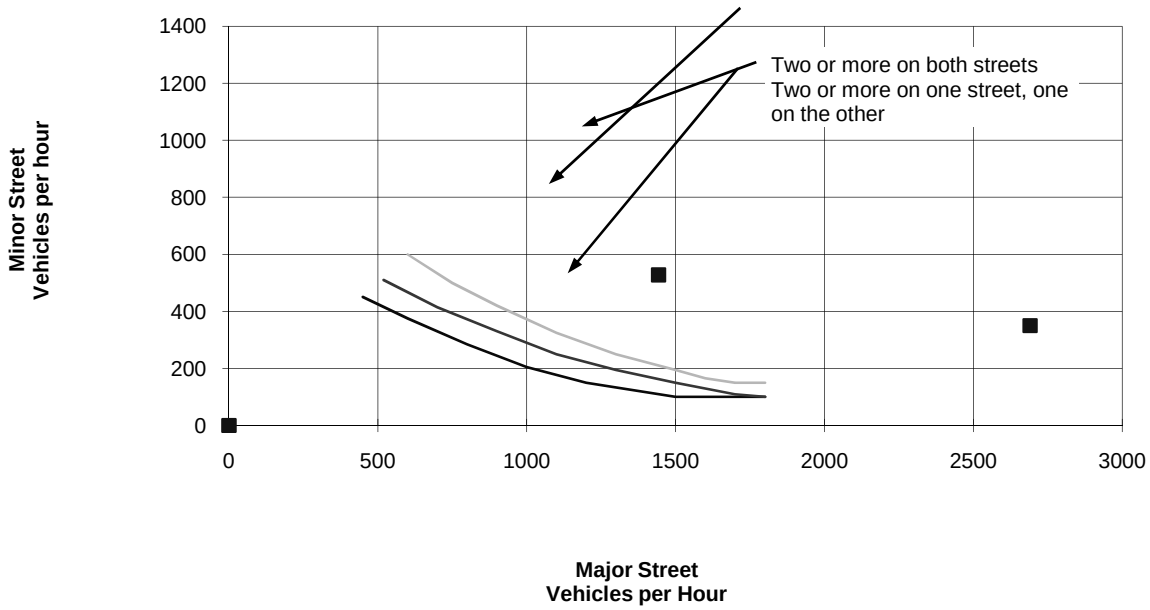
Warrant 3B - Peak Hour

The peak hour volume warrant is also intended for application when traffic conditions are such that for one hour of the day minor street traffic suffers undue traffic delay in entering or crossing the main street.

The peak hour volume warrant is satisfied when the plotted point representing vehicles per hour on the higher volume minor street for one hour falls above the curve in Figure 4C-3.

Figure 4C-4 may be used if the 85th percentile speed of the major street exceeds 40 mph or when the intersection lies within a built-up area of an isolated community having a population less than 10,000.

Peak Hour volume warrant - Major and Minor Streets for Urban Locations - Warrant 3B



Is Peak Hour Volume Warrant Met? **Yes**

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: McMillian Street & Central Parkway

City/State: Cincinnati, Ohio

Date: 7/9/2010 Performed By: JRL

	Minor (EB/NB) Approach	Minor (WB/SB) Approach	Major(EB/NB) Approach	Major(WB/SB) Approach	Total	Minor	Total Major
12:00 - 1:00 AM					0	0	0
1:00 - 2:00 AM					0	0	0
2:00 - 3:00 AM					0	0	0
3:00 - 4:00 AM					0	0	0
4:00 - 5:00 AM					0	0	0
5:00 - 6:00 AM					0	0	0
6:00 - 7:00 AM					0	0	0
7:00 - 8:00 AM	400	720	1540	200	2860	720	1740
8:00 - 9:00 AM	662	458	651	306	2077	662	957
9:00 - 10:00AM	662	458	651	306	2077	662	957
10:00 - 11:00 AM	662	458	651	306	2077	662	957
11:00 - 12:00 PM	662	458	651	306	2077	662	957
12:00 - 1:00 PM	662	458	651	306	2077	662	957
1:00 - 2:00 PM	662	458	651	306	2077	662	957
2:00 - 3:00 PM	662	458	651	306	2077	662	957
3:00 - 4:00 PM	662	458	651	306	2077	662	957
4:00 - 5:00 PM	1600	820	660	610	3690	1600	1270
5:00 - 6:00 PM					0	0	0
6:00 - 7:00 PM					0	0	0
7:00 - 8:00 PM					0	0	0
8:00 - 9:00 PM					0	0	0
9:00 - 10:00PM					0	0	0
10:00 - 11:00 PM					0	0	0
11:00 - 12:00 PM					0	0	0
Total	**7296**	**5204**	**7408**	**3258**	**23166**	**7616**	**10666**

Does the 85th Percentile Speed/Posted Speed Limit exceed 40 mph on the major street? No

Does the intersection lie within a built-up area of an isolated community having a population of less than 10,000? No

Your intersection **CANNOT** use the 70% option for this warrant, do you want to use it? No

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: McMillian Street & Central Parkway
City/State: Cincinnati, Ohio
Date 7/9/2010 Performed by: JRL

Warrant 1 - Eight-Hour Vehicular Volume

Number of lanes of moving traffic for moving traffic on each approach:
Major Street: 3 Minor Street: 3

Vehicles per hour on major street (total of both approaches):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	957
1:00 - 2:00 AM	0	1:00 - 2:00 PM	957
2:00 - 3:00 AM	0	2:00 - 3:00 PM	957
3:00 - 4:00 AM	0	3:00 - 4:00 PM	957
4:00 - 5:00 AM	0	4:00 - 5:00 PM	1270
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	1740	7:00 - 8:00 PM	0
8:00 - 9:00 AM	957	8:00 - 9:00 PM	0
9:00 - 10:00AM	957	9:00 - 10:00PM	0
10:00 - 11:00 AM	957	10:00 - 11:00 PM	0
11:00 - 12:00 PM	957	11:00 - 12:00 PM	0

Vehicles per hour on higher-volume minor street approach (one direction only):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	662
1:00 - 2:00 AM	0	1:00 - 2:00 PM	662
2:00 - 3:00 AM	0	2:00 - 3:00 PM	662
3:00 - 4:00 AM	0	3:00 - 4:00 PM	662
4:00 - 5:00 AM	0	4:00 - 5:00 PM	1600
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	720	7:00 - 8:00 PM	0
8:00 - 9:00 AM	662	8:00 - 9:00 PM	0
9:00 - 10:00AM	662	9:00 - 10:00PM	0
10:00 - 11:00 AM	662	10:00 - 11:00 PM	0
11:00 - 12:00 PM	662	11:00 - 12:00 PM	0

Is the intersection using the reduced volume criteria based on speed or population? No

A. Is the Minimum Vehicular Volume Warrant Met? Yes

B. Is the Interruption of Continuous Traffic Met? Yes

Combination of Warrants A and B Criteria Met? Yes
(Use only when Conditions A and B are both not satisified)

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: McMillian Street & Central Parkway
City/State: Cincinnati, Ohio

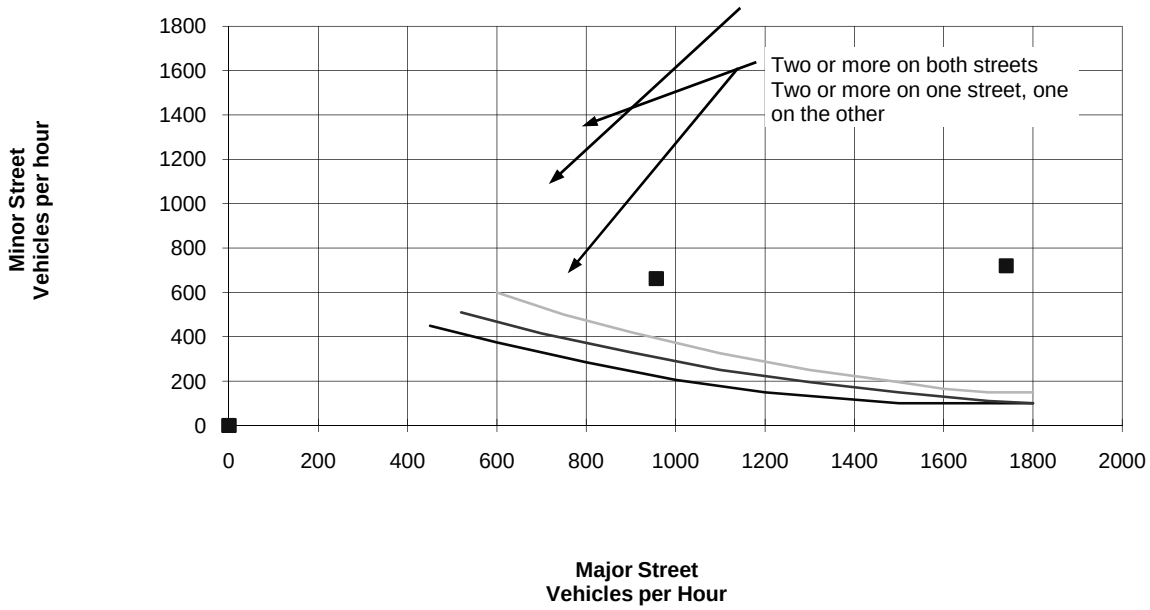
Warrant 3B - Peak Hour

The peak hour volume warrant is also intended for application when traffic conditions are such that for one hour of the day minor street traffic suffers undue traffic delay in entering or crossing the main street.

The peak hour volume warrant is satisfied when the plotted point representing vehicles per hour on the higher volume minor street for one hour falls above the curve in Figure 4C-3.

Figure 4C-4 may be used if the 85th percentile speed of the major street exceeds 40 mph or when the intersection lies within a built-up area of an isolated community having a population less than 10,000.

Peak Hour volume warrant - Major and Minor Streets for Urban Locations - Warrant 3B



Is Peak Hour Volume Warrant Met? **Yes**

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: McMillian Street & Central Parkway

City/State: Cincinnati, Ohio

Date: 7/9/2010 Performed By: JRL

	Minor (EB/NB) Approach	Minor (WB/SB) Approach	Major(EB/NB) Approach	Major(WB/SB) Approach	Total	Minor	Total Major
12:00 - 1:00 AM					0	0	0
1:00 - 2:00 AM					0	0	0
2:00 - 3:00 AM					0	0	0
3:00 - 4:00 AM					0	0	0
4:00 - 5:00 AM					0	0	0
5:00 - 6:00 AM					0	0	0
6:00 - 7:00 AM					0	0	0
7:00 - 8:00 AM		1460	530	640	2630	1460	1170
8:00 - 9:00 AM		575	872	402	1849	575	1274
9:00 - 10:00AM		575	872	402	1849	575	1274
10:00 - 11:00 AM		575	872	402	1849	575	1274
11:00 - 12:00 PM		575	872	402	1849	575	1274
12:00 - 1:00 PM		575	872	402	1849	575	1274
1:00 - 2:00 PM		575	872	402	1849	575	1274
2:00 - 3:00 PM		575	872	402	1849	575	1274
3:00 - 4:00 PM		575	872	402	1849	575	1274
4:00 - 5:00 PM		740	2100	780	3620	740	2880
5:00 - 6:00 PM					0	0	0
6:00 - 7:00 PM					0	0	0
7:00 - 8:00 PM					0	0	0
8:00 - 9:00 PM					0	0	0
9:00 - 10:00PM					0	0	0
10:00 - 11:00 PM					0	0	0
11:00 - 12:00 PM					0	0	0
Total	**0**	**6800**	**9606**	**4636**	**21042**	**6800**	**14242**

Does the 85th Percentile Speed/Posted Speed Limit exceed 40 mph on the major street? No

Does the intersection lie within a built-up area of an isolated community having a population of less than 10,000? No

Your intersection **CANNOT** use the 70% option for this warrant, do you want to use it? No

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: McMillian Street & Central Parkway
City/State: Cincinnati, Ohio
Date 7/9/2010 Performed by: JRL

Warrant 1 - Eight-Hour Vehicular Volume

Number of lanes of moving traffic for moving traffic on each approach:
Major Street: 2 Minor Street: 2

Vehicles per hour on major street (total of both approaches):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	1274
1:00 - 2:00 AM	0	1:00 - 2:00 PM	1274
2:00 - 3:00 AM	0	2:00 - 3:00 PM	1274
3:00 - 4:00 AM	0	3:00 - 4:00 PM	1274
4:00 - 5:00 AM	0	4:00 - 5:00 PM	2880
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	1170	7:00 - 8:00 PM	0
8:00 - 9:00 AM	1274	8:00 - 9:00 PM	0
9:00 - 10:00AM	1274	9:00 - 10:00PM	0
10:00 - 11:00 AM	1274	10:00 - 11:00 PM	0
11:00 - 12:00 PM	1274	11:00 - 12:00 PM	0

Vehicles per hour on higher-volume minor street approach (one direction only):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	575
1:00 - 2:00 AM	0	1:00 - 2:00 PM	575
2:00 - 3:00 AM	0	2:00 - 3:00 PM	575
3:00 - 4:00 AM	0	3:00 - 4:00 PM	575
4:00 - 5:00 AM	0	4:00 - 5:00 PM	740
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	1460	7:00 - 8:00 PM	0
8:00 - 9:00 AM	575	8:00 - 9:00 PM	0
9:00 - 10:00AM	575	9:00 - 10:00PM	0
10:00 - 11:00 AM	575	10:00 - 11:00 PM	0
11:00 - 12:00 PM	575	11:00 - 12:00 PM	0

Is the intersection using the reduced volume criteria based on speed or population? No

A. Is the Minimum Vehicular Volume Warrant Met? Yes

B. Is the Interruption of Continuous Traffic Met? Yes

Combination of Warrants A and B Criteria Met? Yes
(Use only when Conditions A and B are both not satisified)

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: McMillian Street & Central Parkway
City/State: Cincinnati, Ohio

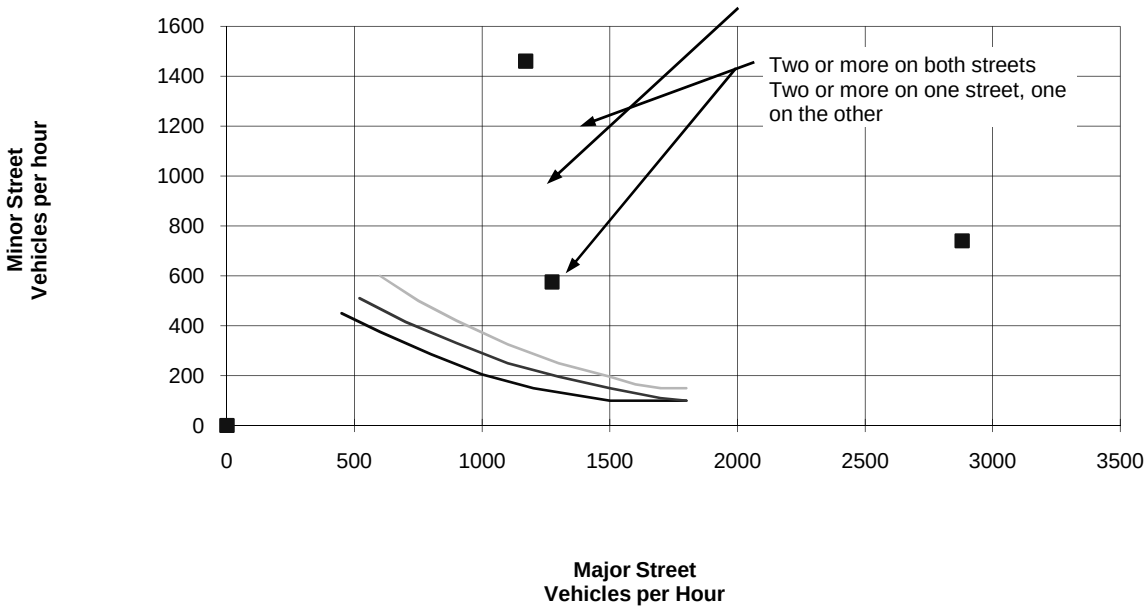
Warrant 3B - Peak Hour

The peak hour volume warrant is also intended for application when traffic conditions are such that for one hour of the day minor street traffic suffers undue traffic delay in entering or crossing the main street.

The peak hour volume warrant is satisfied when the plotted point representing vehicles per hour on the higher volume minor street for one hour falls above the curve in Figure 4C-3.

Figure 4C-4 may be used if the 85th percentile speed of the major street exceeds 40 mph or when the intersection lies within a built-up area of an isolated community having a population less than 10,000.

Peak Hour volume warrant - Major and Minor Streets for Urban Locations - Warrant 3B



Is Peak Hour Volume Warrant Met? **Yes**

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Western Hills Viaduct & I-75 Ramps

City/State: Cincinnati, Ohio

Date: 7/9/2010 Performed By: JRL

	Minor (EB/NB) Approach	Minor (WB/SB) Approach	Major(EB/NB) Approach	Major(WB/SB) Approach	Total	Minor	Total Major
12:00 - 1:00 AM					0	0	0
1:00 - 2:00 AM					0	0	0
2:00 - 3:00 AM					0	0	0
3:00 - 4:00 AM					0	0	0
4:00 - 5:00 AM					0	0	0
5:00 - 6:00 AM					0	0	0
6:00 - 7:00 AM					0	0	0
7:00 - 8:00 AM	1130	1220	3180	500	6030	1220	3680
8:00 - 9:00 AM	597	383	1298	941	3219	597	2239
9:00 - 10:00AM	597	383	1298	941	3219	597	2239
10:00 - 11:00 AM	597	383	1298	941	3219	597	2239
11:00 - 12:00 PM	597	383	1298	941	3219	597	2239
12:00 - 1:00 PM	597	383	1298	941	3219	597	2239
1:00 - 2:00 PM	597	383	1298	941	3219	597	2239
2:00 - 3:00 PM	597	383	1298	941	3219	597	2239
3:00 - 4:00 PM	597	383	1298	941	3219	597	2239
4:00 - 5:00 PM	1140	520	1150	2090	4900	1140	3240
5:00 - 6:00 PM					0	0	0
6:00 - 7:00 PM					0	0	0
7:00 - 8:00 PM					0	0	0
8:00 - 9:00 PM					0	0	0
9:00 - 10:00PM					0	0	0
10:00 - 11:00 PM					0	0	0
11:00 - 12:00 PM					0	0	0
Total	**7046**	**4804**	**14714**	**10118**	**36682**	**7136**	**24832**

Does the 85th Percentile Speed/Posted Speed Limit exceed 40 mph on the major street? No

Does the intersection lie within a built-up area of an isolated community having a population of less than 10,000? No

Your intersection **CANNOT** use the 70% option for this warrant, do you want to use it? No

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Western Hills Viaduct & I-75 Ramps
City/State: Cincinnati, Ohio
Date 7/9/2010 Performed by: JRL

Warrant 1 - Eight-Hour Vehicular Volume

Number of lanes of moving traffic for moving traffic on each approach:
Major Street: 2 Minor Street: 2

Vehicles per hour on major street (total of both approaches):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	2239
1:00 - 2:00 AM	0	1:00 - 2:00 PM	2239
2:00 - 3:00 AM	0	2:00 - 3:00 PM	2239
3:00 - 4:00 AM	0	3:00 - 4:00 PM	2239
4:00 - 5:00 AM	0	4:00 - 5:00 PM	3240
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	3680	7:00 - 8:00 PM	0
8:00 - 9:00 AM	2239	8:00 - 9:00 PM	0
9:00 - 10:00AM	2239	9:00 - 10:00PM	0
10:00 - 11:00 AM	2239	10:00 - 11:00 PM	0
11:00 - 12:00 PM	2239	11:00 - 12:00 PM	0

Vehicles per hour on higher-volume minor street approach (one direction only):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	597
1:00 - 2:00 AM	0	1:00 - 2:00 PM	597
2:00 - 3:00 AM	0	2:00 - 3:00 PM	597
3:00 - 4:00 AM	0	3:00 - 4:00 PM	597
4:00 - 5:00 AM	0	4:00 - 5:00 PM	1140
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	1220	7:00 - 8:00 PM	0
8:00 - 9:00 AM	597	8:00 - 9:00 PM	0
9:00 - 10:00AM	597	9:00 - 10:00PM	0
10:00 - 11:00 AM	597	10:00 - 11:00 PM	0
11:00 - 12:00 PM	597	11:00 - 12:00 PM	0

Is the intersection using the reduced volume criteria based on speed or population? No

A. Is the Minimum Vehicular Volume Warrant Met? Yes

B. Is the Interruption of Continuous Traffic Met? Yes

Combination of Warrants A and B Criteria Met? Yes
(Use only when Conditions A and B are both not satisified)

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Western Hills Viaduct & I-75 Ramps
City/State: Cincinnati, Ohio

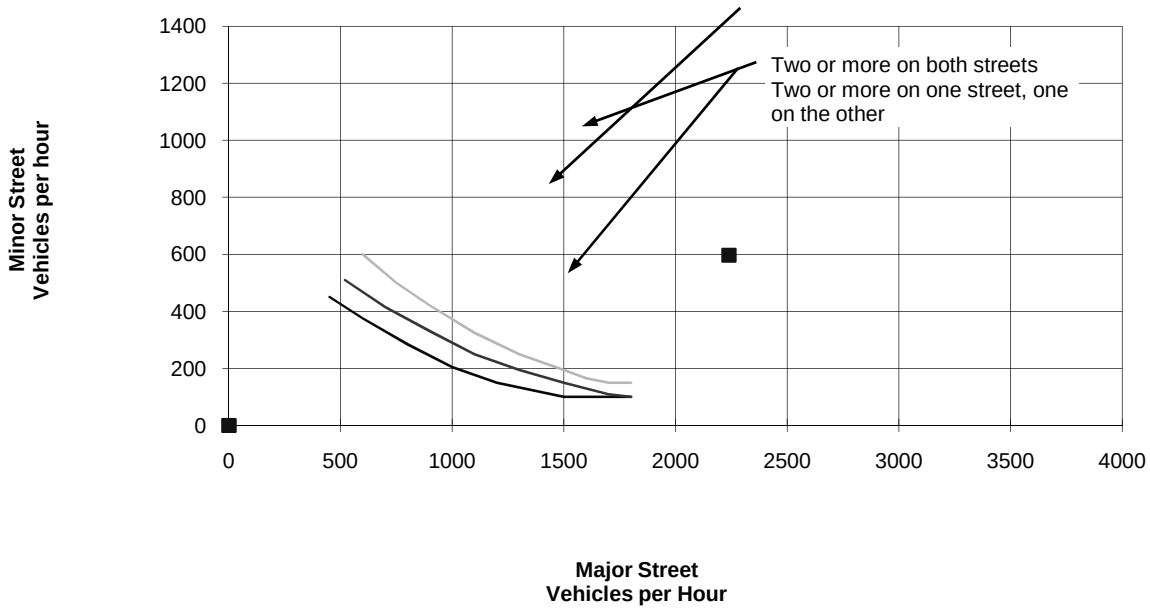
Warrant 3B - Peak Hour

The peak hour volume warrant is also intended for application when traffic conditions are such that for one hour of the day minor street traffic suffers undue traffic delay in entering or crossing the main street.

The peak hour volume warrant is satisfied when the plotted point representing vehicles per hour on the higher volume minor street for one hour falls above the curve in Figure 4C-3.

Figure 4C-4 may be used if the 85th percentile speed of the major street exceeds 40 mph or when the intersection lies within a built-up area of an isolated community having a population less than 10,000.

Peak Hour volume warrant - Major and Minor Streets for Urban Locations - Warrant 3B



Is Peak Hour Volume Warrant Met? **Yes**

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Western Hills Viaduct UPPER DECK & I-75 SB Off-Ramp

City/State: Cincinnati, Ohio

Date: 7/9/2010 Performed By: JRL

	Minor (EB/NB) Approach	Minor (WB/SB) Approach	Major(EB/NB) Approach	Major(WB/SB) Approach	Total	Minor	Total Major
12:00 - 1:00 AM					0	0	0
1:00 - 2:00 AM					0	0	0
2:00 - 3:00 AM					0	0	0
3:00 - 4:00 AM					0	0	0
4:00 - 5:00 AM					0	0	0
5:00 - 6:00 AM					0	0	0
6:00 - 7:00 AM					0	0	0
7:00 - 8:00 AM		260	1560	320	2140	260	1880
8:00 - 9:00 AM		354	666	273	1293	354	939
9:00 - 10:00AM		354	666	273	1293	354	939
10:00 - 11:00 AM		354	666	273	1293	354	939
11:00 - 12:00 PM		354	666	273	1293	354	939
12:00 - 1:00 PM		354	666	273	1293	354	939
1:00 - 2:00 PM		354	666	273	1293	354	939
2:00 - 3:00 PM		354	666	273	1293	354	939
3:00 - 4:00 PM		354	666	273	1293	354	939
4:00 - 5:00 PM		500	770	530	1800	500	1300
5:00 - 6:00 PM					0	0	0
6:00 - 7:00 PM					0	0	0
7:00 - 8:00 PM					0	0	0
8:00 - 9:00 PM					0	0	0
9:00 - 10:00PM					0	0	0
10:00 - 11:00 PM					0	0	0
11:00 - 12:00 PM					0	0	0
Total	**0**	**3592**	**7658**	**3034**	**14284**	**3592**	**10692**

Does the 85th Percentile Speed/Posted Speed Limit exceed 40 mph on the major street? No

Does the intersection lie within a built-up area of an isolated community having a population of less than 10,000? No

Your intersection **CANNOT** use the 70% option for this warrant, do you want to use it? No

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Western Hills Viaduct UPPER DECK & I-75 SB Off-Ramp
City/State: Cincinnati, Ohio
Date 7/9/2010 Performed by: JRL

Warrant 1 - Eight-Hour Vehicular Volume

Number of lanes of moving traffic for moving traffic on each approach:
Major Street: 2 Minor Street: 2

Vehicles per hour on major street (total of both approaches):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	939
1:00 - 2:00 AM	0	1:00 - 2:00 PM	939
2:00 - 3:00 AM	0	2:00 - 3:00 PM	939
3:00 - 4:00 AM	0	3:00 - 4:00 PM	939
4:00 - 5:00 AM	0	4:00 - 5:00 PM	1300
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	1880	7:00 - 8:00 PM	0
8:00 - 9:00 AM	939	8:00 - 9:00 PM	0
9:00 - 10:00AM	939	9:00 - 10:00PM	0
10:00 - 11:00 AM	939	10:00 - 11:00 PM	0
11:00 - 12:00 PM	939	11:00 - 12:00 PM	0

Vehicles per hour on higher-volume minor street approach (one direction only):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	354
1:00 - 2:00 AM	0	1:00 - 2:00 PM	354
2:00 - 3:00 AM	0	2:00 - 3:00 PM	354
3:00 - 4:00 AM	0	3:00 - 4:00 PM	354
4:00 - 5:00 AM	0	4:00 - 5:00 PM	500
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	260	7:00 - 8:00 PM	0
8:00 - 9:00 AM	354	8:00 - 9:00 PM	0
9:00 - 10:00AM	354	9:00 - 10:00PM	0
10:00 - 11:00 AM	354	10:00 - 11:00 PM	0
11:00 - 12:00 PM	354	11:00 - 12:00 PM	0

Is the intersection using the reduced volume criteria based on speed or population? No

A. Is the Minimum Vehicular Volume Warrant Met? Yes

B. Is the Interruption of Continuous Traffic Met? Yes

Combination of Warrants A and B Criteria Met? Yes
(Use only when Conditions A and B are both not satisified)

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Western Hills Viaduct UPPER DECK & I-75 SB Off-Ramp
City/State: Cincinnati, Ohio

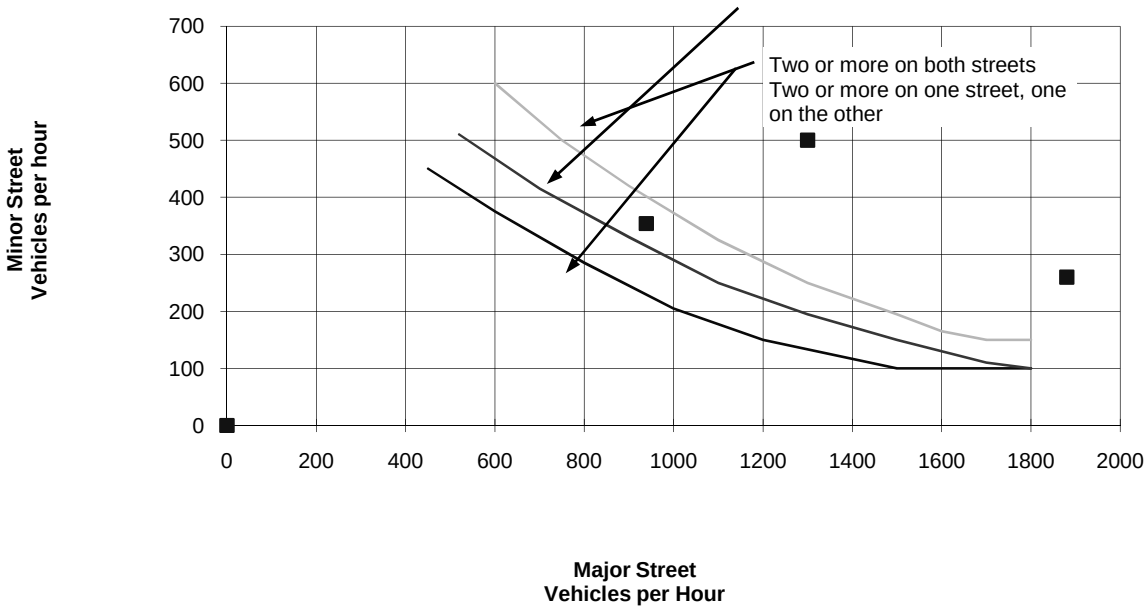
Warrant 3B - Peak Hour

The peak hour volume warrant is also intended for application when traffic conditions are such that for one hour of the day minor street traffic suffers undue traffic delay in entering or crossing the main street.

The peak hour volume warrant is satisfied when the plotted point representing vehicles per hour on the higher volume minor street for one hour falls above the curve in Figure 4C-3.

Figure 4C-4 may be used if the 85th percentile speed of the major street exceeds 40 mph or when the intersection lies within a built-up area of an isolated community having a population less than 10,000.

Peak Hour volume warrant - Major and Minor Streets for Urban Locations - Warrant 3B



Is Peak Hour Volume Warrant Met? **Yes**

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Western Hills Viaduct UPPER DECK & I-75 NB Off-Ramp

City/State: Cincinnati, Ohio

Date: 7/9/2010 Performed By: JRL

	Minor (EB/NB) Approach	Minor (WB/SB) Approach	Major(EB/NB) Approach	Major(WB/SB) Approach	Total	Minor	Total Major
12:00 - 1:00 AM					0	0	0
1:00 - 2:00 AM					0	0	0
2:00 - 3:00 AM					0	0	0
3:00 - 4:00 AM					0	0	0
4:00 - 5:00 AM					0	0	0
5:00 - 6:00 AM					0	0	0
6:00 - 7:00 AM					0	0	0
7:00 - 8:00 AM	760		570		1330	760	570
8:00 - 9:00 AM	379		617		996	379	617
9:00 - 10:00AM	379		617		996	379	617
10:00 - 11:00 AM	379		617		996	379	617
11:00 - 12:00 PM	379		617		996	379	617
12:00 - 1:00 PM	379		617		996	379	617
1:00 - 2:00 PM	379		617		996	379	617
2:00 - 3:00 PM	379		617		996	379	617
3:00 - 4:00 PM	379		617		996	379	617
4:00 - 5:00 PM	370		1070		1440	370	1070
5:00 - 6:00 PM					0	0	0
6:00 - 7:00 PM					0	0	0
7:00 - 8:00 PM					0	0	0
8:00 - 9:00 PM					0	0	0
9:00 - 10:00PM					0	0	0
10:00 - 11:00 PM					0	0	0
11:00 - 12:00 PM					0	0	0
Total	**4162**	**0**	**6576**	**0**	**10738**	**4162**	**6576**

Does the 85th Percentile Speed/Posted Speed Limit exceed 40 mph on the major street? No

Does the intersection lie within a built-up area of an isolated community having a population of less than 10,000? No

Your intersection **CANNOT** use the 70% option for this warrant, do you want to use it? No

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Western Hills Viaduct UPPER DECK & I-75 NB Off-Ramp
City/State: Cincinnati, Ohio
Date 7/9/2010 Performed by: JRL

Warrant 1 - Eight-Hour Vehicular Volume

Number of lanes of moving traffic for moving traffic on each approach:
Major Street: 2 Minor Street: 2

Vehicles per hour on major street (total of both approaches):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	617
1:00 - 2:00 AM	0	1:00 - 2:00 PM	617
2:00 - 3:00 AM	0	2:00 - 3:00 PM	617
3:00 - 4:00 AM	0	3:00 - 4:00 PM	617
4:00 - 5:00 AM	0	4:00 - 5:00 PM	1070
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	570	7:00 - 8:00 PM	0
8:00 - 9:00 AM	617	8:00 - 9:00 PM	0
9:00 - 10:00AM	617	9:00 - 10:00PM	0
10:00 - 11:00 AM	617	10:00 - 11:00 PM	0
11:00 - 12:00 PM	617	11:00 - 12:00 PM	0

Vehicles per hour on higher-volume minor street approach (one direction only):

12:00 - 1:00 AM	0	12:00 - 1:00 PM	379
1:00 - 2:00 AM	0	1:00 - 2:00 PM	379
2:00 - 3:00 AM	0	2:00 - 3:00 PM	379
3:00 - 4:00 AM	0	3:00 - 4:00 PM	379
4:00 - 5:00 AM	0	4:00 - 5:00 PM	370
5:00 - 6:00 AM	0	5:00 - 6:00 PM	0
6:00 - 7:00 AM	0	6:00 - 7:00 PM	0
7:00 - 8:00 AM	760	7:00 - 8:00 PM	0
8:00 - 9:00 AM	379	8:00 - 9:00 PM	0
9:00 - 10:00AM	379	9:00 - 10:00PM	0
10:00 - 11:00 AM	379	10:00 - 11:00 PM	0
11:00 - 12:00 PM	379	11:00 - 12:00 PM	0

Is the intersection using the reduced volume criteria based on speed or population? No

A. Is the Minimum Vehicular Volume Warrant Met? Yes

B. Is the Interruption of Continuous Traffic Met? No

Combination of Warrants A and B Criteria Met? No
(Use only when Conditions A and B are both not satisified)

Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
Prepared by Parsons Brinckerhoff

Intersection: Western Hills Viaduct UPPER DECK & I-75 NB Off-Ramp
City/State: Cincinnati, Ohio

Warrant 3B - Peak Hour

The peak hour volume warrant is also intended for application when traffic conditions are such that for one hour of the day minor street traffic suffers undue traffic delay in entering or crossing the main street.

The peak hour volume warrant is satisfied when the plotted point representing vehicles per hour on the higher volume minor street for one hour falls above the curve in Figure 4C-3.

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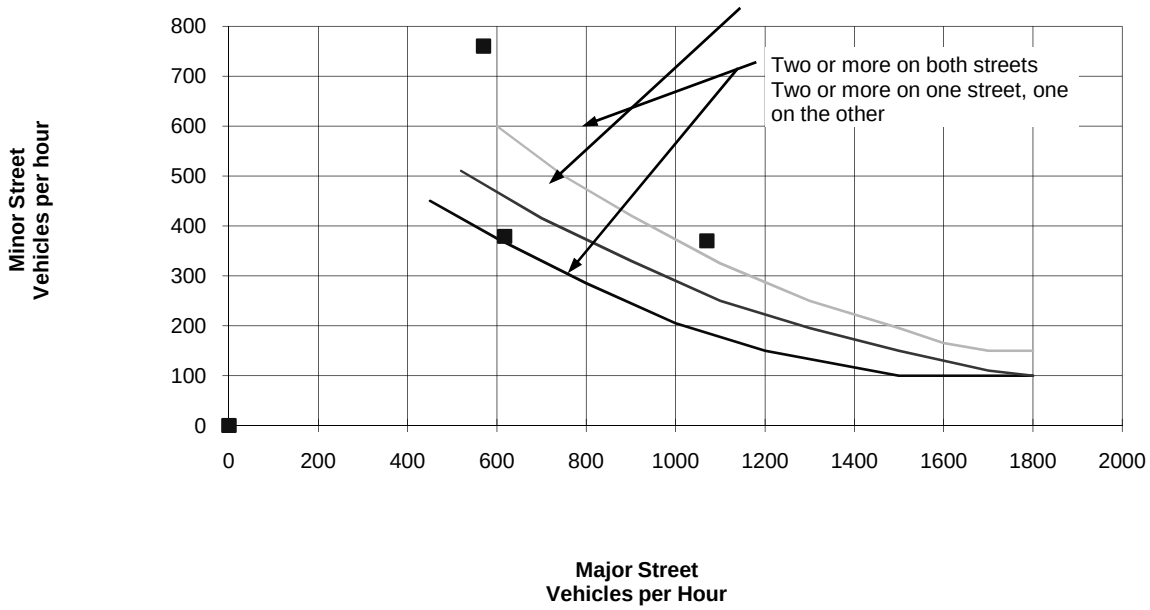
Peak Hour volume warrant - Major and Minor Streets for Urban Locations - Warrant 3B



Is Peak Hour Volume Warrant Met? **Yes**

Appendix H
Maintenance of Traffic
Phasing Plan

Date: 5-6-11

Maintenance of Traffic Analysis

Once work begins in mainline I-75, it will be critical to manage the maintenance of traffic (MOT) operations between other projects taking place along I-75 and between the Commonwealth of Kentucky and the State of Ohio. The MOT plan developed for the I-75 corridor reconstruction requires coordination among projects and between the two states along the entire eight-mile corridor length. Within Kentucky, the project involves the reconstruction of I-71/I-75 from south of the Dixie Highway interchange to the Ohio River bridges. Construction within Kentucky also includes the construction of collector distributor (C-D) roadway between the Dixie Highway and Kyles Lane interchanges and a C-D roadway between KY 12th Street and the Ohio River along with local roadway improvements. Within Ohio, the project involves the reconstruction of I-71 from the Ohio River bridges to the western end of the Fort Washington Way (FWW), the reconstruction of I-75 from the Ohio River bridges to north of the Western Hills Viaduct (WHV). Construction within Ohio also includes the construction of a C-D roadway from the Ohio River bridges to the Ezzard Charles Drive overpass, reconstruction of the I-75/US 50 interchange, along with local roadway improvements.

General Overview and Delivery Options

The general MOT plan involves constructing the western portion of the I-75 corridor first, including the new bridge over the Ohio River. As the construction of the new bridge may exceed three years, it is on the project's critical path for maintaining significant MOT operations. The work on the western portion of the corridor also includes replacing and lengthening the overpasses if they are not constructed in an earlier contract package. Once the western portion is constructed, southbound I-75 traffic will be diverted to the widened area, crossing the new bridge on the bottom deck (future southbound C-D roadway), and utilizing the widened portion of the interstate in Kentucky. Northbound I-75 traffic will remain in its current location, leaving a large work area available to the contractor to construct new I-75 pavement and local access ramps in Ohio. The final MOT phase involves shifting northbound I-75 to the future southbound I-75 location on the upper deck of new Ohio River Bridge, allowing the construction of northbound interstate and C-D roadways between KY 12th Street and the connections to FWW and OH 2nd Street, in addition to the rehabilitation of the existing Brent Spence Bridge.

I-75 Corridor Context

The Brent Spence Bridge is part of the larger I-75 Improvement Program which extends from south of Dixie Highway in Kentucky to I-275 in Ohio. This program is subdivided into three major projects; the Mill Creek Expressway project, the Thru the Valley project, and the Brent Spence Bridge Replacement/Rehabilitation project. These Kentucky and Ohio projects are being developed under the Ohio Department of Transportation's (ODOT's) Major Project Development Process (PDP) and will utilize phased construction. The Mill Creek Expressway project will be constructed first, the Thru the Valley project will be constructed second, and the Ohio portion of the Brent Spence Bridge will be third. The construction sequencing for each of these projects will need to be coordinated. Maintenance of traffic, lane continuity, and geometric design will dictate construction termini that are different from the termini used for the planning and preliminary design efforts. Kentucky may begin its portion of the Brent Spence Bridge corridor at a different time due to budget constraints in Kentucky's Six-Year Transportation Plan. It is critical that phasing and connections of the main span with the Kentucky and Ohio approaches be coordinated between the two states. The delivery method

should have a strong foundation in community awareness, maintenance of traffic, constructability, and safety.

Creative phasing will allow for less complicated maintenance of traffic plans, while improving the interim performance and operational nature of the I-71/I-75 corridor. Building the entire Brent Spence Bridge Replacement/Rehabilitation project in one phase would shorten the amount of time the public is affected; however, available funds may not permit this approach. Further refinements in the staging of the work will develop details of the phasing and funding plans, as well as coordination with the larger I-75 corridor. The integration and coordination of all I-75 construction projects is recommended.

Regional Projects

The construction of the Brent Spence Bridge Replacement/Rehabilitation project will have implications on the Greater Cincinnati Region beyond the I-75 Improvement Program. The Greater Cincinnati Region interstate system (Figure 1) includes I-71, I-74, I-75, I-275, and I-471. I-71 and I-75 share the same alignment within Kentucky and split in the Cincinnati Central Business District (CBD) in Ohio running north/south. I-74 from Indiana connects to I-75 just north of the Brent Spence Bridge project limits. I-471 connects I-71 to I-275 running just east of the Cincinnati CBD across the Ohio River along the east side of the City of Newport in Kentucky. I-275 is the longest looped expressway in the United States at 84 miles traveling through three adjacent states.

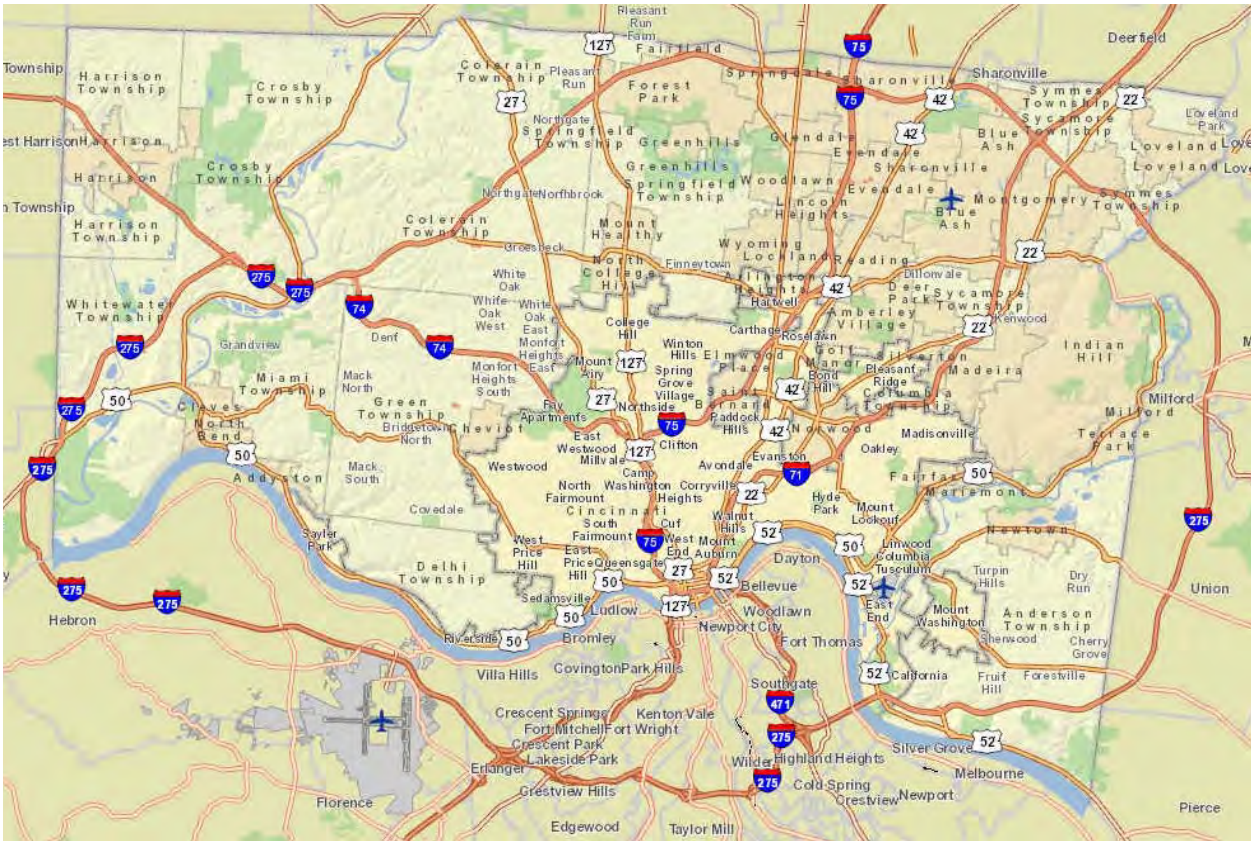


Figure 1: Greater Cincinnati Regional Map

During construction of the Brent Spence Bridge Replacement/Rehabilitation project, I-275 and I-471 will be utilized as the primary MOT detour routes for interstate traffic.

There are several local projects either scheduled for construction or under consideration for construction, which can provide additional MOT relief. Many of these projects are located in Kentucky and will provide alternative travel routes for local commuters. It is anticipated that these alternative routes will then provide more space on the interstate systems for regional and national through traffic.

Kentucky Six Year Plan Projects

The Commonwealth of Kentucky has several projects that if constructed, would help with MOT operations during the construction of the Brent Spence Bridge Replacement/Rehabilitation project. These involve routes I-471 in Campbell County; KY 8 in Newport; KY 9 in Newport; and KY 4th Street in Covington. These routes could be used as important congestion relief routes during construction.

I-471 & KY 8 Project

The Kentucky Transportation Cabinet (KYTC) has two projects on I-471 between the Ohio River and I-275, which include adding an additional travel lane between the Ohio River and Memorial Parkway, and widening the ramp from southbound I-471 to westbound I-275. The first is a pavement rehabilitation project in which the pavement will be removed and replaced full width in both the northbound and southbound directions. The second project is a reconstruction/realignment of the southbound I-471 exit ramp to KY 8 which includes an additional lane to Memorial Parkway. Currently, the pavement rehabilitation project is scheduled to begin before the KY 8 exit ramp project. It is recommended that KYTC widen I-471 in both the north and south directions as part of their pavement rehabilitation project. This widening recommendation is included in the southbound I-471 exit ramp to KY 8 project's initial Phase 1 design. As part of the I-471 pavement rehabilitation project, the ramp from southbound I-471 to westbound I-275 should be widened from one lane to two. This widening of I-471 and the ramp to I-275 will facilitate the diversion of I-71 traffic to I-471, lessening the traffic volumes in the Brent Spence Bridge project corridor.

KYTC's southbound I-471 exit ramp to KY 8 project was developed to reduce the congestion on southbound I-471, as traffic backs up across the Ohio River Bridge into Ohio because of the inadequate exit ramp to KY 8. This project will enhance capacity when I-71 is diverted to I-471 during the construction of the Brent Spence Bridge Corridor.

KY 9 Reconstruction Project

KYTC is designing the realignment/reconstruction of KY 9 from south of 11th Street to the Taylor-Southgate Bridge, including the connection to KY 8 (Veteran's Bridge) into Covington. This project provides a direct route between I-275 and Cincinnati without having to navigate through the City of Newport's city street grid. This route will have limited connections and traffic signals, enabling a lower travel time between I-275 and Cincinnati. It will also facilitate the movement of motorists to and from I-275 who desire to access Covington, helping to reduce the traffic volumes in the Brent Spence Bridge construction corridor. By constructing this route, KYTC will provide an efficient north-south alternate that can be used as an alternative route

during construction of the Brent Spence Bridge Corridor. In addition, it can be used to relieve traffic from the I-471 & KY 8 Project during its construction.

Fourth Street in Covington

KYTC has a Congestion Mitigation and Air Quality (CMAQ) project along KY 4th Street in Covington at the intersection with Philadelphia Street and the connections to I-75. The purpose of this project is to widen the connection of KY 4th Street to the I-75 ramps, allowing an enhanced capacity in order to reduce the congestion on KY 4th Street. In the PM peak hour, KY 4th Street traffic is congested from east of the Clay Wade Bailey Bridge to I-75. This is primarily due to the bottleneck where the three lanes of KY 4th Street are reduced to two lanes at the connection to the I-75 ramps. The project will eliminate this bottleneck by extending the third lane, and removing the forced left turn lane from KY 4th Street to Philadelphia Street. This will allow the fourth lane to provide additional capacity and also eliminate the forced weaving that currently exists at the KY 4th Street and Philadelphia Street intersection.

This project will increase the capacity of KY 4th Street and improve an important Ohio River crossing option that will be needed for the Brent Spence Bridge Corridor project's maintenance of traffic. An improved KY 4th Street will provide another option rather than the Brent Spence Bridge for motorists wishing to access west Covington and the cities of Park Hills, Ludlow, Bromley, and Villa Hills.

Potential Projects

Within the Commonwealth of Kentucky, there are three potential projects, which if constructed would add significant benefit during the Brent Spence Bridge Corridor construction and provide long term benefit to the local communities. These projects include the reconstruction of the Main Street/KY 4th Street intersection at the south end of the Clay Wade Bailey Bridge, Main Street Widening in Covington, and the Veterans Memorial Bridge over the Licking River. Each of these projects would provide improved access routes that could provide congestion relief routes during construction.

Main Street/Fourth Street intersection at the Clay Wade Bailey Bridge

Currently, the south end of the Clay Wade Bailey Bridge in Covington does not align well with Main Street. There is a center lane on the bridge that aligns with the northbound left turn lane on Main Street, rendering this center lane practically useless. The southbound Clay Wade Bailey predominate movement is a right turn onto westbound KY 4th Street. In the PM peak hour, traffic backs up across the bridge into Ohio because the right turn traffic blocks the through lane.

In conjunction with KYTC's current CMAQ project on KY 4th Street described above, it is recommended that KYTC consider reconfiguring this intersection to provide dual right turn lanes from the bridge onto KY 4th Street, at least temporarily during the Brent Spence Bridge Corridor projects' duration. This would help reduce travel time and congestion, making the Clay Wade Bailey Bridge a more convenient alternate route for those traveling south into Covington and Newport, as well as cities beyond.

Main Street Widening in Covington

In an effort to increase capacity and improve the utilization of the Clay Wade Bailey Bridge, the Central Area Loop Study for Covington discussed modifying Main Street between KY 5th Street

and KY 4th Street. It is recommended that the northwest radius at KY 5th Street and Main Street be modified to accommodate dual left turns from KY 5th Street onto Main Street northbound. It is also recommended that the eastern column on the railroad bridge bent south of KY 4th Street be relocated to allow two through lanes onto the Clay Wade Bailey Bridge into Cincinnati.

Upgrading this section of Main Street would increase the capacity of northbound Main Street by allowing two through lanes onto the Clay Wade Bailey Bridge. This would allow the bridge to provide an efficient alternate route during MOT operations the construction of the Brent Spence Bridge Corridor.

Veterans Memorial Bridge over the Licking River

Both the City of Newport and the City of Covington have requested that KYTC replace the Veterans Memorial Bridge. This three lane bridge is aligned with KY 4th Street in Covington, which is one way west except for the block between Garrard Street and the bridge. Eastbound KY 5th Street traffic has to make turns at both the Garrard Street intersections and at KY 4th Street to access the bridge. This imposes unnecessary delays and congestion on the local road network. In Newport, a yoke is used to direct traffic to the one-way street grid. The use of a yoke in Covington would be problematic due to the historic properties located within the area that would be impacted by construction of a yoke.

Both cities would like the bridge replaced in a manner that would provide seamless connections to their one-way street grids. The major problem involves a historic property at the intersection of KY 5th and Garrard streets, preventing a direct route to Newport.

During construction, alternate routes include the Ohio River bridges into Newport and Covington, as well as a reconstructed KY 9 connecting I-275 and Cincinnati. Improving the Veterans Memorial Bridge connection will reduce travel time and congestion between these cities, making them a more attractive alternate route for I-275 motorists, as well as those traveling between the west and east sides of the region.

Construction Staging Areas

Due to the size and scope of the Brent Spence Bridge Replacement/Rehabilitation project, it will be necessary to establish construction staging areas for the contractors' materials and equipment. Failure to accommodate staging areas will result in increased project costs due to the delays for the contractor in hauling equipment and materials from an off-site location. It is recommended that the staging areas be established in both Ohio and Kentucky to the extent possible. Potential staging areas have been identified in both Kentucky and Ohio.

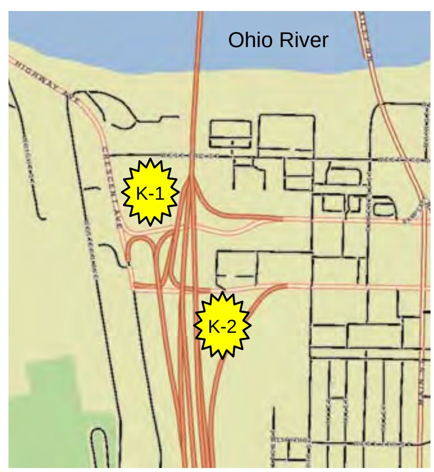


Figure 2: Kentucky Staging Areas

In Kentucky, there are two convenient and inexpensive staging areas (Figure 2). The first is located at the southeast quadrant of KY 3rd Street and Crescent Avenue (K-1). The properties which contain existing buildings will need to be acquired and demolished as part of the project. Since these properties will be acquired, they can be used as a

construction staging area. The new Ohio River bridge/approach structures will be constructed overhead, leaving the at-grade area available for staging. This area is easily accessible from both I-75 and the city street grid of Covington. A second staging area is located at the southeast quadrant of KY 5th Street and I-71/I-75, west of the KY 5th Street exit ramp (K-2). It is approximately 2.5 acres in size. This area is within the existing right of way and is available to be used until the final phase of construction. The KY 5th Street ramp will be removed and relocated during the final construction phase. The KY 5th Street ramp could be relocated in an earlier phase thus allowing this staging area to remain in use during the entire project.

In Ohio, locating staging areas is more complicated due to the development adjacent to the I-75 corridor. Four possible staging areas were identified, one on the east side of the I-75 corridor and the three on the west side. The most convenient site for a construction staging area is along the river adjacent to the existing Brent Spence Bridge (O-1). Area O-1 is east of the existing bridge and contains the material yard for an existing, viable concrete plant. Even thought this location is convenient, it is not considered an advantageous option due to the potential of contractors utilizing the concrete plant during construction. West of the bridge has an existing and proposed Duke Energy substation, historic Longworth Hall property, and a coal yard. The best options for a staging area are on the west side of I-75.

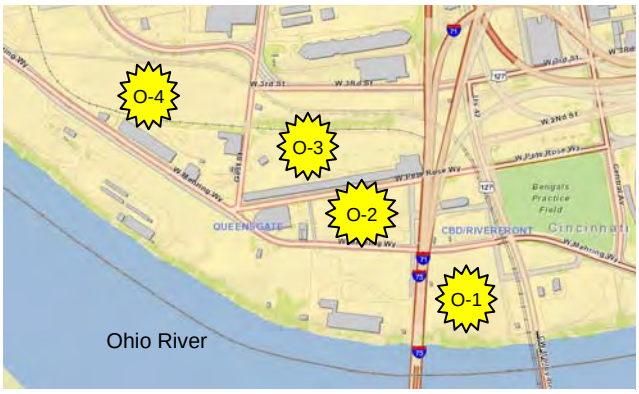


Figure 3: Ohio Staging Areas

They include:

1) A parking lot between Mehring Way and Pete Rose Way (O-2). This property is owned by Duke Energy.
2) The northern portion of the Longworth Hall parking lot that lies outside the historic district (O-3).
3) A vacant lot in the southwest quadrant of Linn Street and Gest Street (O-4).

Portions of sites O-2 and O-3 will be acquired for the Brent Spence Bridge Replacement/Rehabilitation project. The remaining areas of O-2 and O-3 along with O-4 will not be acquired. These parcels would need to be acquired separately as a temporary easement. This would increase the project costs but is necessary to avoid higher construction costs that would result if the contractor has to haul in equipment and materials from a more remote location. Each of the three sites has excellent access from the City of Cincinnati street grid, as well as from Kentucky utilizing the Clay Wade Bailey Bridge and OH 3rd Street in Cincinnati. Areas O-3 and O-4 also have rail access.

Brent Spence Bridge Construction/MOT Phasing Plan

For the purpose of this maintenance of traffic analysis, the project was divided into four primary construction phases. Each phase is interdependent across both the Commonwealth of Kentucky and the State of Ohio. This assumes that both states will commence construction in

reasonably the same time period. The construction between Kentucky 12th Street and Ohio 9th Street must be interdependent as the construction of the New Ohio River Bridge and approach structures are dependent on each other for MOT. The construction south of Kentucky 12th street and north of Ohio 9th Street can be done independent of the middle section; however, lane continuity will be a critical concern if they are constructed independent of the rest of the project.

Construction Phase Durations

The timeframe to construct each phase of the project will be influenced by many factors. These factors include, but are not limited to the following:

1) Maintenance of Traffic requirements
2) Weather, including Ohio River elevation
3) Available labor, equipment, and material resources
4) Work area constraints, including access and storage areas
5) Volume of traffic
6) Political directives, including allowable work hours
7) Number of construction contracts, including design-build
8) Pavement type

For the purpose of this maintenance of traffic analysis, standard practice construction methods and durations for the above mentioned factors were utilized, unless noted otherwise.

Maintenance of Traffic Phasing

The Brent Spence Bridge Replacement/Rehabilitation project MOT phasing is divided into four primary construction phases with Phase 2 containing a sub phase. Ramp status by each phase is included in Attachment A.

Phases 1 and 2

Phases 1 and 2 are combined due to the extensive time it will require to construct the new bridge over the Ohio River. The new bridge, depending upon the type selected, will require 2.5-3.5 years to construct. This estimate is based upon past experiences with similar long structures over major rivers.

The remaining work identified in phases 1 and 2 includes construction of roadway and structures primarily on the west side of the I-75 corridor, though some construction can commence on the east side if the contractor desires. During these phases, the primary construction focus is on the structures/roadway widening along southbound I-75 in Covington and Cincinnati. It also includes the significant widening along southbound I-75 in Kentucky between Kyles Lane and KY 12th Street (known locally as the “Cut-in-the-Hill”).

During Phase 1, the southbound I-71/I-75 exit ramp to KY 5th Street will be closed along with the KY 4th Street ramp to I-71/I-75. Access to the KY 5th Street ramp will be restored during Phase 2B. The connection from KY 4th Street to southbound I-71/I-75 will be restored during Phase 2 by utilizing the new local frontage road connected to the entrance ramp at KY 12th Street.

During Phase 1, the I-71 and US 50 traffic links with I-75 will remain in place. During Phase 2, the I-71 traffic links will remain in place with I-75; however, the US 50 links with I-71 and I-75 will be closed. To maintain the US 50 links with I-71 and I-75 as long as possible, a MOT sub phase (Phase 2B) has been incorporated into Phase 2. Phase 2B involves the removal of the west bridge abutments of the overpass structures for OH 5th Street and OH 6th Street located along the west side of the I-75 corridor that are in the way of completing roadway pavement required for Phase 3 MOT operations. A temporary crossover in Ohio will be constructed during Phase 2B to replace the Kentucky Pike Street exit from I-75 southbound. The temporary crossover will provide access from I-75 southbound to the new KY 5th Street and KY 9th/Pike Streets exit ramps.

During Phase 1 and 2, the I-75 southbound ramp to OH 5th Street will remain open during the closure of the I-75 southbound ramp to OH 7th Street. During all phases, either the southbound OH 5th Street ramp or the OH 7th Street ramp will be maintained.

The reconstruction of the Linn Street and Ezzard Charles Drive overpasses needed to be coordinated with the reconstruction of the Freeman Avenue Interchange. During Phase 1, both the Linn Street and Ezzard Charles Drive overpasses will be constructed while maintaining traffic at the Freeman Avenue interchange. Upon completion of these two overpasses, Linn Street and Ezzard Charles Drive will be the detour route during the closure of the Freeman Avenue interchange. During Phase 1, the OH 7th Street and OH 9th Street viaducts reconstruction should follow the Linn Street overpass reconstruction to maintain a detour route across I-75.

The Western Hills Viaduct Interchange construction cannot begin until the Hopple Street Interchange is complete. The Hopple Street Interchange is the next adjacent interchange to the north which will be reconstructed as part of the Mill Creek Expressway Project.

Phases 1 and 2 combined will require approximately 3.5 years. During Phase 1, there is approximately 804,000 square feet (s.f.) of structures and 2,781,000 s.f. of roadway to be constructed. During Phase 2 (including Phase 2B), there is approximately 202,000 s.f. of structures and 3,732,000 s.f. of roadway to be constructed. The structure quantities for Phases 1 and 2 do not include the new Ohio River Bridge quantities. The critical path item during Phase 1 and 2 is the construction of the new bridge over the Ohio River. The remaining structures and roadway construction can be accomplished with significant float during the 3.5 years to minimize disruptions to traffic.

Phase 3

In Phase 3, the southbound I-75 traffic will be diverted to the new widening on the west side of the I-75 corridor and the lower deck of the new bridge over the Ohio River. In addition, the new structures north of US 50/OH 6th Street will have been completed and will be open to traffic, including the critical connection at OH 7th Street. This allows the US 50/OH 6th Street viaduct to be closed, as well as the closure of southbound access to Fort Washington Way. The southbound I-71 movement from FWW/OH 3rd Street to southbound I-75 will be closed. Southbound I-71 traffic will be detoured to southbound I-471. The northbound I-71 connection to FWW/OH 2nd Street will remain open. This maintenance of traffic plan opens a large work area between the relocated southbound I-75 and the existing northbound I-75 in both Ohio and Kentucky.

In Phase 3, the I-75 southbound ramps to KY 5th, KY 9th, and Pike streets will be open. The northbound access from I-71/I-75 to Covington will be maintainened.

A significant amount of structures work will be completed in Phase 3. This includes the following structures:

1) Center portion of I-75 over Orchard Drive
2) Center portion of I-75 over Rivard Drive
3) SB portion of I-75 between KY 12th Street and Pike Street
4) SB portion of I-75 over KY 9th Street
5) Remainder of approaches to the new Ohio River bridge
6) I-71 to US 50
7) Fort Washington Way to US 50
8) SB I-75 to OH 5th Street
9) US 50 to OH 5th Street
10) Northern portion of SB 75 to FWW
11) Northern portion of SB I-75 to OH 2nd Street
12) Northern portion of US 50 to FWW
13) Northern portion of US 50 to OH 2nd Street
14) I-75 NB and SB approaches
15) SB I-75 to Clay Wade Bailey Bridge
16) Clay Wade Bailey Bridge to NB I-75
17) FWW to SB I-75
18) Oh 3rd Street to SB I-75
19) US 50 to FWW
20) OH 6th Street viaduct

In addition to the structures work, there will be a substantial amount of grade work including the reconstruction of the center of I-75 throughout the corridor in both Kentucky and Ohio. Reconstruction of the Western Hills Viaduct is anticipated to begin in this phase. In total, there are approximately 731,000 s.f. of structures work and 2,964,000 s.f. of grade work to be completed in Phase 3. Using accelerated construction rates experienced on other projects, Phase 3 will be completed within approximately 2.0 years.

Phase 4

The final phase of construction occurs with both northbound and southbound I-75 traffic utilizing the new Ohio River Bridge. The remaining work is located on the east side of the I-75 corridor. Phase 4 includes all structures work located east of the existing I-75 centerline, as well as the remaining work at the Western Hills Viaduct. Rehabilitation of the existing Brent Spence Bridge and the construction of the associated bridge approaches will be performed during this phase. The northbound I-71 connection to FWW/OH 2nd Street will be closed and all I-71 traffic will be detoured to I-471.

In Phase 4, Covington access from KY 4th and Pike streets to northbound I-71/I-75 will be closed due to the rehabilitation of the existing Brent Spence Bridge and associated construction. The Clay Wade Bailey Bridge will become the primary access route for motorist to gain access to I-71 and I-75 northbound. Access to I-71 northbound will be via OH 2nd Street. Access to I-

75 northbound will be via a new temporary ramp connection at the intersection of OH 3rd Street and Clay Wade Bailey Bridge. The new temporary ramp connection will provide a direct ramp connection to I-75 northbound. During Phase 4, a new temporary ramp connection from I-75 southbound to the OH 3rd Street and Clay Wade Bailey Bridge intersection will also utilized to provide access to the Cincinnati riverfront area and to the City of Covington.

There are approximately 1,079,000 s.f. of structures and 1,321,000 s.f. of roadway to be constructed in this final phase. Phase 4 will be completed within approximately 2.5 years.

Summary

The total duration for the I-75 corridor reconstruction is estimated to be eight years, utilizing standard practice construction methods and durations. The actual duration will be influenced by the factors previously listed. Expedited construction techniques can be utilized to minimize the durations for each phase and roadway closures. Once final design is completed, including the size and type of the various structures, a refined construction duration estimate will be determined utilizing a more detailed critical path schedule. It is also recommended that contractor input be obtained to assist in identifying areas where the design can be modified to improve construction efficiencies. A summary of construction durations and quantities are listed in the table below.

Construction Durations

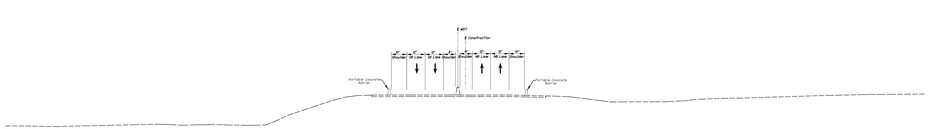
Phase	Years	Quantities Per Phase	
		Structures (s.f.)	Roadway (s.f.)
Phases 1 and 2	3.5 years	1,006,000	6,513,000
Phase 3	2.0 years	731,000	2,964,000
Phase 4	2.5 years	1,079,000	1,321,000
Total	**8.0 years**	**2,816,000**	**10,798,000**


NOTE: Half Width Construction (Bridge and Approaches)
NOTE: Half Width Construction (Bridge and Approaches)
Possible Short Term Ramp Closures.
MATCH LINE STATION 520+00
DIXIE HIGHWAY
MAPLE AVENUE
FORT MITCHELL AVENUE
ORCHARD ROAD
RIDGE ROAD
FORTSIDE DRIVE
RIVARD DR
HIGHVIEW DRIVE
KENNEDY ROAD
PIECK DRIVE
KYLES LANE
SECTION A-A
SECTION B-B
SECTION C-C
SECTION D-D
SECTION E-E
SECTION F-F
SECTION G-G
SECTION H-H
LEGEND
CONSTRUCTION AVAILABLE THIS PHASE
CONSTRUCTION CRITICAL FOR NEXT PHASE
PERMANENT BRIDGE
PERMANENT ROADWAY
TEMPORARY BRIDGE
ROAD / RAMP CLOSED
TRAFFIC MAINTAINED / DIRECTION OF TRAFFIC
CONSTRUCTION COMPLETE
HORIZONTAL SCALE IN FEET

HAM-71/75-0.00--0.22 | PID NO. 75119 | CONSTRUCTION STAGE 1 - TRAFFIC PHASE 1


SECTION L-L
SECTION O-O
SECTION K-K
SECTION J-J
SECTION I-I
SECTION N-N
SECTION M-M
SECTION P-P
WESTERN AVENUE
CRESCENT AVENUE
HIGHWAY AVENUE
BRENT SPENCE BRIDGE
GEST STREET
LINN STREET
COURT STREET
CENTRAL AVENUE
MEHRING WAY
PETE ROSE WAY
LEGEND
CONSTRUCTION AVAILABLE THIS PHASE
CONSTRUCTION CRITICAL FOR NEXT PHASE
PERMANENT BRIDGE
PERMANENT ROADWAY
TEMPORARY BRIDGE
ROAD / RAMP CLOSED
TRAFFIC MAINTAINED / DIRECTION OF TRAFFIC
CONSTRUCTION COMPLETE
HORIZONTAL SCALE IN FEET

HAM-71/75-0.00--0.22 | PID NO. 75119 | CONSTRUCTION STAGE 1 - TRAFFIC PHASE 1



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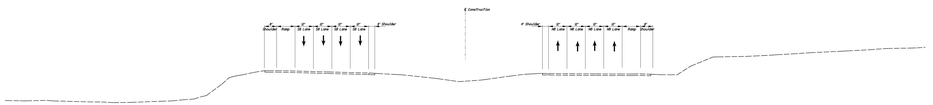
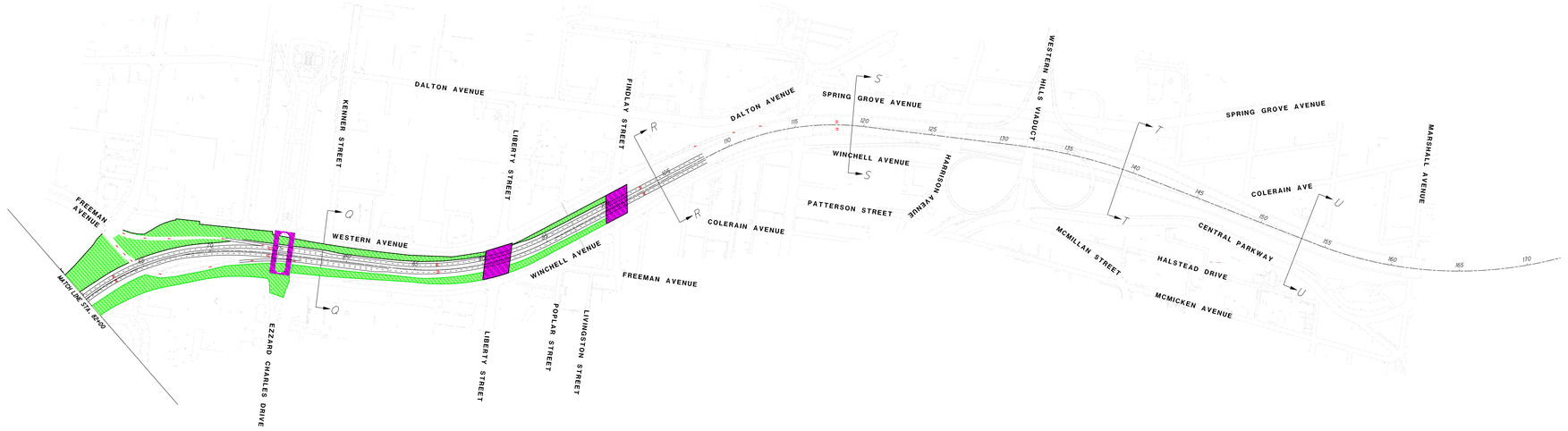
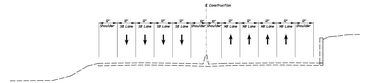


SECTION T-T





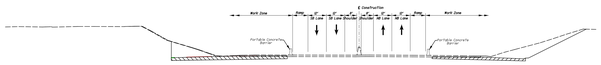
SECTION U-U

LEGEND		
	CONSTRUCTION AVAILABLE THIS PHASE	CONSTRUCTION CRITICAL FOR NEXT PHASE
PERMANENT BRIDGE		
PERMANENT ROADWAY		
TEMPORARY BRIDGE		

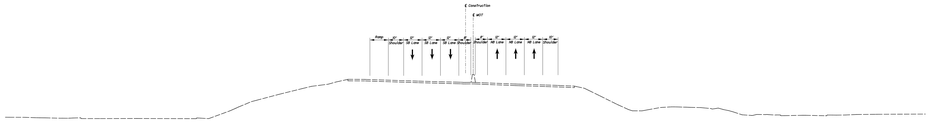
ROAD / RAMP CLOSED X X

TRAFFIC MAINTAINED / DIRECTION OF TRAFFIC →

CONSTRUCTION COMPLETE



SECTION Q-Q



SECTION S-S

HAM-71/75-0.00--0.22	PID NO. 75119	CONSTRUCTION STAGE 1 - TRAFFIC PHASE 1	0 100 200 HORIZONTAL SCALE IN FEET	N

LEGEND		
	CONSTRUCTION AVAILABLE THIS PHASE	CONSTRUCTION CRITICAL FOR NEXT PHASE
PERMANENT BRIDGE		
PERMANENT ROADWAY		
TEMPORARY BRIDGE		

ROAD / RAMP CLOSED X X

TRAFFIC MAINTAINED / DIRECTION OF TRAFFIC →

CONSTRUCTION COMPLETE

HAM-71/75-0.00--0.22	PID NO. 75119	CONSTRUCTION STAGE 1 - TRAFFIC PHASE 2	0 200 400 HORIZONTAL SCALE IN FEET	N

LEGEND		
	CONSTRUCTION AVAILABLE THIS PHASE	CONSTRUCTION CRITICAL FOR NEXT PHASE
PERMANENT BRIDGE		
PERMANENT ROADWAY		
TEMPORARY BRIDGE		

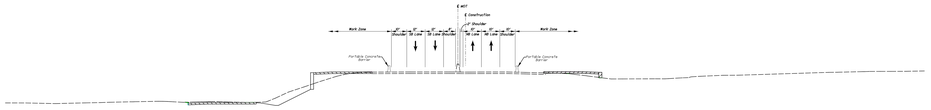
ROAD / RAMP CLOSED X X

TRAFFIC MAINTAINED / DIRECTION OF TRAFFIC

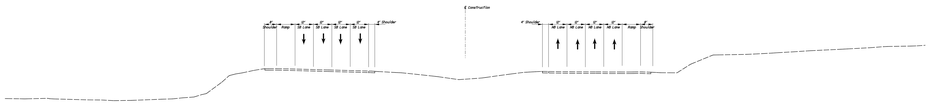
CONSTRUCTION COMPLETE

HAM-71/75-0.00--0.22 | PID NO. 75119 | CONSTRUCTION STAGE 1 - TRAFFIC PHASE 2

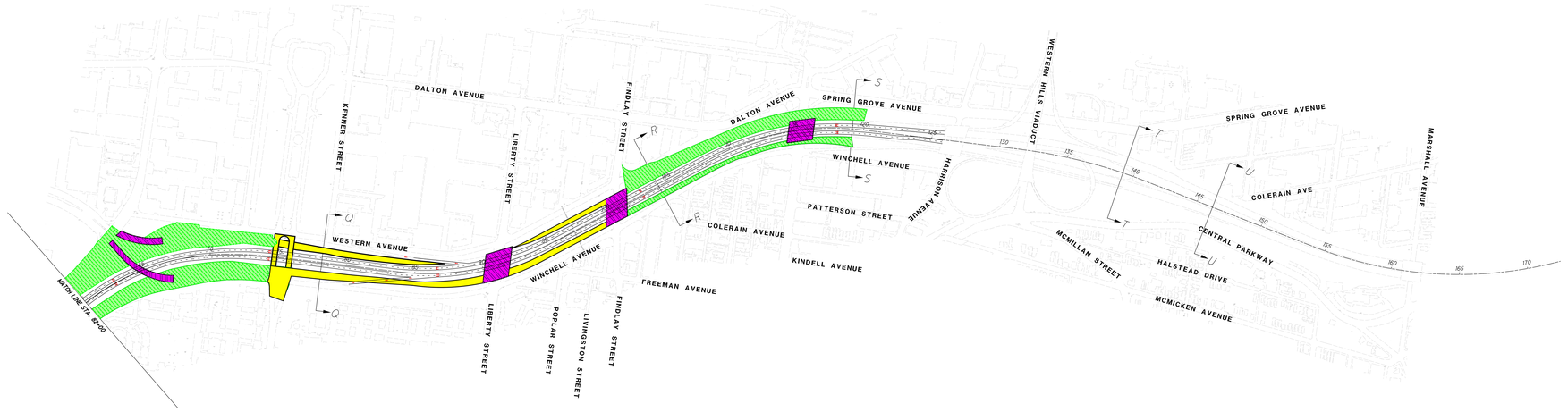
HORIZONTAL SCALE IN FEET (0, 100, 200, 400)

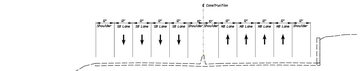


SECTION R-R

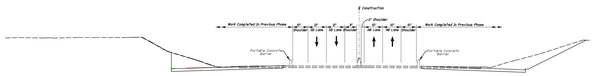


SECTION T-T

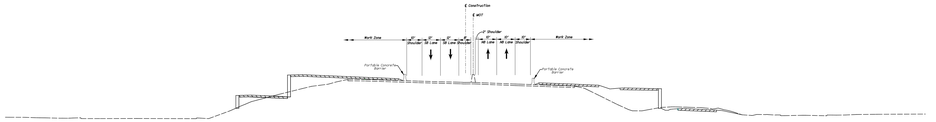




SECTION U-U



SECTION Q-Q



SECTION S-S

LEGEND		
	CONSTRUCTION AVAILABLE THIS PHASE	CONSTRUCTION CRITICAL FOR NEXT PHASE
PERMANENT BRIDGE		
PERMANENT ROADWAY		
TEMPORARY BRIDGE		

ROAD / RAMP CLOSED X X

TRAFFIC MAINTAINED / DIRECTION OF TRAFFIC →

CONSTRUCTION COMPLETE

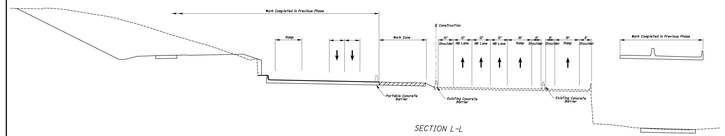
HAM-71/75-0.00--0.22	PID NO. 75119	CONSTRUCTION STAGE 1 - TRAFFIC PHASE 2	0 200 400 HORIZONTAL SCALE IN FEET	N


SECTION L-L
SECTION K-K
SECTION O-O
SECTION J-J
SECTION I-I
SECTION N-N
SECTION M-M
SECTION P-P
WESTERN AVENUE
CRESCENT AVENUE
HIGHWAY AVENUE
W 11th STREET
12th STREET
PIKE STREET
9th STREET
5th STREET
4th STREET
3rd STREET
BRENT SPENCE BRIDGE
MEHRING WAY
PETE ROSE WAY
GEST STREET
LINN STREET
8th STREET
5th STREET W
COURT STREET
CENTRAL AVENUE
2nd STREET
6th STREET
7th STREET
MATCH LINE STA. 520+00
MAINTAIN ONE LANE RAMP FROM I-71/FWW AND 4TH STREET DURING PHASE 2
RAMP CLOSED TO NORTHBOUND 75 AFTER 9TH STREET RAMP IS OPENED
SCHEDULE CLOSURE OF 5TH STREET WITH 7TH STREET OPENING
LEGEND
CONSTRUCTION AVAILABLE THIS PHASE
CONSTRUCTION CRITICAL FOR NEXT PHASE
PERMANENT BRIDGE
PERMANENT ROADWAY
TEMPORARY BRIDGE
ROAD / RAMP CLOSED
TRAFFIC MAINTAINED / DIRECTION OF TRAFFIC
CONSTRUCTION COMPLETE
HORIZONTAL SCALE IN FEET

HAM-71/75-0.00--0.22	PID NO. 75119	CONSTRUCTION STAGE 1 - TRAFFIC PHASE 2B

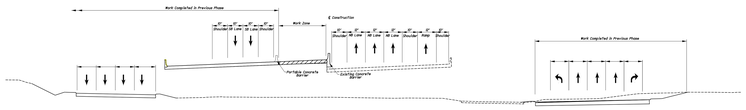

MATCH LINE STATION 520+00
DIXIE HIGHWAY
RIDGE ROAD
FORTSIDE DRIVE
MAPLE AVENUE
FORT MITCHELL AVENUE
ORCHARD ROAD
RIVARD DR
HIGHVIEW DRIVE
KENNEDY ROAD
PIECK DRIVE
KYLES LANE
SECTION A-A
SECTION B-B
SECTION C-C
SECTION D-D
SECTION E-E
SECTION F-F
SECTION G-G
SECTION H-H
LEGEND
CONSTRUCTION AVAILABLE THIS PHASE
CONSTRUCTION CRITICAL FOR NEXT PHASE
PERMANENT BRIDGE
PERMANENT ROADWAY
TEMPORARY BRIDGE
ROAD / RAMP CLOSED
TRAFFIC MAINTAINED / DIRECTION OF TRAFFIC
CONSTRUCTION COMPLETE
HORIZONTAL SCALE IN FEET

HAM-71/75-0.00--0.22	PID NO. 75119	CONSTRUCTION STAGE 1 - TRAFFIC PHASE 3

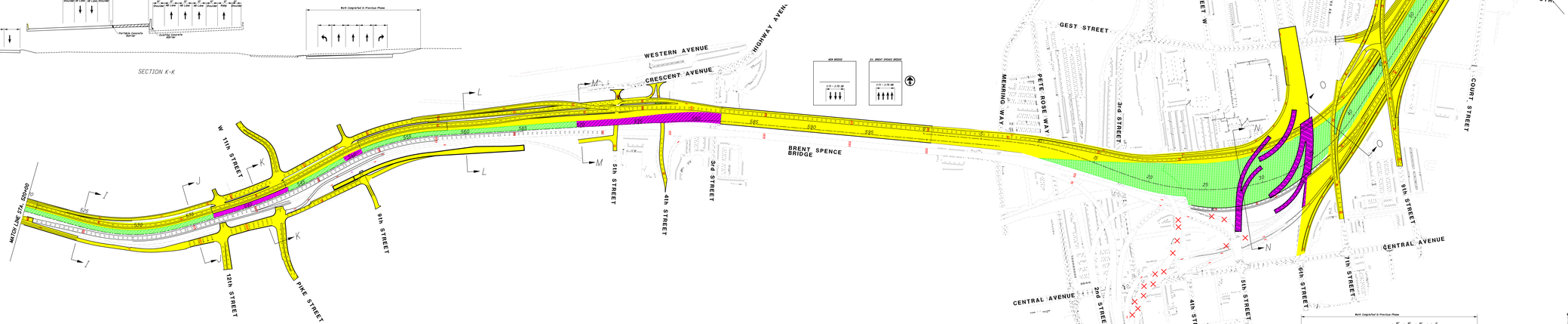


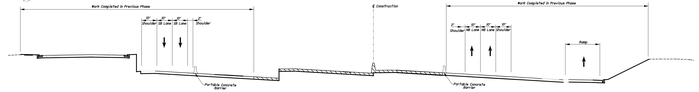
SECTION L-L

SECTION O-O

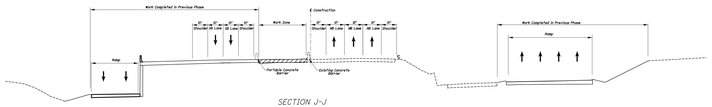


SECTION K-K





SECTION P-P



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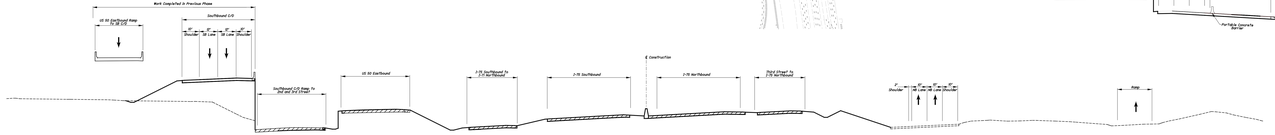
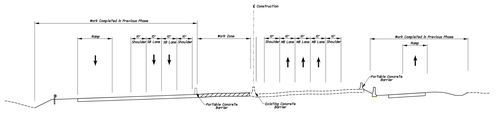
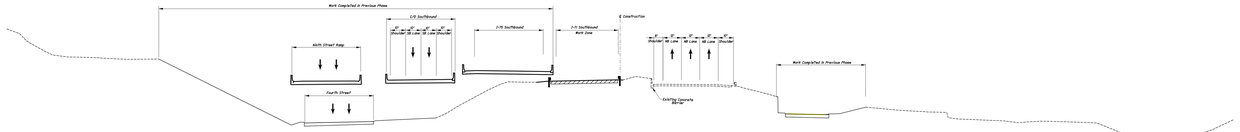


SECTION N-N



SECTION I-I



SECTION M-M

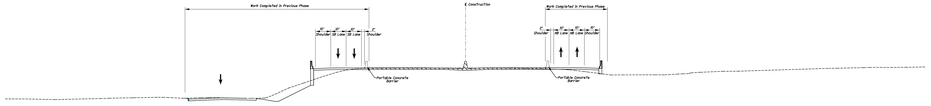
LEGEND		
	CONSTRUCTION AVAILABLE THIS PHASE	CONSTRUCTION CRITICAL FOR NEXT PHASE
PERMANENT BRIDGE		
PERMANENT ROADWAY		
TEMPORARY BRIDGE		

ROAD / RAMP CLOSED X X

TRAFFIC MAINTAINED / DIRECTION OF TRAFFIC →

CONSTRUCTION COMPLETE

HAM-71/75-0.00--0.22	PID NO. 75119	CONSTRUCTION STAGE 1 - TRAFFIC PHASE 3	0 200 400 HORIZONTAL SCALE IN FEET	N



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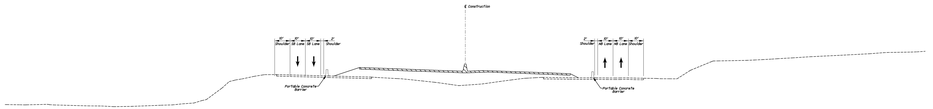
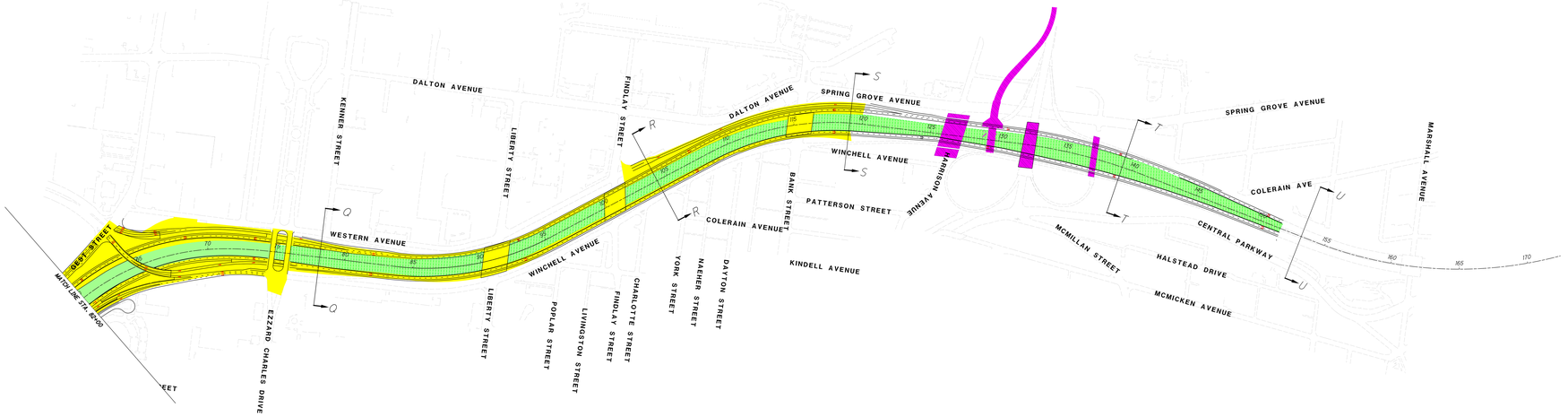
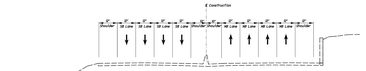
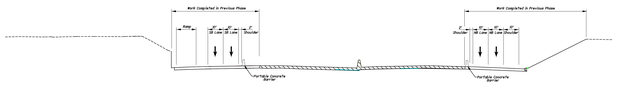


SECTION T-T

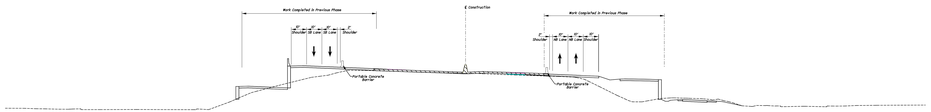




SECTION U-U



SECTION Q-Q



SECTION S-S

LEGEND		
	CONSTRUCTION AVAILABLE THIS PHASE	CONSTRUCTION CRITICAL FOR NEXT PHASE
PERMANENT BRIDGE		
PERMANENT ROADWAY		
TEMPORARY BRIDGE		

ROAD / RAMP CLOSED X X

TRAFFIC MAINTAINED / DIRECTION OF TRAFFIC →

CONSTRUCTION COMPLETE

HAM-71/75-0.00--0.22	PID NO. 75119	CONSTRUCTION STAGE 1 - TRAFFIC PHASE 3	0 200 400 HORIZONTAL SCALE IN FEET	N

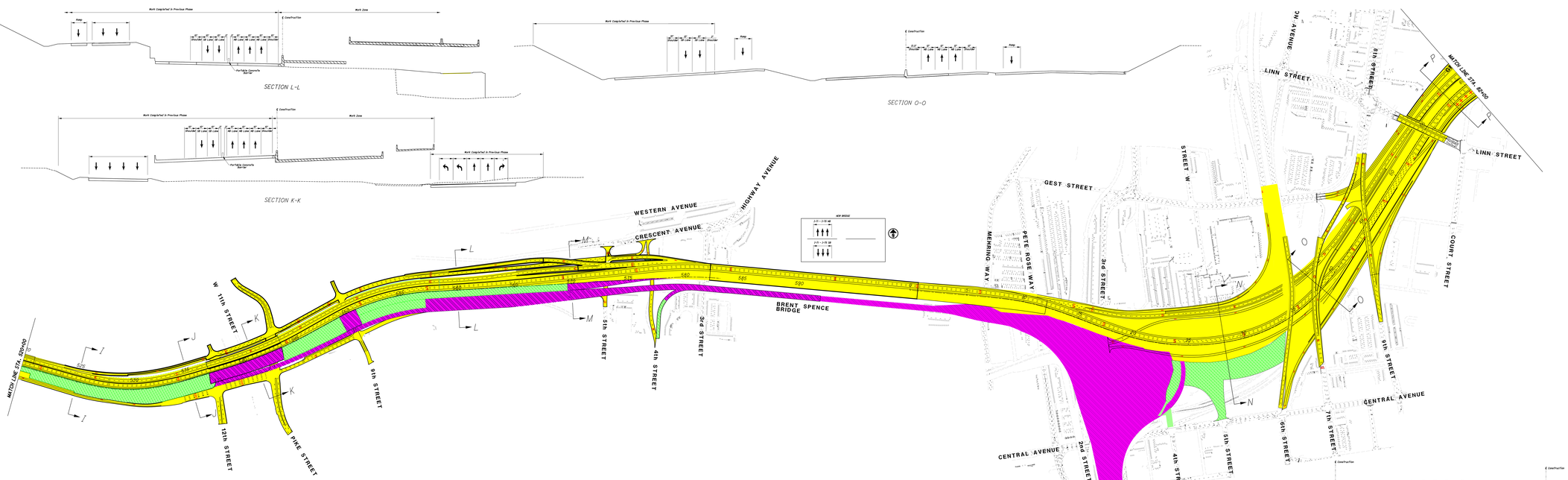
LEGEND		
	CONSTRUCTION AVAILABLE THIS PHASE	CONSTRUCTION CRITICAL FOR NEXT PHASE
PERMANENT BRIDGE		
PERMANENT ROADWAY		
TEMPORARY BRIDGE		

ROAD / RAMP CLOSED X X

TRAFFIC MAINTAINED / DIRECTION OF TRAFFIC

CONSTRUCTION COMPLETE

HAM-71/75-0.00--0.22	PID NO. 75119	CONSTRUCTION STAGE 1 - TRAFFIC PHASE 4	0 100 200 400 HORIZONTAL SCALE IN FEET



LEGEND		
	CONSTRUCTION AVAILABLE THIS PHASE	CONSTRUCTION CRITICAL FOR NEXT PHASE
PERMANENT BRIDGE		
PERMANENT ROADWAY		
TEMPORARY BRIDGE		

ROAD / RAMP CLOSED X X

TRAFFIC MAINTAINED / DIRECTION OF TRAFFIC →

CONSTRUCTION COMPLETE

HAM-71/75-0.00--0.22	PID NO. 75119	CONSTRUCTION STAGE 1 - TRAFFIC PHASE 4	0 200 400 HORIZONTAL SCALE IN FEET

LEGEND

	CONSTRUCTION AVAILABLE THIS PHASE	CONSTRUCTION CRITICAL FOR NEXT PHASE
PERMANENT BRIDGE		
PERMANENT ROADWAY		
TEMPORARY BRIDGE		

ROAD / RAMP CLOSED

TRAFFIC MAINTAINED / DIRECTION OF TRAFFIC

CONSTRUCTION COMPLETE

HAM-71/75-0.00--0.22	PID NO. 75119	CONSTRUCTION STAGE 1 - TRAFFIC PHASE 4	HORIZONTAL SCALE IN FEET

Appendix I
Cost Estimate

Project Costs - Construction, Right of Way and Utilities (in millions)

		ALTERNATIVE E								ALTERNATIVE I							
		Construction								Construction							
Construction Contract #	Segment Description	Today's Cost with 25% Contingency	Mid-Year of Construction	Inflation Rate[1]	Inflation Costs	Total Const.	Right-of-Way with Inflation	Utilities with Inflation	Combined Construction, Right of Way and Utilities Total	Today's Cost with 25% Contingency	Mid-Year of Construction	Inflation Rate[1]	Inflation Costs	Total Const.	Right-of-Way with Inflation	Utilities with Inflation	Combined Construction, Right of Way and Utilities Total
KY-2	Kyles Lane Bridge Replacement	$7.2	7/16/18	46.50%	$3.4	$10.6	$0.0	$0.0	$10.6	$7.2	7/16/18	46.50%	$3.4	$10.6	$0.0	$0.0	$10.6
KY-3	Dixie Highway Bridge Replacement	$7.8	1/15/16	29.70%	$2.3	$10.1	$0.0	$0.0	$10.1	$7.8	1/15/16	29.70%	$2.3	$10.1	$0.0	$0.0	$10.1
KY-5	I-75 Reconstruction from Mile Point 187.2 to Mile Point 189.5	$71.5	1/14/20	57.60%	$41.2	$112.7	$5.5	$0.0	$118.2	$71.5	1/14/20	57.60%	$41.2	$112.7	$5.5	$0.0	$118.2
KY-6	I-75 Reconstruction from Mile Point 189.5 to the South Termini of the 12th Street Interchange	$33.2	7/16/19	53.80%	$17.9	$51.1	$4.2	$0.0	$55.3	$33.2	7/16/19	53.80%	$17.9	$51.1	$4.2	$0.0	$55.3
KY-7	I-75 Reconstruction from the South Termini of 12th Street Interchange to the New Bridge over the Ohio River	$273.6	1/14/20	57.60%	$157.6	$431.2	$15.6	$0.0	$446.8	$242.5	1/14/20	57.60%	$139.7	$382.2	$10.5	$0.0	$392.7
OH-1	I-71/I-471 Ramp Modifications	$4.6	7/16/14	20.50%	$0.9	$5.5	$0.0	$0.0	$5.5	$4.6	7/16/14	20.50%	$0.9	$5.5	$0.0	$0.0	$5.5
OH-1A	I-71/I-471	$1.7	5/31/22	76.60%	$1.3	$3.0	$0.0	$0.0	$3.0	$1.7	5/31/22	76.60%	$1.3	$3.0	$0.0	$0.0	$3.0
OH-2	Linn Street Bridge Replacement and Gest Street reconstruction	$12.3	12/8/15	29.20%	$3.6	$15.9	$0.1	$0.8	$16.8	$10.8	12/8/15	29.20%	$3.1	$13.9	$0.02	$0.8	$14.7
OH-3	Ezzard Charles Drive Bridge Replacement; Western Avenue Reconstruction; Freeman Avenue Interchange Reconstruction; Winchell Street Reconstruction; and the Court Street Cul-de-sac, 9th St Entrance Ramp Construction	$23.3	7/16/16	32.90%	$7.6	$30.9	$0.03	$0.2	$31.1	$23.0	7/16/16	32.90%	$7.5	$30.5	$0.04	$0.2	$30.7
OH-4	7th/8th/9th Street Interchange, 6th St North Reconstruction	$40.6	7/16/16	32.90%	$13.3	$53.9	$7.8	$0.0	$61.7	$30.0	7/16/16	32.90%	$9.8	$39.8	$4.6	$0.0	$44.4
OH-5	Western Hills Viaduct Interchange Reconstruction from Findlay Street to the northern terminus of the corridor	$160.1	3/2/19	51.30%	$82.1	$242.2	$4.6	$0.2	$247.0	$84.9	3/2/19	51.30%	$43.5	$128.4	$1.3	$0.2	$129.9
OH-6	I-75 Reconstruction from North of Linn Street to Findlay Street	$24.8	1/15/20	57.60%	$14.3	$39.1	$0.0	$2.2	$41.3	$31.5	1/15/20	57.60%	$18.1	$49.6	$0.0	$2.2	$51.8
OH-7	I-75 Reconstruction from the New Bridge over the Ohio River to North of Linn Street	$411.5	1/14/20	57.60%	$237.0	$648.5	$13.4	$89.7	$751.6	$373.1	1/14/20	57.60%	$214.9	$588.0	$13.7	$89.7	$691.4
KY-4	New Ohio River Bridge - Alternative 1	$414.8	6/1/17	37.60%	$155.9	$570.7	$0.0	$0.0	$570.7	$414.8	6/1/17	37.60%	$155.9	$570.7	$0.0	$0.0	$570.7
	New Ohio River Bridge - Alternative 3	$474.2	1/1/18	41.00%	$194.4	$668.6	$0.0	$0.0	$668.6	$474.2	1/1/18	41.00%	$194.4	$668.6	$0.0	$0.0	$668.6
	New Ohio River Bridge - Alternative 6	$458.5	1/1/18	41.00%	$187.8	$646.3	$0.0	$0.0	$646.3	$458.5	1/1/18	41.00%	$187.8	$646.3	$0.0	$0.0	$646.3
KY-8	Rehabilitation of the Existing Brent Spence Bridge	$40.6	1/14/21	65.50%	$26.5	$67.1	$0.0	$0.0	$67.1	$40.6	1/14/21	65.50%	$26.5	$67.1	$0.0	$0.0	$67.1

1. Based on mid year of anticipated construction duration

Estimate Alt E KY cont 2

Estimated Cost: $7,209,761.51

Contingency: 46.50%

Estimated Total: $10,562,300.61

Base Date: 01/01/15

Spec Year: 10

Unit System: E

Work Type: GEN CONST: INVLVS 2 OR MOR MAJ WRK TYPE

Highway Type: 451

Urban/Rural Type: URBAN CLASS

Season: SUMMER

County: HAMILTON

Midpoint of Latitude:

Midpoint of Longitude:

District:

Federal/State Project Number:

Estimate Type: C1

Prepared by Parsons Brinckerhoff on 07/22/10

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
Group 0001: Pavement Removal					
0001	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	0.00	LS	$0.00000	$0.00
0343	202E23000 PAVEMENT REMOVED	2,373.00	SY	$8.00000	$18,984.00
				Total for Group 0001:	$18,984.00
Group 0002: Excavation - Rock					
0003	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1,104.00	CY	$30.00000	$33,120.00
				Total for Group 0002:	$33,120.00
Group 0003: Excavation - Soil					
0004	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0344	203E10000 EXCAVATION	9,936.00	CY	$8.00000	$79,488.00
				Total for Group 0003:	$79,488.00
Group 0004: Excavation - Hazardous					
0006	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
				Total for Group 0004:	$0.00
Group 0005: Fill - Embankment (includes wasting excess excavation)					
0007	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0345	203E20000 EMBANKMENT	11,040.00	CY	$6.00000	$66,240.00
				Total for Group 0005:	$66,240.00
Group 0006: Fill - Lime Modified Soil					
0010	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0346	205E10050 LIME STABILIZED EMBANKMENT	0.00	CY	$7.00000	$0.00
0347	205E10300 LIME	0.00	TON	$5.00000	$0.00
				Total for Group 0006:	$0.00
Group 0007: Fill - Borrow					
0011	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	0.00	CY	$8.00000	$0.00
				Total for Group 0007:	$0.00
Group 0008: Concrete Barrier					
0012	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0465	622E10060	0.00	FT	$110.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	CONCRETE BARRIER, SINGLE SLOPE, TYPE B				

Total for Group 0008: $0.00

Group 0009: Subgrade Treatment - Lime

0014	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0348	206E10000 LIME STABILIZED SUBGRADE	0.00	SY	$1.85000	$0.00
0349	206E10300 LIME	0.00	TON	$10.00000	$0.00
0350	206E11000 CURING COAT	0.00	SY	$1.00000	$0.00
0351	206E20000 TEST ROLLING	0.00	HOUR	$4.00000	$0.00

Total for Group 0009: $0.00

Group 0010: Subgrade Treatment - Cement

0016	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	3,309.00	SY	$2.50000	$8,272.50

Total for Group 0010: $8,272.50

Group 0011: Subgrade Treatment - Undercut & Backfill

0017	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00

Total for Group 0011: $0.00

Group 0012: Other Roadway Costs

0019	A-OC-RDWY OTHER COSTS, ROADWAY *Contingency*	0.00	LS	$0.00000	$0.00
0020	201E11000 CLEARING AND GRUBBING	0.00	LS	$856,500.00000	$0.00
0021	201E21800 TREE REMOVED, 18" SIZE	0.00	EACH	$250.00000	$0.00
0022	201E23000 TREE REMOVED, 30" SIZE	0.00	EACH	$405.00000	$0.00
0023	201E24800 TREE REMOVED, 48" SIZE	0.00	EACH	$772.00000	$0.00
0026	202E11000 STRUCTURE REMOVED	0.00	LS	$9,310.13000	$0.00
0028	202E35200 PIPE REMOVED, OVER 24"	0.00	FT		$0.00
0029	202E38000 GUARDRAIL REMOVED	0.00	FT		$0.00
0030	202E42206 ANCHOR ASSEMBLY REMOVED	0.00	EACH		$0.00
0031	202E58000 MANHOLE REMOVED	0.00	EACH		$0.00
0032	202E58100 CATCH BASIN REMOVED	0.00	EACH		$0.00
0033	202E75000 FENCE REMOVED	0.00	FT		$0.00
0034	204E45000	0.00	HOUR	$126.59000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	PROOF ROLLING				
0035	204E10000 SUBGRADE COMPACTION	0.00	SY	$0.81000	$0.00
0036	451E30000 SPECIAL - PRESSURE RELIEF JOINT, TYPE A	0.00	FT		$0.00
0037	606E13000 GUARDRAIL, TYPE 5	0.00	FT	$14.00000	$0.00
0038	606E22000 ANCHOR ASSEMBLY, TYPE B-98	0.00	EACH		$0.00
0039	606E22010 ANCHOR ASSEMBLY, TYPE E-98	0.00	EACH		$0.00
0040	606E26500 ANCHOR ASSEMBLY, TYPE T	0.00	EACH		$0.00
0041	606E35000 BRIDGE TERMINAL ASSEMBLY, TYPE 1	0.00	EACH		$0.00
0042	606E35100 BRIDGE TERMINAL ASSEMBLY, TYPE 2	0.00	EACH		$0.00
0043	606E60010 IMPACT ATTENUATOR, TYPE 1-98 (BIDIRECTIONAL)	0.00	EACH		$0.00
0044	607E15000 FENCE, TYPE 47 *For Fencing*	0.00	FT		$0.00
0423	304E20000 AGGREGATE BASE *For Fencing*	0.00	CY		$0.00
0424	601E32100 ROCK CHANNEL PROTECTION, TYPE B WITH FILTER *For Fencing*	0.00	CY		$0.00
0425	607E40500 GATE, TYPE 47 *For Fencing*	0.00	EACH		$0.00
0426	625E32000 GROUND ROD *For Fencing*	0.00	EACH		$0.00
0466		0.00		$0.00000	$0.00

Total for Group 0012: $0.00

Group 0014: Seeding & Mulching / Sodding

0045	B-MC-ERCO MAJOR COST DRIVERS, EROSION CONTROL	1.00	LS	$0.00000	$0.00
0467	659E10000 SEEDING AND MULCHING	1,328.00	SY	$1.00000	$1,328.00
0531	660E25000 SODDING STAKED	0.00	SY	$15.00000	$0.00

Total for Group 0014: $1,328.00

Group 0015: Rock Channel Protection

0047	B-MC-ERCO MAJOR COST DRIVERS, EROSION CONTROL	1.00	LS	$0.00000	$0.00
0469	601E32000 ROCK CHANNEL PROTECTION, TYPE A WITH FILTER	24.00	CY	$75.00000	$1,800.00

Total for Group 0015: $1,800.00

Group 0016: Erosion Control - Item 832

0048	B-MC-ERCO	1.00	LS	$0.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	MAJOR COST DRIVERS, EROSION CONTROL				
0470	832E10000 STORM WATER POLLUTION PREVENTION PLAN	1.00	LS	$20,000.00000	$20,000.00
0471	832E20000 EROSION CONTROL	3,000.00	EACH	$1.00000	$3,000.00

Total for Group 0016: $23,000.00

Group 0017: Other Erosion Control Costs

0049	670E00700 DITCH EROSION PROTECTION	0.00	SY		$0.00
0050	B-OC-ERCO OTHER COSTS, EROSION CONTROL	1.00	LS	$0.00000	$0.00
0051	659E00100 SOIL ANALYSIS TEST	0.00	EACH	$0.00000	$0.00
0052	659E00300 TOPSOIL	0.00	CY		$0.00
0053	659E14000 REPAIR SEEDING AND MULCHING	0.00	SY		$0.00
0054	659E15000 INTER-SEEDING	0.00	SY	$0.71000	$0.00
0055	659E20000 COMMERCIAL FERTILIZER	0.00	TON		$0.00
0056	659E31000 LIME	0.00	ACRE	$0.00000	$0.00
0057	659E35000 WATER	0.00	MGAL	$5.00000	$0.00
0058	659E40000 MOWING	0.00	MSF	$0.00000	$0.00

Total for Group 0017: $0.00

Group 0018: Underdrains

0059	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0062	605E05100 4" SHALLOW PIPE UNDERDRAINS	1,223.00	FT	$8.00000	$9,784.00

Total for Group 0018: $9,784.00

Group 0019: Culverts - Type A: < 5'

0474	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	0.00	LS	$0.00000	$0.00
0480	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Pipe Structures - Reinforced Concrete Pipe up to 60"*	0.00	FT	$350.00000	$0.00
0481	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Concrete Masonry*	0.00	EACH	$1,500.00000	$0.00

Total for Group 0019: $0.00

Group 0021: Culverts, Type A: 5' - 10'

0067	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0476	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	0.00	FT	$550.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	Pipe Structures - Reinforced Concrete 5'-10' 66" to 78"				
0477	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Concrete - Headwalls/wingwalls*	0.00	EACH	$2,000.00000	$0.00

Total for Group 0021: $0.00

Group 0022: Culverts, Type A: 10' - 20'

0486	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0487	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Pipe Structures - Reinforced Concrete Pipe 10'-20'*	0.00	FT	$1,400.00000	$0.00
0488	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Concrete Masonry*	0.00	EACH	$1,500.00000	$0.00

Total for Group 0022: $0.00

Group 0024: BMP's

0076	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00

Total for Group 0024: $0.00

Group 0025: Closed Storm System

0077	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0489	603E13400 30" CONDUIT, TYPE B (Average size)	190.00	FT	$75.00000	$14,250.00
0523	604E00800 CATCH BASIN, NO. 3A	4.00	EACH	$1,500.00000	$6,000.00
0524	604E31500 MANHOLE, NO. 3	0.00	EACH	$3,000.00000	$0.00
0525	604E36601 PRECAST REINFORCED CONCRETE OUTLET, AS PER PLAN	2.00	EACH	$1,250.00000	$2,500.00
0526	Special Pump Station (Storm)	0.00	LS	$6,400,000.00000	$0.00
0527	Special Stormceptors	0.00	EACH	$5,750.00000	$0.00
0529	Special Retention basin improvements	0.00	LS	$109,000.00000	$0.00

Total for Group 0025: $22,750.00

Group 0026: Other Drainage Costs

0078	C-OC-DRNG OTHER COSTS, DRAINAGE	1.00	LS	$0.00000	$0.00

Total for Group 0026: $0.00

Group 0027: Mainline - Travel Lanes

0095	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0494	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg Base and Subgrade Compaction*	0.00	SY	$68.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension

Total for Group 0027: $0.00

Group 0028: Mainline - Outside Shoulder

0100	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0495	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg base and Subgrade Compaction*	0.00	SY	$68.00000	$0.00

Total for Group 0028: $0.00

Group 0030: Mainline - Inside Shoulder

0115	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0496	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg base and Subgrade Compaction*	0.00	SY	$68.00000	$0.00

Total for Group 0030: $0.00

Group 0031: Ramps (including shoulders)

0122	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0497	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg base and Subgrade Compaction*	0.00	SY	$68.00000	$0.00

Total for Group 0031: $0.00

Group 0032: Non - Mainline Lanes

0132	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0498	D-MC-PVMT Asphalt *Includes 3" 448, 9" 301, 6" Agg base and Subgrade Compaction*	3,309.00	SY	$41.00000	$135,669.00

Total for Group 0032: $135,669.00

Group 0041: Other Pavement Costs

0163	D-OC-PVMT OTHER COSTS, PAVEMENT	1.00	LS	$0.00000	$0.00

Total for Group 0041: $0.00

Group 0042: Water Works

0164	E-MC-WATR MAJOR COST DRIVERS, WATER LINE	0.00	LS	$0.00000	$0.00
0165	E-OC-WATR OTHER COSTS, WATER LINE	0.00	LS	$0.00000	$0.00

Total for Group 0042: $0.00

Group 0043: Sanitary Line

0170	F-MC-SANI MAJOR COST DRIVERS, SANITARY SEWER	0.00	LS	$0.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
				Total for Group 0043:	$0.00
Group 0044: Lighting - Full Interchange					
0173	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	1.00	LS	$0.00000	$0.00
0499	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	0.00	EACH	$469,000.00000	$0.00
				Total for Group 0044:	$0.00
Group 0045: Lighting - Partial Interchange					
0288	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	0.00	LS	$0.00000	$0.00
				Total for Group 0045:	$0.00
Group 0046: Lighting - Continuous Roadway					
0176	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	1.00	LS	$0.00000	$0.00
0500	G-MC-LTNG Lighting - Continuous	1,510.00	FT	$35.00000	$52,850.00
				Total for Group 0046:	$52,850.00
Group 0047: Other Lighting Costs					
0177	G-OC-LTNG OTHER COSTS, LIGHTING	0.00	LS	$0.00000	$0.00
				Total for Group 0047:	$0.00
Group 0048: Traffic Surveillance					
0178	H-OC-SURV OTHER COSTS, TRAFFIC SURVEILLANCE	0.00	LS	$0.00000	$0.00
				Total for Group 0048:	$0.00
Group 0049: Signs					
0179	J-MC-TRAF MAJOR COST DRIVERS, TRAFFIC CONTROL	1.00	LS	$0.00000	$0.00
0501	J-MC-TRAF Signs	0.29	MILE	$250,000.00000	$72,500.00
				Total for Group 0049:	$72,500.00
Group 0050: Pavement Marking					
0200	J-MC-TRAF MAJOR COST DRIVERS, TRAFFIC CONTROL	1.00	LS	$0.00000	$0.00
0502	644E00100 EDGE LINE	0.11	MILE	$3,000.00000	$330.00
0503	644E00200 LANE LINE	0.16	MILE	$2,000.00000	$320.00
				Total for Group 0050:	$650.00
Group 0051: Other Traffic Control Costs					

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
0208	J-OC-TRAF OTHER COSTS, TRAFFIC CONTROL	1.00	LS	$0.00000	$0.00

Total for Group 0051: $0.00

Group 0052: Signals - Intersections

0212	K-MC-SGNL MAJOR COST DRIVERS, SIGNALS	2.00	EACH	$175,000.00000	$350,000.00

Total for Group 0052: $350,000.00

Group 0053: Other Traffic Signal Costs

0213	K-OC-SGNL OTHER COSTS, SIGNALS	1.00	LS	$0.00000	$0.00

Total for Group 0053: $0.00

Group 0054: Landscaping

0214	L-MC-LSCP MAJOR COST DRIVERS, LANDSCAPING	1.00	LS	$0.00000	$0.00
0215	L-OC-LSCP OTHER COSTS, LANDSCAPING	1.00	LS	$0.00000	$0.00

Total for Group 0054: $0.00

Group 0055: Retaining Walls $125 + $10/ft for caps, barriers and testing

0216	M-MC-WALL MAJOR COST DRIVERS, RETAINING WALLS	1.00	LS	$0.00000	$0.00
0504	M-MC-WALL Retaining Walls	0.00	SF	$135.00000	$0.00

Total for Group 0055: $0.00

Group 0056: Other Retaining Wall Costs

0217	M-OC-WALL OTHER COSTS, RETAINING WALLS	1.00	LS	$0.00000	$0.00

Total for Group 0056: $0.00

Group 0057: Building Demolition

0218	N-MC-DEMO MAJOR COST DRIVERS, BUILDING DEMOLITION	1.00	LS	$0.00000	$0.00
0219	N-OC-DEMO OTHER COSTS, BUILDING DEMOLITION	1.00	LS	$0.00000	$0.00
0533	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Large Commercial*	0.00	EACH	$30,000.00000	$0.00
0534	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Small Commercial*	0.00	EACH	$15,000.00000	$0.00
0535	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Large Residential*	0.00	EACH	$12,000.00000	$0.00
0536	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Small Residential*	0.00	EACH	$7,500.00000	$0.00
0537	202E98100	0.00	EACH	$8,500.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	REMOVAL MISC.: *Radio Tower*				

Total for Group 0057: $0.00

Group 0058: Noise Barrier

0220	P-MC-NSBR MAJOR COST DRIVERS, NOISE BARRIER	1.00	LS	$0.00000	$0.00
0505	P-MC-NSBR Noise Barrier	0.00	LS	$400.00000	$0.00

Total for Group 0058: $0.00

Group 0059: Other Noise Barrier Costs

0221	P-OC-NSBR OTHER COSTS, NOISE BARRIER	1.00	LS	$0.00000	$0.00
0368	P-MC-NSBR MAJOR COST DRIVERS, NOISE BARRIER	0.00	LS	$0.00000	$0.00

Total for Group 0059: $0.00

Group 0060: New Structures

0222	R-MC-STRC MAJOR COST DRIVERS, STRUCTURES	1.00	LS	$0.00000	$0.00
0506	R-MC-STRC Tier 1 Structures to 25' Height	31,313.00	SF	$125.00000	$3,914,125.00
0507	R-MC-STRC Removal of Existing Structures non-complex	0.00	SF	$12.00000	$0.00
0508	R-MC-STRC Standard Removal of Existing Structures above average complex	24,939.00	SF	$17.00000	$423,963.00
0509	R-MC-STRC Removal of Existing Structures complex to very complex	0.00	SF	$30.00000	$0.00
0513	R-MC-STRC Tier 2 Structures 25' to 50' Height	0.00	SF	$150.00000	$0.00
0516	R-MC-STRC Tier 3 Structures 50' to 75' Height	0.00	SF	$200.00000	$0.00

Total for Group 0060: $4,338,088.00

Group 0061: Rehabilitated Structures

0223	R-MC-STRC MAJOR COST DRIVERS, STRUCTURES	0.00	SF	$45.00000	$0.00

Total for Group 0061: $0.00

Group 0062: Other Structure Costs

0224	R-OC-STRC OTHER COSTS, STRUCTURES *Contingency*	0.00	LS	$0.00000	$0.00

Total for Group 0062: $0.00

Group 0063: Temporary Road and Pavement Costs

0225	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
				Total for Group 0063:	$0.00
Group 0064: Portable Concrete Barrier (PCB)					
0226	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
				Total for Group 0064:	$0.00
Group 0065: Impact Attenuators					
0227	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
				Total for Group 0065:	$0.00
Group 0066: Sheeting					
0229	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
				Total for Group 0066:	$0.00
Group 0067: Temporary Signals					
0230	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	0.00	LS	$0.00000	$0.00
				Total for Group 0067:	$0.00
Group 0068: Work Zone Lighting					
0231	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	0.00	LS	$0.00000	$0.00
				Total for Group 0068:	$0.00
Group 0069: Innovative Contracting Incentatives					
0232	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	0.00	LS	$0.00000	$0.00
				Total for Group 0069:	$0.00
Group 0070: Other MOT Costs					
0233	S-OC-MNTC OTHER COSTS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
0512	S-OC-MNTC OTHER COSTS, MAINTENANCE OF TRAFFIC	0.29	MILE	$500,000.00000	$145,000.00
				Total for Group 0070:	$145,000.00
Group 0071: Wetland Construction					
0234	T-MC-WTLD MAJOR COST DRIVERS, WETLAND CONSTRUCTION	0.00	LS	$0.00000	$0.00
0360	T-MC-WTLD MAJOR COST DRIVERS, WETLAND CONSTRUCTION	0.00	LS	$0.00000	$0.00
				Total for Group 0071:	$0.00
Group 0072: Misc. Costs					

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
0235	U-MC-MISC MAJOR COST DRIVERS, MISCELLANEOUS COSTS	0.00	LS	$0.00000	$0.00
0236	U-OC-MISC OTHER COSTS, MISCELLANEOUS COSTS	0.00	LS	$0.00000	$0.00
0237	100E00300 SPECIAL - PREMIUM ON RAILROADS' PROTECTIVE PUBLIC LIABILITY AND PROPERTY DAMAGE LIABILITY INSURANCE	0.00	LS	$10,000.00000	$0.00
0238	623E10000 CONSTRUCTION LAYOUT STAKES *0.5%*	1.00	LS	$26,797.62000	$26,797.62
0239	614E11000 MAINTAINING TRAFFIC *2%*	1.00	LS	$107,190.47000	$107,190.47
0240	619E16020 FIELD OFFICE, TYPE C	19.00	MNTH	$2,500.00000	$47,500.00
0242	624E10000 MOBILIZATION	1.00	LS	$200,000.00000	$200,000.00
0511	103E05000 PREMIUM FOR CONTRACT PERFORMANCE BOND AND FOR PAYMENT BOND *0.5%*	1.00	LS	$26,797.62000	$26,797.62
0518		0.00		$0.00000	$0.00
0519		0.00		$0.00000	$0.00
0520		0.00		$0.00000	$0.00
0521		0.00		$0.00000	$0.00
0532		0.00		$0.00000	$0.00

Total for Group 0072: $408,285.71

Group 0073: Design Contingency Costs

0243	V-MC-CNTG MAJOR COST DRIVERS, CONTINGENCY COSTS	1.00	LS	$0.00000	$0.00
0244	V-OC-CNTG OTHER COSTS, CONTINGENCY COSTS *25%*	1.00	LS	$1,441,952.30000	$1,441,952.30

Total for Group 0073: $1,441,952.30

Group 0074: Inflation Contingency

0266	V-OC-CNTG OTHER COSTS, CONTINGENCY COSTS	0.00	LS	$0.00000	$0.00

Total for Group 0074: $0.00

Estimate Alt E KY cont 3

Estimated Cost: $7,818,842.99

Contingency: 29.70%

Estimated Total: $10,141,039.36

Base Date: 01/01/15

Spec Year: 10

Unit System: E

Work Type: GEN CONST: INVLVS 2 OR MOR MAJ WRK TYPE

Highway Type: 451

Urban/Rural Type: URBAN CLASS

Season: SUMMER

County: HAMILTON

Midpoint of Latitude:

Midpoint of Longitude:

District:

Federal/State Project Number:

Estimate Type: C1

Prepared by Parsons Brinckerhoff on 07/22/10

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
Group 0001: Pavement Removal					
0001	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	0.00	LS	$0.00000	$0.00
0343	202E23000 PAVEMENT REMOVED	2,006.00	SY	$8.00000	$16,048.00
				Total for Group 0001:	$16,048.00
Group 0002: Excavation - Rock					
0003	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1,960.00	CY	$30.00000	$58,800.00
				Total for Group 0002:	$58,800.00
Group 0003: Excavation - Soil					
0004	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0344	203E10000 EXCAVATION	17,640.00	CY	$8.00000	$141,120.00
				Total for Group 0003:	$141,120.00
Group 0004: Excavation - Hazardous					
0006	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
				Total for Group 0004:	$0.00
Group 0005: Fill - Embankment (includes wasting excess excavation)					
0007	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0345	203E20000 EMBANKMENT	19,600.00	CY	$6.00000	$117,600.00
				Total for Group 0005:	$117,600.00
Group 0006: Fill - Lime Modified Soil					
0010	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0346	205E10050 LIME STABILIZED EMBANKMENT	0.00	CY	$7.00000	$0.00
0347	205E10300 LIME	0.00	TON	$5.00000	$0.00
				Total for Group 0006:	$0.00
Group 0007: Fill - Borrow					
0011	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	0.00	CY	$8.00000	$0.00
				Total for Group 0007:	$0.00
Group 0008: Concrete Barrier					
0012	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0465	622E10060	0.00	FT	$110.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	CONCRETE BARRIER, SINGLE SLOPE, TYPE B				

Total for Group 0008: $0.00

Group 0009: Subgrade Treatment - Lime

0014	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0348	206E10000 LIME STABILIZED SUBGRADE	0.00	SY	$1.85000	$0.00
0349	206E10300 LIME	0.00	TON	$10.00000	$0.00
0350	206E11000 CURING COAT	0.00	SY	$1.00000	$0.00
0351	206E20000 TEST ROLLING	0.00	HOUR	$4.00000	$0.00

Total for Group 0009: $0.00

Group 0010: Subgrade Treatment - Cement

0016	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	533.00	SY	$2.50000	$1,332.50

Total for Group 0010: $1,332.50

Group 0011: Subgrade Treatment - Undercut & Backfill

0017	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00

Total for Group 0011: $0.00

Group 0012: Other Roadway Costs

0019	A-OC-RDWY OTHER COSTS, ROADWAY *Contingency*	0.00	LS	$0.00000	$0.00
0020	201E11000 CLEARING AND GRUBBING	0.00	LS	$856,500.00000	$0.00
0021	201E21800 TREE REMOVED, 18" SIZE	0.00	EACH	$250.00000	$0.00
0022	201E23000 TREE REMOVED, 30" SIZE	0.00	EACH	$405.00000	$0.00
0023	201E24800 TREE REMOVED, 48" SIZE	0.00	EACH	$772.00000	$0.00
0026	202E11000 STRUCTURE REMOVED	0.00	LS	$9,310.13000	$0.00
0028	202E35200 PIPE REMOVED, OVER 24"	0.00	FT		$0.00
0029	202E38000 GUARDRAIL REMOVED	0.00	FT		$0.00
0030	202E42206 ANCHOR ASSEMBLY REMOVED	0.00	EACH		$0.00
0031	202E58000 MANHOLE REMOVED	0.00	EACH		$0.00
0032	202E58100 CATCH BASIN REMOVED	0.00	EACH		$0.00
0033	202E75000 FENCE REMOVED	0.00	FT		$0.00
0034	204E45000	0.00	HOUR	$126.59000	$0.00

Line #	Item Number	Quantity	Units	Unit Price	Extension
	Description				
	Supplemental Description				
	PROOF ROLLING				
0035	204E10000	0.00	SY	$0.81000	$0.00
	SUBGRADE COMPACTION				
0036	451E30000	0.00	FT		$0.00
	SPECIAL - PRESSURE RELIEF JOINT, TYPE A				
0037	606E13000	0.00	FT	$14.00000	$0.00
	GUARDRAIL, TYPE 5				
0038	606E22000	0.00	EACH		$0.00
	ANCHOR ASSEMBLY, TYPE B-98				
0039	606E22010	0.00	EACH		$0.00
	ANCHOR ASSEMBLY, TYPE E-98				
0040	606E26500	0.00	EACH		$0.00
	ANCHOR ASSEMBLY, TYPE T				
0041	606E35000	0.00	EACH		$0.00
	BRIDGE TERMINAL ASSEMBLY, TYPE 1				
0042	606E35100	0.00	EACH		$0.00
	BRIDGE TERMINAL ASSEMBLY, TYPE 2				
0043	606E60010	0.00	EACH		$0.00
	IMPACT ATTENUATOR, TYPE 1-98 (BIDIRECTIONAL)				
0044	607E15000	0.00	FT		$0.00
	FENCE, TYPE 47				
	For Fencing				
0423	304E20000	0.00	CY		$0.00
	AGGREGATE BASE				
	For Fencing				
0424	601E32100	0.00	CY		$0.00
	ROCK CHANNEL PROTECTION, TYPE B WITH FILTER				
	For Fencing				
0425	607E40500	0.00	EACH		$0.00
	GATE, TYPE 47				
	For Fencing				
0426	625E32000	0.00	EACH		$0.00
	GROUND ROD				
	For Fencing				
0466		0.00		$0.00000	$0.00

Total for Group 0012: $0.00

Group 0014: Seeding & Mulching / Sodding

0045	B-MC-ERCO	1.00	LS	$0.00000	$0.00
	MAJOR COST DRIVERS, EROSION CONTROL				
0467	659E10000	0.00	SY	$1.00000	$0.00
	SEEDING AND MULCHING				
0531	660E25000	0.00	SY	$15.00000	$0.00
	SODDING STAKED				

Total for Group 0014: $0.00

Group 0015: Rock Channel Protection

0047	B-MC-ERCO	1.00	LS	$0.00000	$0.00
	MAJOR COST DRIVERS, EROSION CONTROL				
0469	601E32000	0.00	CY	$75.00000	$0.00
	ROCK CHANNEL PROTECTION, TYPE A WITH FILTER				

Total for Group 0015: $0.00

Group 0016: Erosion Control - Item 832

0048	B-MC-ERCO	1.00	LS	$0.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	MAJOR COST DRIVERS, EROSION CONTROL				
0470	832E10000 STORM WATER POLLUTION PREVENTION PLAN	1.00	LS	$20,000.00000	$20,000.00
0471	832E20000 EROSION CONTROL	10,000.00	EACH	$1.00000	$10,000.00

Total for Group 0016: $30,000.00

Group 0017: Other Erosion Control Costs

0049	670E00700 DITCH EROSION PROTECTION	0.00	SY		$0.00
0050	B-OC-ERCO OTHER COSTS, EROSION CONTROL	1.00	LS	$0.00000	$0.00
0051	659E00100 SOIL ANALYSIS TEST	0.00	EACH	$0.00000	$0.00
0052	659E00300 TOPSOIL	0.00	CY		$0.00
0053	659E14000 REPAIR SEEDING AND MULCHING	0.00	SY		$0.00
0054	659E15000 INTER-SEEDING	0.00	SY	$0.71000	$0.00
0055	659E20000 COMMERCIAL FERTILIZER	0.00	TON		$0.00
0056	659E31000 LIME	0.00	ACRE	$0.00000	$0.00
0057	659E35000 WATER	0.00	MGAL	$5.00000	$0.00
0058	659E40000 MOWING	0.00	MSF	$0.00000	$0.00

Total for Group 0017: $0.00

Group 0018: Underdrains

0059	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0062	605E05100 4" SHALLOW PIPE UNDERDRAINS	0.00	FT	$8.00000	$0.00

Total for Group 0018: $0.00

Group 0019: Culverts - Type A: < 5'

0474	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	0.00	LS	$0.00000	$0.00
0480	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Pipe Structures - Reinforced Concrete Pipe up to 60"*	0.00	FT	$350.00000	$0.00
0481	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Concrete Masonry*	0.00	EACH	$1,500.00000	$0.00

Total for Group 0019: $0.00

Group 0021: Culverts, Type A: 5' - 10'

0067	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0476	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	0.00	FT	$550.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	Pipe Structures - Reinforced Concrete 5'-10' 66" to 78"				
0477	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Concrete - Headwalls/wingwalls*	0.00	EACH	$2,000.00000	$0.00

Total for Group 0021: $0.00

Group 0022: Culverts, Type A: 10' - 20'

0486	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0487	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Pipe Structures - Reinforced Concrete Pipe 10'-20'*	0.00	FT	$1,400.00000	$0.00
0488	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Concrete Masonry*	0.00	EACH	$1,500.00000	$0.00

Total for Group 0022: $0.00

Group 0024: BMP's

0076	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00

Total for Group 0024: $0.00

Group 0025: Closed Storm System

0077	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0489	603E13400 30" CONDUIT, TYPE B (Average size)	0.00	FT	$75.00000	$0.00
0523	604E00800 CATCH BASIN, NO. 3A	0.00	EACH	$1,500.00000	$0.00
0524	604E31500 MANHOLE, NO. 3	0.00	EACH	$3,000.00000	$0.00
0525		0.00		$0.00000	$0.00
0526	Special Pump Station (Storm)	0.00	LS	$6,400,000.00000	$0.00
0527	Special Stormceptors	0.00	EACH	$5,750.00000	$0.00
0529	Special Retention basin improvements	0.00	LS	$109,000.00000	$0.00

Total for Group 0025: $0.00

Group 0026: Other Drainage Costs

0078	C-OC-DRNG OTHER COSTS, DRAINAGE	1.00	LS	$0.00000	$0.00

Total for Group 0026: $0.00

Group 0027: Mainline - Travel Lanes

0095	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0494	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg Base and Subgrade Compaction*	0.00	SY	$68.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
				Total for Group 0027:	$0.00
Group 0028: Mainline - Outside Shoulder					
0100	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0495	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg base and Subgrade Compaction*	0.00	SY	$68.00000	$0.00
				Total for Group 0028:	$0.00
Group 0030: Mainline - Inside Shoulder					
0115	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0496	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg base and Subgrade Compaction*	0.00	SY	$68.00000	$0.00
				Total for Group 0030:	$0.00
Group 0031: Ramps (including shoulders)					
0122	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0497	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg base and Subgrade Compaction*	0.00	SY	$68.00000	$0.00
				Total for Group 0031:	$0.00
Group 0032: Non - Mainline Lanes					
0132	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0498	D-MC-PVMT Asphalt *Includes 3" 448, 9" 301, 6" Agg base and Subgrade Compaction*	533.00	SY	$41.00000	$21,853.00
				Total for Group 0032:	$21,853.00
Group 0041: Other Pavement Costs					
0163	D-OC-PVMT OTHER COSTS, PAVEMENT	1.00	LS	$0.00000	$0.00
				Total for Group 0041:	$0.00
Group 0042: Water Works					
0164	E-MC-WATR MAJOR COST DRIVERS, WATER LINE	0.00	LS	$0.00000	$0.00
0165	E-OC-WATR OTHER COSTS, WATER LINE	0.00	LS	$0.00000	$0.00
				Total for Group 0042:	$0.00
Group 0043: Sanitary Line					
0170	F-MC-SANI MAJOR COST DRIVERS, SANITARY SEWER	0.00	LS	$0.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
				Total for Group 0043:	$0.00
Group 0044: Lighting - Full Interchange					
0173	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	1.00	LS	$0.00000	$0.00
0499	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	0.00	EACH	$469,000.00000	$0.00
				Total for Group 0044:	$0.00
Group 0045: Lighting - Partial Interchange					
0288	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	0.00	LS	$0.00000	$0.00
				Total for Group 0045:	$0.00
Group 0046: Lighting - Continuous Roadway					
0176	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	1.00	LS	$0.00000	$0.00
0500	G-MC-LTNG Lighting - Continuous	840.00	FT	$35.00000	$29,400.00
				Total for Group 0046:	$29,400.00
Group 0047: Other Lighting Costs					
0177	G-OC-LTNG OTHER COSTS, LIGHTING	0.00	LS	$0.00000	$0.00
				Total for Group 0047:	$0.00
Group 0048: Traffic Surveillance					
0178	H-OC-SURV OTHER COSTS, TRAFFIC SURVEILLANCE	0.00	LS	$0.00000	$0.00
				Total for Group 0048:	$0.00
Group 0049: Signs					
0179	J-MC-TRAF MAJOR COST DRIVERS, TRAFFIC CONTROL	1.00	LS	$0.00000	$0.00
0501	J-MC-TRAF Signs	0.16	MILE	$250,000.00000	$40,000.00
				Total for Group 0049:	$40,000.00
Group 0050: Pavement Marking					
0200	J-MC-TRAF MAJOR COST DRIVERS, TRAFFIC CONTROL	1.00	LS	$0.00000	$0.00
0502	644E00100 EDGE LINE	0.18	MILE	$3,000.00000	$540.00
0503	644E00200 LANE LINE	0.13	MILE	$2,000.00000	$260.00
				Total for Group 0050:	$800.00
Group 0051: Other Traffic Control Costs					

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
0208	J-OC-TRAF OTHER COSTS, TRAFFIC CONTROL	1.00	LS	$0.00000	$0.00

Total for Group 0051: $0.00

Group 0052: Signals - Intersections

0212	K-MC-SGNL MAJOR COST DRIVERS, SIGNALS	2.00	EACH	$175,000.00000	$350,000.00

Total for Group 0052: $350,000.00

Group 0053: Other Traffic Signal Costs

0213	K-OC-SGNL OTHER COSTS, SIGNALS	1.00	LS	$0.00000	$0.00

Total for Group 0053: $0.00

Group 0054: Landscaping

0214	L-MC-LSCP MAJOR COST DRIVERS, LANDSCAPING	1.00	LS	$0.00000	$0.00
0215	L-OC-LSCP OTHER COSTS, LANDSCAPING	1.00	LS	$0.00000	$0.00

Total for Group 0054: $0.00

Group 0055: Retaining Walls $125 + $10/ft for caps, barriers and testing

0216	M-MC-WALL MAJOR COST DRIVERS, RETAINING WALLS	1.00	LS	$0.00000	$0.00
0504	M-MC-WALL Retaining Walls	0.00	SF	$135.00000	$0.00

Total for Group 0055: $0.00

Group 0056: Other Retaining Wall Costs

0217	M-OC-WALL OTHER COSTS, RETAINING WALLS	1.00	LS	$0.00000	$0.00

Total for Group 0056: $0.00

Group 0057: Building Demolition

0218	N-MC-DEMO MAJOR COST DRIVERS, BUILDING DEMOLITION	1.00	LS	$0.00000	$0.00
0219	N-OC-DEMO OTHER COSTS, BUILDING DEMOLITION	1.00	LS	$0.00000	$0.00
0532	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Large Commercial*	0.00	EACH	$30,000.00000	$0.00
0533	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Small Commercial*	0.00	EACH	$15,000.00000	$0.00
0534	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Large Residential*	0.00	EACH	$12,000.00000	$0.00
0535	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Small Residential*	0.00	EACH	$7,500.00000	$0.00
0536	202E98100	0.00	EACH	$8,500.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	REMOVAL MISC.: *Radio Tower*				

Total for Group 0057: $0.00

Group 0058: Noise Barrier

0220	P-MC-NSBR MAJOR COST DRIVERS, NOISE BARRIER	1.00	LS	$0.00000	$0.00
0505	P-MC-NSBR Noise Barrier	0.00	LS	$400.00000	$0.00

Total for Group 0058: $0.00

Group 0059: Other Noise Barrier Costs

0221	P-OC-NSBR OTHER COSTS, NOISE BARRIER	1.00	LS	$0.00000	$0.00
0368	P-MC-NSBR MAJOR COST DRIVERS, NOISE BARRIER	0.00	LS	$0.00000	$0.00

Total for Group 0059: $0.00

Group 0060: New Structures

0222	R-MC-STRC MAJOR COST DRIVERS, STRUCTURES	1.00	LS	$0.00000	$0.00
0506	R-MC-STRC Tier 1 Structures to 25' Height	0.00	SF	$125.00000	$0.00
0507	R-MC-STRC Removal of Existing Structures non-complex	0.00	SF	$12.00000	$0.00
0508	R-MC-STRC Standard Removal of Existing Structures above average complex	17,629.00	SF	$17.00000	$299,693.00
0509	R-MC-STRC Removal of Existing Structures complex to very complex	0.00	SF	$30.00000	$0.00
0513	R-MC-STRC Tier 2 Structures 25' to 50' Height	30,973.00	SF	$150.00000	$4,645,950.00
0516	R-MC-STRC Tier 3 Structures 50' to 75' Height	0.00	SF	$200.00000	$0.00

Total for Group 0060: $4,945,643.00

Group 0061: Rehabilitated Structures

0223	R-MC-STRC MAJOR COST DRIVERS, STRUCTURES	0.00	SF	$45.00000	$0.00

Total for Group 0061: $0.00

Group 0062: Other Structure Costs

0224	R-OC-STRC OTHER COSTS, STRUCTURES *Contingency*	0.00	LS	$0.00000	$0.00

Total for Group 0062: $0.00

Group 0063: Temporary Road and Pavement Costs

0225	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
				Total for Group 0063:	$0.00
Group 0064: Portable Concrete Barrier (PCB)					
0226	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
				Total for Group 0064:	$0.00
Group 0065: Impact Attenuators					
0227	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
				Total for Group 0065:	$0.00
Group 0066: Sheeting					
0229	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
				Total for Group 0066:	$0.00
Group 0067: Temporary Signals					
0230	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	0.00	LS	$0.00000	$0.00
				Total for Group 0067:	$0.00
Group 0068: Work Zone Lighting					
0231	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	0.00	LS	$0.00000	$0.00
				Total for Group 0068:	$0.00
Group 0069: Innovative Contracting Incentatives					
0232	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	0.00	LS	$0.00000	$0.00
				Total for Group 0069:	$0.00
Group 0070: Other MOT Costs					
0233	S-OC-MNTC OTHER COSTS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
0512	S-OC-MNTC OTHER COSTS, MAINTENANCE OF TRAFFIC	0.16	MILE	$500,000.00000	$80,000.00
				Total for Group 0070:	$80,000.00
Group 0071: Wetland Construction					
0234	T-MC-WTLD MAJOR COST DRIVERS, WETLAND CONSTRUCTION	0.00	LS	$0.00000	$0.00
0360	T-MC-WTLD MAJOR COST DRIVERS, WETLAND CONSTRUCTION	0.00	LS	$0.00000	$0.00
				Total for Group 0071:	$0.00
Group 0072: Misc. Costs					

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
0235	U-MC-MISC MAJOR COST DRIVERS, MISCELLANEOUS COSTS	0.00	LS	$0.00000	$0.00
0236	U-OC-MISC OTHER COSTS, MISCELLANEOUS COSTS	0.00	LS	$0.00000	$0.00
0237	100E00300 SPECIAL - PREMIUM ON RAILROADS' PROTECTIVE PUBLIC LIABILITY AND PROPERTY DAMAGE LIABILITY INSURANCE	0.00	LS	$10,000.00000	$0.00
0238	623E10000 CONSTRUCTION LAYOUT STAKES *0.5%*	1.00	LS	$29,162.98000	$29,162.98
0239	614E11000 MAINTAINING TRAFFIC *2%*	1.00	LS	$116,651.93000	$116,651.93
0240	619E16020 FIELD OFFICE, TYPE C	19.00	MNTH	$2,500.00000	$47,500.00
0242	624E10000 MOBILIZATION	1.00	LS	$200,000.00000	$200,000.00
0511	103E05000 PREMIUM FOR CONTRACT PERFORMANCE BOND AND FOR PAYMENT BOND *0.5%*	1.00	LS	$29,162.98000	$29,162.98
0518		0.00		$0.00000	$0.00
0519		0.00		$0.00000	$0.00
0520		0.00		$0.00000	$0.00
0521		0.00		$0.00000	$0.00

Total for Group 0072: $422,477.89

Group 0073: Design Contingency Costs

0243	V-MC-CNTG MAJOR COST DRIVERS, CONTINGENCY COSTS	1.00	LS	$0.00000	$0.00
0244	V-OC-CNTG OTHER COSTS, CONTINGENCY COSTS *25%*	1.00	LS	$1,563,768.60000	$1,563,768.60

Total for Group 0073: $1,563,768.60

Group 0074: Inflation Contingency

0266	V-OC-CNTG OTHER COSTS, CONTINGENCY COSTS	0.00	LS	$0.00000	$0.00

Total for Group 0074: $0.00

Estimate Alt E KY cont 5

Estimated Cost: $71,530,905.30

Contingency: 57.60%

Estimated Total: $112,732,706.75

Base Date: 01/01/15

Spec Year: 10

Unit System: E

Work Type: GEN CONST: INVLVS 2 OR MOR MAJ WRK TYPE

Highway Type: 451

Urban/Rural Type: URBAN CLASS

Season: SUMMER

County: HAMILTON

Midpoint of Latitude:

Midpoint of Longitude:

District:

Federal/State Project Number:

Estimate Type: C1

Prepared by Parsons Brinckerhoff on 07/22/10

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
Group 0001: Pavement Removal					
0001	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	0.00	LS	$0.00000	$0.00
0343	202E23000 PAVEMENT REMOVED	212,051.00	SY	$8.00000	$1,696,408.00
				Total for Group 0001:	$1,696,408.00
Group 0002: Excavation - Rock					
0003	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	146,868.00	CY	$30.00000	$4,406,040.00
				Total for Group 0002:	$4,406,040.00
Group 0003: Excavation - Soil					
0004	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0344	203E10000 EXCAVATION	342,692.00	CY	$8.00000	$2,741,536.00
				Total for Group 0003:	$2,741,536.00
Group 0004: Excavation - Hazardous					
0006	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
				Total for Group 0004:	$0.00
Group 0005: Fill - Embankment (includes wasting excess excavation)					
0007	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0345	203E20000 EMBANKMENT	489,560.00	CY	$6.00000	$2,937,360.00
				Total for Group 0005:	$2,937,360.00
Group 0006: Fill - Lime Modified Soil					
0010	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0346	205E10050 LIME STABILIZED EMBANKMENT	0.00	CY	$7.00000	$0.00
0347	205E10300 LIME	0.00	TON	$5.00000	$0.00
				Total for Group 0006:	$0.00
Group 0007: Fill - Borrow					
0011	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	0.00	CY	$8.00000	$0.00
				Total for Group 0007:	$0.00
Group 0008: Concrete Barrier					
0012	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0465	622E10060	20,800.00	FT	$110.00000	$2,288,000.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	CONCRETE BARRIER, SINGLE SLOPE, TYPE B				

Total for Group 0008: $2,288,000.00

Group 0009: Subgrade Treatment - Lime

0014	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0348	206E10000 LIME STABILIZED SUBGRADE	0.00	SY	$1.85000	$0.00
0349	206E10300 LIME	0.00	TON	$10.00000	$0.00
0350	206E11000 CURING COAT	0.00	SY	$1.00000	$0.00
0351	206E20000 TEST ROLLING	0.00	HOUR	$4.00000	$0.00

Total for Group 0009: $0.00

Group 0010: Subgrade Treatment - Cement

0016	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	298,491.00	SY	$2.50000	$746,227.50

Total for Group 0010: $746,227.50

Group 0011: Subgrade Treatment - Undercut & Backfill

0017	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00

Total for Group 0011: $0.00

Group 0012: Other Roadway Costs

0019	A-OC-RDWY OTHER COSTS, ROADWAY *Contingency*	0.00	LS	$0.00000	$0.00
0020	201E11000 CLEARING AND GRUBBING	0.00	LS	$856,500.00000	$0.00
0021	201E21800 TREE REMOVED, 18" SIZE	0.00	EACH	$250.00000	$0.00
0022	201E23000 TREE REMOVED, 30" SIZE	0.00	EACH	$405.00000	$0.00
0023	201E24800 TREE REMOVED, 48" SIZE	0.00	EACH	$772.00000	$0.00
0026	202E11000 STRUCTURE REMOVED	0.00	LS	$9,310.13000	$0.00
0028	202E35200 PIPE REMOVED, OVER 24"	0.00	FT		$0.00
0029	202E38000 GUARDRAIL REMOVED	0.00	FT		$0.00
0030	202E42206 ANCHOR ASSEMBLY REMOVED	0.00	EACH		$0.00
0031	202E58000 MANHOLE REMOVED	0.00	EACH		$0.00
0032	202E58100 CATCH BASIN REMOVED	0.00	EACH		$0.00
0033	202E75000 FENCE REMOVED	0.00	FT		$0.00
0034	204E45000	0.00	HOUR	$126.59000	$0.00

Line #	Item Number	Quantity	Units	Unit Price	Extension
	Description				
	Supplemental Description				
	PROOF ROLLING				
0035	204E10000	0.00	SY	$0.81000	$0.00
	SUBGRADE COMPACTION				
0036	451E30000	0.00	FT		$0.00
	SPECIAL - PRESSURE RELIEF JOINT, TYPE A				
0037	606E13000	5,300.00	FT	$14.00000	$74,200.00
	GUARDRAIL, TYPE 5				
0038	606E22000	0.00	EACH		$0.00
	ANCHOR ASSEMBLY, TYPE B-98				
0039	606E22010	0.00	EACH		$0.00
	ANCHOR ASSEMBLY, TYPE E-98				
0040	606E26500	0.00	EACH		$0.00
	ANCHOR ASSEMBLY, TYPE T				
0041	606E35000	0.00	EACH		$0.00
	BRIDGE TERMINAL ASSEMBLY, TYPE 1				
0042	606E35100	0.00	EACH		$0.00
	BRIDGE TERMINAL ASSEMBLY, TYPE 2				
0043	606E60010	0.00	EACH		$0.00
	IMPACT ATTENUATOR, TYPE 1-98 (BIDIRECTIONAL)				
0044	607E15000	0.00	FT		$0.00
	FENCE, TYPE 47				
	For Fencing				
0423	304E20000	0.00	CY		$0.00
	AGGREGATE BASE				
	For Fencing				
0424	601E32100	0.00	CY		$0.00
	ROCK CHANNEL PROTECTION, TYPE B WITH FILTER				
	For Fencing				
0425	607E40500	0.00	EACH		$0.00
	GATE, TYPE 47				
	For Fencing				
0426	625E32000	0.00	EACH		$0.00
	GROUND ROD				
	For Fencing				
0466		0.00		$0.00000	$0.00

Total for Group 0012: $74,200.00

Group 0014: Seeding & Mulching / Sodding

0045	B-MC-ERCO	1.00	LS	$0.00000	$0.00
	MAJOR COST DRIVERS, EROSION CONTROL				
0467	659E10000	133,774.00	SY	$1.00000	$133,774.00
	SEEDING AND MULCHING				
0531	660E25000	0.00	SY	$15.00000	$0.00
	SODDING STAKED				

Total for Group 0014: $133,774.00

Group 0015: Rock Channel Protection

0047	B-MC-ERCO	1.00	LS	$0.00000	$0.00
	MAJOR COST DRIVERS, EROSION CONTROL				
0469	601E32000	192.00	CY	$75.00000	$14,400.00
	ROCK CHANNEL PROTECTION, TYPE A WITH FILTER				

Total for Group 0015: $14,400.00

Group 0016: Erosion Control - Item 832

0048	B-MC-ERCO	1.00	LS	$0.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	MAJOR COST DRIVERS, EROSION CONTROL				
0470	832E10000 STORM WATER POLLUTION PREVENTION PLAN	1.00	LS	$50,000.00000	$50,000.00
0471	832E20000 EROSION CONTROL	300,000.00	EACH	$1.00000	$300,000.00

Total for Group 0016: $350,000.00

Group 0017: Other Erosion Control Costs

0049	670E00700 DITCH EROSION PROTECTION	0.00	SY		$0.00
0050	B-OC-ERCO OTHER COSTS, EROSION CONTROL	1.00	LS	$0.00000	$0.00
0051	659E00100 SOIL ANALYSIS TEST	0.00	EACH	$0.00000	$0.00
0052	659E00300 TOPSOIL	0.00	CY		$0.00
0053	659E14000 REPAIR SEEDING AND MULCHING	0.00	SY		$0.00
0054	659E15000 INTER-SEEDING	0.00	SY	$0.71000	$0.00
0055	659E20000 COMMERCIAL FERTILIZER	0.00	TON		$0.00
0056	659E31000 LIME	0.00	ACRE	$0.00000	$0.00
0057	659E35000 WATER	0.00	MGAL	$5.00000	$0.00
0058	659E40000 MOWING	0.00	MSF	$0.00000	$0.00

Total for Group 0017: $0.00

Group 0018: Underdrains

0059	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0062	605E05100 4" SHALLOW PIPE UNDERDRAINS	29,635.00	FT	$8.00000	$237,080.00

Total for Group 0018: $237,080.00

Group 0019: Culverts - Type A: < 5'

0474	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	0.00	LS	$0.00000	$0.00
0480	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Pipe Structures - Reinforced Concrete Pipe up to 60"*	86.00	FT	$350.00000	$30,100.00
0481	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Concrete Masonry*	2.00	EACH	$1,500.00000	$3,000.00

Total for Group 0019: $33,100.00

Group 0021: Culverts, Type A: 5' - 10'

0067	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0476	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	36.00	FT	$550.00000	$19,800.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	Pipe Structures - Reinforced Concrete 5'-10' 66" to 78"				
0477	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Concrete - Headwalls/wingwalls*	1.00	EACH	$2,000.00000	$2,000.00

Total for Group 0021: $21,800.00

Group 0022: Culverts, Type A: 10' - 20'

0486	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0487	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Pipe Structures - Reinforced Concrete Pipe 10'-20'*	0.00	FT	$1,400.00000	$0.00
0488	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Concrete Masonry*	0.00	EACH	$1,500.00000	$0.00

Total for Group 0022: $0.00

Group 0024: BMP's

0076	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00

Total for Group 0024: $0.00

Group 0025: Closed Storm System

0077	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0489	603E13400 30" CONDUIT, TYPE B (Average size)	11,994.00	FT	$75.00000	$899,550.00
0523	604E00800 CATCH BASIN, NO. 3A	84.00	EACH	$1,500.00000	$126,000.00
0524	604E31500 MANHOLE, NO. 3	20.00	EACH	$3,000.00000	$60,000.00
0525	604E36601 PRECAST REINFORCED CONCRETE OUTLET, AS PER PLAN	13.00	EACH	$1,250.00000	$16,250.00
0526	Special Pump Station (Storm)	0.00	LS	$6,400,000.00000	$0.00
0527	Special Stormceptors	0.00	EACH	$5,750.00000	$0.00
0529	Special Retention basin improvements	0.00	LS	$109,000.00000	$0.00

Total for Group 0025: $1,101,800.00

Group 0026: Other Drainage Costs

0078	C-OC-DRNG OTHER COSTS, DRAINAGE	1.00	LS	$0.00000	$0.00

Total for Group 0026: $0.00

Group 0027: Mainline - Travel Lanes

0095	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0494	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg Base and Subgrade Compaction*	171,479.00	SY	$68.00000	$11,660,572.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
				Total for Group 0027:	$11,660,572.00
Group 0028: Mainline - Outside Shoulder					
0100	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0495	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg base and Subgrade Compaction*	38,883.00	SY	$68.00000	$2,644,044.00
				Total for Group 0028:	$2,644,044.00
Group 0030: Mainline - Inside Shoulder					
0115	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0496	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg base and Subgrade Compaction*	38,377.00	SY	$68.00000	$2,609,636.00
				Total for Group 0030:	$2,609,636.00
Group 0031: Non - Mainline Lanes					
0532	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0533	D-MC-PVMT Asphalt *Includes 3" 448, 9" 301, 6" Agg base and Subgrade Compaction*	3,441.00	SY	$41.00000	$141,081.00
				Total for Group 0031:	$141,081.00
Group 0036: Ramps (including shoulders)					
0122	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0497	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg base and Subgrade Compaction*	46,310.00	SY	$68.00000	$3,149,080.00
				Total for Group 0036:	$3,149,080.00
Group 0041: Other Pavement Costs					
0163	D-OC-PVMT OTHER COSTS, PAVEMENT	1.00	LS	$0.00000	$0.00
				Total for Group 0041:	$0.00
Group 0042: Water Works					
0164	E-MC-WATR MAJOR COST DRIVERS, WATER LINE	0.00	LS	$0.00000	$0.00
0165	E-OC-WATR OTHER COSTS, WATER LINE	0.00	LS	$0.00000	$0.00
				Total for Group 0042:	$0.00
Group 0043: Sanitary Line					
0170	F-MC-SANI MAJOR COST DRIVERS, SANITARY SEWER	0.00	LS	$0.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
				Total for Group 0043:	$0.00
Group 0044: Lighting - Full Interchange					
0173	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	1.00	LS	$0.00000	$0.00
0499	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	2.00	EACH	$469,000.00000	$938,000.00
				Total for Group 0044:	$938,000.00
Group 0045: Lighting - Partial Interchange					
0288	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	0.00	LS	$0.00000	$0.00
				Total for Group 0045:	$0.00
Group 0046: Lighting - Continuous Roadway					
0176	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	1.00	LS	$0.00000	$0.00
0500	G-MC-LTNG Lighting - Continuous	13,415.00	FT	$35.00000	$469,525.00
				Total for Group 0046:	$469,525.00
Group 0047: Other Lighting Costs					
0177	G-OC-LTNG OTHER COSTS, LIGHTING	0.00	LS	$0.00000	$0.00
				Total for Group 0047:	$0.00
Group 0048: Traffic Surveillance					
0178	H-OC-SURV OTHER COSTS, TRAFFIC SURVEILLANCE	1.00	LS	$537,486.54000	$537,486.54
				Total for Group 0048:	$537,486.54
Group 0049: Signs					
0179	J-MC-TRAF MAJOR COST DRIVERS, TRAFFIC CONTROL	1.00	LS	$0.00000	$0.00
0501	J-MC-TRAF Signs	2.54	MILE	$250,000.00000	$635,000.00
				Total for Group 0049:	$635,000.00
Group 0050: Pavement Marking					
0200	J-MC-TRAF MAJOR COST DRIVERS, TRAFFIC CONTROL	1.00	LS	$0.00000	$0.00
0502	644E00100 EDGE LINE	18.30	MILE	$3,000.00000	$54,900.00
0503	644E00200 LANE LINE	17.93	MILE	$2,000.00000	$35,860.00
				Total for Group 0050:	$90,760.00
Group 0051: Other Traffic Control Costs					

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
0208	J-OC-TRAF OTHER COSTS, TRAFFIC CONTROL	1.00	LS	$0.00000	$0.00

Total for Group 0051: $0.00

Group 0052: Signals - Intersections

0212	K-MC-SGNL MAJOR COST DRIVERS, SIGNALS	1.00	LS	$0.00000	$0.00

Total for Group 0052: $0.00

Group 0053: Other Traffic Signal Costs

0213	K-OC-SGNL OTHER COSTS, SIGNALS	1.00	LS	$0.00000	$0.00

Total for Group 0053: $0.00

Group 0054: Landscaping

0214	L-MC-LSCP MAJOR COST DRIVERS, LANDSCAPING	1.00	LS	$0.00000	$0.00
0215	L-OC-LSCP OTHER COSTS, LANDSCAPING	1.00	LS	$0.00000	$0.00

Total for Group 0054: $0.00

Group 0055: Retaining Walls $125 + $10/ft for caps, barriers and testing

0216	M-MC-WALL MAJOR COST DRIVERS, RETAINING WALLS	1.00	LS	$0.00000	$0.00
0504	M-MC-WALL Retaining Walls	8,870.00	SF	$135.00000	$1,197,450.00

Total for Group 0055: $1,197,450.00

Group 0056: Other Retaining Wall Costs

0217	M-OC-WALL OTHER COSTS, RETAINING WALLS	1.00	LS	$0.00000	$0.00

Total for Group 0056: $0.00

Group 0057: Building Demolition

0218	N-MC-DEMO MAJOR COST DRIVERS, BUILDING DEMOLITION	1.00	LS	$0.00000	$0.00
0219	N-OC-DEMO OTHER COSTS, BUILDING DEMOLITION	1.00	LS	$0.00000	$0.00
0534	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Small Residential*	3.00	EACH	$7,500.00000	$22,500.00
0535	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Large Residential*	2.00	EACH	$12,000.00000	$24,000.00
0536	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Small Commercial*	0.00	EACH	$15,000.00000	$0.00
0537	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Large Commercial*	1.00	EACH	$30,000.00000	$30,000.00
0538	202E98100	0.00	EACH	$8,500.00000	$0.00

Line #	Item Number	Quantity	Units	Unit Price	Extension
	Description				
	Supplemental Description				
	REMOVAL MISC.:				
	Radio Tower				

Total for Group 0057: $76,500.00

Group 0058: Noise Barrier

0220	P-MC-NSBR	1.00	LS	$0.00000	$0.00
	MAJOR COST DRIVERS, NOISE BARRIER				
0505	P-MC-NSBR	58,304.00	SF	$25.00000	$1,457,600.00
	Noise Barrier				

Total for Group 0058: $1,457,600.00

Group 0059: Other Noise Barrier Costs

0221	P-OC-NSBR	1.00	LS	$0.00000	$0.00
	OTHER COSTS, NOISE BARRIER				
0368	P-MC-NSBR	0.00	LS	$0.00000	$0.00
	MAJOR COST DRIVERS, NOISE BARRIER				

Total for Group 0059: $0.00

Group 0060: New Structures

0222	R-MC-STRC	1.00	LS	$0.00000	$0.00
	MAJOR COST DRIVERS, STRUCTURES				
0506	R-MC-STRC	77,961.00	SF	$125.00000	$9,745,125.00
	Tier 1 Structures to 25' Height				
0507	R-MC-STRC	0.00	SF	$12.00000	$0.00
	Removal of Existing Structures non-complex				
0508	R-MC-STRC	51,915.00	SF	$17.00000	$882,555.00
	Standard Removal of Existing Structures above average complex				
0509	R-MC-STRC	0.00	SF	$30.00000	$0.00
	Removal of Existing Structures complex to very complex				
0513	R-MC-STRC	0.00	SF	$150.00000	$0.00
	Tier 2 Structures 25' to 50' Height				
0516	R-MC-STRC	0.00	SF	$200.00000	$0.00
	Tier 3 Structures 50' to 75' Height				

Total for Group 0060: $10,627,680.00

Group 0061: Rehabilitated Structures

0223	R-MC-STRC	0.00	SF	$45.00000	$0.00
	MAJOR COST DRIVERS, STRUCTURES				

Total for Group 0061: $0.00

Group 0062: Other Structure Costs

0224	R-OC-STRC	0.00	LS	$0.00000	$0.00
	OTHER COSTS, STRUCTURES				
	Contingency				

Total for Group 0062: $0.00

Group 0063: Temporary Road and Pavement Costs

0225	S-MC-MNTC	1.00	LS	$0.00000	$0.00
	MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC				

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
				Total for Group 0063:	$0.00
Group 0064: Portable Concrete Barrier (PCB)					
0226	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
				Total for Group 0064:	$0.00
Group 0065: Impact Attenuators					
0227	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
				Total for Group 0065:	$0.00
Group 0066: Sheeting					
0229	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
				Total for Group 0066:	$0.00
Group 0067: Temporary Signals					
0230	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	0.00	LS	$0.00000	$0.00
				Total for Group 0067:	$0.00
Group 0068: Work Zone Lighting					
0231	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	0.00	LS	$0.00000	$0.00
				Total for Group 0068:	$0.00
Group 0069: Innovative Contracting Incentatives					
0232	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	0.00	LS	$0.00000	$0.00
				Total for Group 0069:	$0.00
Group 0070: Other MOT Costs					
0233	S-OC-MNTC OTHER COSTS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
0512	S-OC-MNTC OTHER COSTS, MAINTENANCE OF TRAFFIC	2.54	MILE	$500,000.00000	$1,270,000.00
				Total for Group 0070:	$1,270,000.00
Group 0071: Wetland Construction					
0234	T-MC-WTLD MAJOR COST DRIVERS, WETLAND CONSTRUCTION	0.00	LS	$0.00000	$0.00
0360	T-MC-WTLD MAJOR COST DRIVERS, WETLAND CONSTRUCTION	0.00	LS	$0.00000	$0.00
				Total for Group 0071:	$0.00
Group 0072: Misc. Costs					

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
0235	U-MC-MISC MAJOR COST DRIVERS, MISCELLANEOUS COSTS	0.00	LS	$0.00000	$0.00
0236	U-OC-MISC OTHER COSTS, MISCELLANEOUS COSTS	0.00	LS	$0.00000	$0.00
0237	100E00300 SPECIAL - PREMIUM ON RAILROADS' PROTECTIVE PUBLIC LIABILITY AND PROPERTY DAMAGE LIABILITY INSURANCE	0.00	LS	$10,000.00000	$0.00
0238	623E10000 CONSTRUCTION LAYOUT STAKES *0.5%*	1.00	LS	$271,430.70000	$271,430.70
0239	614E11000 MAINTAINING TRAFFIC *2%*	1.00	LS	$1,085,722.80000	$1,085,722.80
0240	619E16020 FIELD OFFICE, TYPE C	44.00	MNTH	$2,500.00000	$110,000.00
0242	624E10000 MOBILIZATION	1.00	LS	$1,200,000.00000	$1,200,000.00
0511	103E05000 PREMIUM FOR CONTRACT PERFORMANCE BOND AND FOR PAYMENT BOND *0.5%*	1.00	LS	$271,430.70000	$271,430.70
0518		0.00		$0.00000	$0.00
0519		0.00		$0.00000	$0.00
0520		0.00		$0.00000	$0.00
0521		0.00		$0.00000	$0.00

Total for Group 0072: $2,938,584.20

Group 0073: Design Contingency Costs

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
0243	V-MC-CNTG MAJOR COST DRIVERS, CONTINGENCY COSTS	1.00	LS	$0.00000	$0.00
0244	V-OC-CNTG OTHER COSTS, CONTINGENCY COSTS *25%*	1.00	LS	$14,306,181.06000	$14,306,181.06

Total for Group 0073: $14,306,181.06

Group 0074: Inflation Contingency

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
0266	V-OC-CNTG OTHER COSTS, CONTINGENCY COSTS	0.00	LS	$0.00000	$0.00

Total for Group 0074: $0.00

PID KY-5 **County** Kenton **Route** 75 **Section** _____ **This R/W Acquisition cost estimate is prepared for Alternative** **E**

Macro View — Attributes

Acquisition	Unit (SF) or (Acreage)	X	Cost/Unit ($$/SF) ($$/Acre)	Subtotal Land Value	+	Structure Values (if Taken)	+	Damages (Loss in Value to the Residue)	Subtotal Structures & Damages	=	Total Non Labor Acquisition Costs	Parcel Count	Total Takes	Partial Takes	No. of Structures Impacted
-Residential	3.31	X	$82,451.65	$272,750	+	855500	+	N/A	$855,500.00	=	$1,128,250.05	17	6	11	5
-Commercial	6.68	X	$147,451.64	$985,065	+	1135000	+	N/A	$1,135,000.00	=	$2,120,065.42	19	1	18	1
-Industrial	0	X	$0.00	$0	+	0	+	N/A	$0.00	=	$0.00	0	0	0	0
-Agricultural	0	X	$0.00	$0	+	0	+	N/A	$0.00	=	$0.00	0	0	0	0

Relocation	Unit (Displacement)	X	*RHP/*RSP	+	Move Cost	+	Reestablishment	=	Total Non Labor RAP Costs
-Residential									
Owner Occupant	3	X	$34,000	+	$6,000			=	$120,000
Tenant	14	X	$10,000	+	$1,750			=	$164,500
-Commerical/Farm/NPO									
Owner	1			X	$15,000	+	$10,000	=	$25,000
Tenant	1			X	$15,000	+	$10,000	=	$25,000
-Personal Property	0			X	$1,000			=	$0

Estimate amount of time necessary to relocate all RAP parcels = (months) 24

Estimate number of years until project wide R/W acquisition begins = 3.5

{[(Total Cost of Acquisition Cost)x0.90]x0.025}+{[(Total of Acquisition Cost)x0.15]x1.20}+{[(Total of Acquisition Cost)x0.10]x1.50} = Contingency

Contingency (Incidentals, Admin. Review & Appropriation)	1145031.203
Total Non Labor R/W Costs	$4,727,846.67

*RHP - Replacement Housing Payment
*RSP - Rent Supplemental Payment
*NPO - Non-Profit Organization

Instruction for Acquisition & Relocation Cost Estimates

Estimate the total number of acres involved in the project and allocate those acres into the four categories shown.

Assign an average unit price for each category. These unit prices are typically taken from the auditors tax card data. Cost Estimates prepared at Step 4 (Step 7 on Major Projects) and thereafter must base unit prices on a project sales data book instead of tax card data.

Add structure values from the auditors tax cards only if the structures are taken.

Damages must be assessed by a pre-qualified expert with experience in Before & After analysis. This usually occurs at Step 4 for Minor projects (Step 6 on Major Projects) and requires some knowledge of the impacts of the project on structures.

Relocation Cost Estimates must consider the complexity of the move process. All move estimates that involve a business or a mulit-tenant residential structure should use the services of a relocation Assistance professionnal to accurately gauge costs.

Macro View

Labor (External)	Unit (Parcels)	X	Unit Price	=	Total Cost
Titles	36	X	$400	=	$14,400
Appraisal					
-Simple	12	X	$750	=	$9,000
-Detailed	24	X	$4,500	=	$108,000
Appraisal Review					
-Simple	12	X	$500	=	$6,000
-Detailed	24	X	$2,000	=	$48,000
Negotiations	36	X	$1,100	=	$39,600
Relocations					
-Personal Property	0	X	$1,500	=	$0
-Residential	17	X	$5,200	=	$88,400
-Commercial/Farm/*NPO	1	X	$5,600	=	$5,600
Closings	36	X	$400	=	$14,400
Project Management	36	X	$550	=	$19,800
Asbestos Testing & Abatement		X		=	
	Total Labor Costs				$353,200

*NPO = Non-Profit Organization

This R/W Cost Estimate Prepared by	Date
Joseph Kuehnle	2/15/2011

This R/W Cost Estimate was performed at Step 6 of the PDP for MAJOR Projects using _____

Total Labor Costs	$353,200.00
Total Non Labor R/W Costs	$4,727,846.67
Inflation Adjustments	$416,645.83
Total R/W Costs	**$5,497,692.50**

Instructions for Labor Cost Estimates

Labor costs are a function of time, distance, and talent. Labor costs estimates should reflect the complexity of the project and the talent necessary to acquire the right of way in a timely manner. The person making the cost estimate may adjust the figures given for the particular project being estimated to reflect local labor costs. It is critical that the estimate be labeled to reflect the alignment alternative, the step in the PDP process and the person(s) performing the estimate.

Comments

Cost/Unit were generated from auditors tax card data.

P.D.P. R/W Cost Estimator

Estimate Alt E KY cont 6

Estimated Cost: $33,202,743.20

Contingency: 53.80%

Estimated Total: $51,065,819.04

Base Date: 01/01/15

Spec Year: 10

Unit System: E

Work Type: GEN CONST: INVLVS 2 OR MOR MAJ WRK TYPE

Highway Type: 451

Urban/Rural Type: URBAN CLASS

Season: SUMMER

County: HAMILTON

Midpoint of Latitude:

Midpoint of Longitude:

District:

Federal/State Project Number:

Estimate Type: C1

Prepared by Parsons Brinckerhoff on 07/22/10

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
Group 0001: Pavement Removal					
0001	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	0.00	LS	$0.00000	$0.00
0343	202E23000 PAVEMENT REMOVED	52,245.00	SY	$8.00000	$417,960.00
				Total for Group 0001:	$417,960.00
Group 0002: Excavation - Rock					
0003	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	331,350.00	CY	$30.00000	$9,940,500.00
				Total for Group 0002:	$9,940,500.00
Group 0003: Excavation - Soil					
0004	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0344	203E10000 EXCAVATION	331,350.00	CY	$8.00000	$2,650,800.00
				Total for Group 0003:	$2,650,800.00
Group 0004: Excavation - Hazardous					
0006	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
				Total for Group 0004:	$0.00
Group 0005: Fill - Embankment (includes wasting excess excavation)					
0007	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0345	203E20000 EMBANKMENT	662,700.00	CY	$6.00000	$3,976,200.00
				Total for Group 0005:	$3,976,200.00
Group 0006: Fill - Lime Modified Soil					
0010	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0346	205E10050 LIME STABILIZED EMBANKMENT	0.00	CY	$7.00000	$0.00
0347	205E10300 LIME	0.00	TON	$5.00000	$0.00
				Total for Group 0006:	$0.00
Group 0007: Fill - Borrow					
0011	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	0.00	CY	$8.00000	$0.00
				Total for Group 0007:	$0.00
Group 0008: Concrete Barrier					
0012	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0465	622E10060	3,600.00	FT	$110.00000	$396,000.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	CONCRETE BARRIER, SINGLE SLOPE, TYPE B				

Total for Group 0008: $396,000.00

Group 0009: Subgrade Treatment - Lime

0014	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0348	206E10000 LIME STABILIZED SUBGRADE	0.00	SY	$1.85000	$0.00
0349	206E10300 LIME	0.00	TON	$10.00000	$0.00
0350	206E11000 CURING COAT	0.00	SY	$1.00000	$0.00
0351	206E20000 TEST ROLLING	0.00	HOUR	$4.00000	$0.00

Total for Group 0009: $0.00

Group 0010: Subgrade Treatment - Cement

0016	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	81,883.00	SY	$2.50000	$204,707.50

Total for Group 0010: $204,707.50

Group 0011: Subgrade Treatment - Undercut & Backfill

0017	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00

Total for Group 0011: $0.00

Group 0012: Other Roadway Costs

0019	A-OC-RDWY OTHER COSTS, ROADWAY *Contingency*	0.00	LS	$0.00000	$0.00
0020	201E11000 CLEARING AND GRUBBING	0.00	LS	$856,500.00000	$0.00
0021	201E21800 TREE REMOVED, 18" SIZE	0.00	EACH	$250.00000	$0.00
0022	201E23000 TREE REMOVED, 30" SIZE	0.00	EACH	$405.00000	$0.00
0023	201E24800 TREE REMOVED, 48" SIZE	0.00	EACH	$772.00000	$0.00
0026	202E11000 STRUCTURE REMOVED	0.00	LS	$9,310.13000	$0.00
0028	202E35200 PIPE REMOVED, OVER 24"	0.00	FT		$0.00
0029	202E38000 GUARDRAIL REMOVED	0.00	FT		$0.00
0030	202E42206 ANCHOR ASSEMBLY REMOVED	0.00	EACH		$0.00
0031	202E58000 MANHOLE REMOVED	0.00	EACH		$0.00
0032	202E58100 CATCH BASIN REMOVED	0.00	EACH		$0.00
0033	202E75000 FENCE REMOVED	0.00	FT		$0.00
0034	204E45000	0.00	HOUR	$126.59000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	PROOF ROLLING				
0035	204E10000 SUBGRADE COMPACTION	0.00	SY	$0.81000	$0.00
0036	451E30000 SPECIAL - PRESSURE RELIEF JOINT, TYPE A	0.00	FT		$0.00
0037	606E13000 GUARDRAIL, TYPE 5	1,250.00	FT	$14.00000	$17,500.00
0038	606E22000 ANCHOR ASSEMBLY, TYPE B-98	0.00	EACH		$0.00
0039	606E22010 ANCHOR ASSEMBLY, TYPE E-98	0.00	EACH		$0.00
0040	606E26500 ANCHOR ASSEMBLY, TYPE T	0.00	EACH		$0.00
0041	606E35000 BRIDGE TERMINAL ASSEMBLY, TYPE 1	0.00	EACH		$0.00
0042	606E35100 BRIDGE TERMINAL ASSEMBLY, TYPE 2	0.00	EACH		$0.00
0043	606E60010 IMPACT ATTENUATOR, TYPE 1-98 (BIDIRECTIONAL)	0.00	EACH		$0.00
0044	607E15000 FENCE, TYPE 47 *For Fencing*	0.00	FT		$0.00
0423	304E20000 AGGREGATE BASE *For Fencing*	0.00	CY		$0.00
0424	601E32100 ROCK CHANNEL PROTECTION, TYPE B WITH FILTER *For Fencing*	0.00	CY		$0.00
0425	607E40500 GATE, TYPE 47 *For Fencing*	0.00	EACH		$0.00
0426	625E32000 GROUND ROD *For Fencing*	0.00	EACH		$0.00
0466		0.00		$0.00000	$0.00

Total for Group 0012: $17,500.00

Group 0014: Seeding & Mulching / Sodding

0045	B-MC-ERCO MAJOR COST DRIVERS, EROSION CONTROL	1.00	LS	$0.00000	$0.00
0467	659E10000 SEEDING AND MULCHING	67,695.00	SY	$1.00000	$67,695.00
0531	660E25000 SODDING STAKED	0.00	SY	$15.00000	$0.00

Total for Group 0014: $67,695.00

Group 0015: Rock Channel Protection

0047	B-MC-ERCO MAJOR COST DRIVERS, EROSION CONTROL	1.00	LS	$0.00000	$0.00
0469	601E32000 ROCK CHANNEL PROTECTION, TYPE A WITH FILTER	12.00	CY	$75.00000	$900.00

Total for Group 0015: $900.00

Group 0016: Erosion Control - Item 832

0048	B-MC-ERCO	1.00	LS	$0.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	MAJOR COST DRIVERS, EROSION CONTROL				
0470	832E10000 STORM WATER POLLUTION PREVENTION PLAN	1.00	LS	$50,000.00000	$50,000.00
0471	832E20000 EROSION CONTROL	300,000.00	EACH	$1.00000	$300,000.00

Total for Group 0016: $350,000.00

Group 0017: Other Erosion Control Costs

0049	670E00700 DITCH EROSION PROTECTION	0.00	SY		$0.00
0050	B-OC-ERCO OTHER COSTS, EROSION CONTROL	1.00	LS	$0.00000	$0.00
0051	659E00100 SOIL ANALYSIS TEST	0.00	EACH	$0.00000	$0.00
0052	659E00300 TOPSOIL	0.00	CY		$0.00
0053	659E14000 REPAIR SEEDING AND MULCHING	0.00	SY		$0.00
0054	659E15000 INTER-SEEDING	0.00	SY	$0.71000	$0.00
0055	659E20000 COMMERCIAL FERTILIZER	0.00	TON		$0.00
0056	659E31000 LIME	0.00	ACRE	$0.00000	$0.00
0057	659E35000 WATER	0.00	MGAL	$5.00000	$0.00
0058	659E40000 MOWING	0.00	MSF	$0.00000	$0.00

Total for Group 0017: $0.00

Group 0018: Underdrains

0059	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0062	605E05100 4" SHALLOW PIPE UNDERDRAINS	10,850.00	FT	$8.00000	$86,800.00

Total for Group 0018: $86,800.00

Group 0019: Culverts - Type A: < 5'

0474	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	0.00	LS	$0.00000	$0.00
0480	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Pipe Structures - Reinforced Concrete Pipe up to 60"*	37.00	FT	$350.00000	$12,950.00
0481	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Concrete Masonry*	1.00	EACH	$1,500.00000	$1,500.00

Total for Group 0019: $14,450.00

Group 0021: Culverts, Type A: 5' - 10'

0067	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0476	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	0.00	FT	$550.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	Pipe Structures - Reinforced Concrete 5'-10' 66" to 78"				
0477	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Concrete - Headwalls/wingwalls*	0.00	EACH	$2,000.00000	$0.00

Total for Group 0021: $0.00

Group 0022: Culverts, Type A: 10' - 20'

0486	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0487	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Pipe Structures - Reinforced Concrete Pipe 10'-20'*	0.00	FT	$1,400.00000	$0.00
0488	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Concrete Masonry*	0.00	EACH	$1,500.00000	$0.00

Total for Group 0022: $0.00

Group 0024: BMP's

0076	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00

Total for Group 0024: $0.00

Group 0025: Closed Storm System

0077	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0489	603E13400 30" CONDUIT, TYPE B (Average size)	3,608.00	FT	$75.00000	$270,600.00
0523	604E00800 CATCH BASIN, NO. 3A	14.00	EACH	$1,500.00000	$21,000.00
0524	604E31500 MANHOLE, NO. 3	1.00	EACH	$3,000.00000	$3,000.00
0525	604E36601 PRECAST REINFORCED CONCRETE OUTLET, AS PER PLAN	0.00	EACH	$1,250.00000	$0.00
0526	Special Pump Station (Storm)	0.00	LS	$6,400,000.00000	$0.00
0527	Special Stormceptors	0.00	EACH	$5,750.00000	$0.00
0529	Special Retention basin improvements	0.00	LS	$109,000.00000	$0.00

Total for Group 0025: $294,600.00

Group 0026: Other Drainage Costs

0078	C-OC-DRNG OTHER COSTS, DRAINAGE	1.00	LS	$0.00000	$0.00

Total for Group 0026: $0.00

Group 0027: Mainline - Travel Lanes

0095	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0494	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg Base and Subgrade Compaction*	59,563.00	SY	$68.00000	$4,050,284.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension

Total for Group 0027: $4,050,284.00

Group 0028: Mainline - Outside Shoulder

0100	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0495	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg base and Subgrade Compaction*	8,534.00	SY	$68.00000	$580,312.00

Total for Group 0028: $580,312.00

Group 0030: Mainline - Inside Shoulder

0115	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0496	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg base and Subgrade Compaction*	11,410.00	SY	$68.00000	$775,880.00

Total for Group 0030: $775,880.00

Group 0031: Ramps (including shoulders)

0122	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0497	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg base and Subgrade Compaction*	2,376.00	SY	$68.00000	$161,568.00

Total for Group 0031: $161,568.00

Group 0032: Non - Mainline Lanes

0132	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0498	D-MC-PVMT Asphalt *Includes 3" 448, 9" 301, 6" Agg base and Subgrade Compaction*	0.00	SY	$41.00000	$0.00

Total for Group 0032: $0.00

Group 0041: Other Pavement Costs

0163	D-OC-PVMT OTHER COSTS, PAVEMENT	1.00	LS	$0.00000	$0.00

Total for Group 0041: $0.00

Group 0042: Water Works

0164	E-MC-WATR MAJOR COST DRIVERS, WATER LINE	0.00	LS	$0.00000	$0.00
0165	E-OC-WATR OTHER COSTS, WATER LINE	0.00	LS	$0.00000	$0.00

Total for Group 0042: $0.00

Group 0043: Sanitary Line

0170	F-MC-SANI MAJOR COST DRIVERS, SANITARY SEWER	0.00	LS	$0.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
				Total for Group 0043:	$0.00
Group 0044: Lighting - Full Interchange					
0173	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	1.00	LS	$0.00000	$0.00
0499	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	0.00	EACH	$469,000.00000	$0.00
				Total for Group 0044:	$0.00
Group 0045: Lighting - Partial Interchange					
0288	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	0.00	LS	$0.00000	$0.00
				Total for Group 0045:	$0.00
Group 0046: Lighting - Continuous Roadway					
0176	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	1.00	LS	$0.00000	$0.00
0500	G-MC-LTNG Lighting - Continuous	3,600.00	FT	$35.00000	$126,000.00
				Total for Group 0046:	$126,000.00
Group 0047: Other Lighting Costs					
0177	G-OC-LTNG OTHER COSTS, LIGHTING	0.00	LS	$0.00000	$0.00
				Total for Group 0047:	$0.00
Group 0048: Traffic Surveillance					
0178	H-OC-SURV OTHER COSTS, TRAFFIC SURVEILLANCE	1.00	LS	$246,872.97000	$246,872.97
				Total for Group 0048:	$246,872.97
Group 0049: Signs					
0179	J-MC-TRAF MAJOR COST DRIVERS, TRAFFIC CONTROL	1.00	LS	$0.00000	$0.00
0501	J-MC-TRAF Signs	0.68	MILE	$250,000.00000	$170,000.00
				Total for Group 0049:	$170,000.00
Group 0050: Pavement Marking					
0200	J-MC-TRAF MAJOR COST DRIVERS, TRAFFIC CONTROL	1.00	LS	$0.00000	$0.00
0502	644E00100 EDGE LINE	2.92	MILE	$3,000.00000	$8,760.00
0503	644E00200 LANE LINE	7.19	MILE	$2,000.00000	$14,380.00
				Total for Group 0050:	$23,140.00
Group 0051: Other Traffic Control Costs					

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
0208	J-OC-TRAF OTHER COSTS, TRAFFIC CONTROL	1.00	LS	$0.00000	$0.00

Total for Group 0051: $0.00

Group 0052: Signals - Intersections

0212	K-MC-SGNL MAJOR COST DRIVERS, SIGNALS	0.00	LS	$175.00000	$0.00

Total for Group 0052: $0.00

Group 0053: Other Traffic Signal Costs

0213	K-OC-SGNL OTHER COSTS, SIGNALS	1.00	LS	$0.00000	$0.00

Total for Group 0053: $0.00

Group 0054: Landscaping

0214	L-MC-LSCP MAJOR COST DRIVERS, LANDSCAPING	1.00	LS	$0.00000	$0.00
0215	L-OC-LSCP OTHER COSTS, LANDSCAPING	1.00	LS	$0.00000	$0.00

Total for Group 0054: $0.00

Group 0055: Retaining Walls $125 + $10/ft for caps, barriers and testing

0216	M-MC-WALL MAJOR COST DRIVERS, RETAINING WALLS	1.00	LS	$0.00000	$0.00
0504	M-MC-WALL Retaining Walls	0.00	SF	$135.00000	$0.00

Total for Group 0055: $0.00

Group 0056: Other Retaining Wall Costs

0217	M-OC-WALL OTHER COSTS, RETAINING WALLS	1.00	LS	$0.00000	$0.00

Total for Group 0056: $0.00

Group 0057: Building Demolition

0218	N-MC-DEMO MAJOR COST DRIVERS, BUILDING DEMOLITION	1.00	LS	$0.00000	$0.00
0219	N-OC-DEMO OTHER COSTS, BUILDING DEMOLITION	1.00	LS	$0.00000	$0.00
0532	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Large Commercial*	0.00	EACH	$30,000.00000	$0.00
0533	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Small Commercial*	0.00	EACH	$15,000.00000	$0.00
0534	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Large Residential*	1.00	EACH	$12,000.00000	$12,000.00
0535	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Small Residential*	4.00	EACH	$7,500.00000	$30,000.00
0536	202E98100	0.00	EACH	$8,500.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	REMOVAL MISC.: *Radio Tower*				

Total for Group 0057: $42,000.00

Group 0058: Noise Barrier

0220	P-MC-NSBR MAJOR COST DRIVERS, NOISE BARRIER	1.00	LS	$0.00000	$0.00
0505	P-MC-NSBR Noise Barrier	0.00	LS	$400.00000	$0.00

Total for Group 0058: $0.00

Group 0059: Other Noise Barrier Costs

0221	P-OC-NSBR OTHER COSTS, NOISE BARRIER	1.00	LS	$0.00000	$0.00
0368	P-MC-NSBR MAJOR COST DRIVERS, NOISE BARRIER	0.00	LS	$0.00000	$0.00

Total for Group 0059: $0.00

Group 0060: New Structures

0222	R-MC-STRC MAJOR COST DRIVERS, STRUCTURES	1.00	LS	$0.00000	$0.00
0506	R-MC-STRC Tier 1 Structures to 25' Height	0.00	SF	$125.00000	$0.00
0507	R-MC-STRC Removal of Existing Structures non-complex	0.00	SF	$12.00000	$0.00
0508	R-MC-STRC Standard Removal of Existing Structures above average complex	0.00	SF	$17.00000	$0.00
0509	R-MC-STRC Removal of Existing Structures complex to very complex	0.00	SF	$30.00000	$0.00
0513	R-MC-STRC Tier 2 Structures 25' to 50' Height	0.00	SF	$150.00000	$0.00
0516	R-MC-STRC Tier 3 Structures 50' to 75' Height	0.00	SF	$200.00000	$0.00

Total for Group 0060: $0.00

Group 0061: Rehabilitated Structures

0223	R-MC-STRC MAJOR COST DRIVERS, STRUCTURES	0.00	SF	$45.00000	$0.00

Total for Group 0061: $0.00

Group 0062: Other Structure Costs

0224	R-OC-STRC OTHER COSTS, STRUCTURES *Contingency*	0.00	LS	$0.00000	$0.00

Total for Group 0062: $0.00

Group 0063: Temporary Road and Pavement Costs

0225	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
				Total for Group 0063:	$0.00
Group 0064: Portable Concrete Barrier (PCB)					
0226	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
				Total for Group 0064:	$0.00
Group 0065: Impact Attenuators					
0227	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
				Total for Group 0065:	$0.00
Group 0066: Sheeting					
0229	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
				Total for Group 0066:	$0.00
Group 0067: Temporary Signals					
0230	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	0.00	LS	$0.00000	$0.00
				Total for Group 0067:	$0.00
Group 0068: Work Zone Lighting					
0231	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	0.00	LS	$0.00000	$0.00
				Total for Group 0068:	$0.00
Group 0069: Innovative Contracting Incentatives					
0232	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	0.00	LS	$0.00000	$0.00
				Total for Group 0069:	$0.00
Group 0070: Other MOT Costs					
0233	S-OC-MNTC OTHER COSTS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
0512	S-OC-MNTC OTHER COSTS, MAINTENANCE OF TRAFFIC	0.68	MILE	$500,000.00000	$340,000.00
				Total for Group 0070:	$340,000.00
Group 0071: Wetland Construction					
0234	T-MC-WTLD MAJOR COST DRIVERS, WETLAND CONSTRUCTION	0.00	LS	$0.00000	$0.00
0360	T-MC-WTLD MAJOR COST DRIVERS, WETLAND CONSTRUCTION	0.00	LS	$0.00000	$0.00
				Total for Group 0071:	$0.00
Group 0072: Misc. Costs					

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
0235	U-MC-MISC MAJOR COST DRIVERS, MISCELLANEOUS COSTS	0.00	LS	$0.00000	$0.00
0236	U-OC-MISC OTHER COSTS, MISCELLANEOUS COSTS	0.00	LS	$0.00000	$0.00
0237	100E00300 SPECIAL - PREMIUM ON RAILROADS' PROTECTIVE PUBLIC LIABILITY AND PROPERTY DAMAGE LIABILITY INSURANCE	0.00	LS	$10,000.00000	$0.00
0238	623E10000 CONSTRUCTION LAYOUT STAKES *0.5%*	1.00	LS	$124,670.85000	$124,670.85
0239	614E11000 MAINTAINING TRAFFIC *2%*	1.00	LS	$498,683.39000	$498,683.39
0240	619E16020 FIELD OFFICE, TYPE C	32.00	MNTH	$2,500.00000	$80,000.00
0242	624E10000 MOBILIZATION	1.00	LS	$800,000.00000	$800,000.00
0511	103E05000 PREMIUM FOR CONTRACT PERFORMANCE BOND AND FOR PAYMENT BOND *0.5%*	1.00	LS	$124,670.85000	$124,670.85
0518		0.00		$0.00000	$0.00
0519		0.00		$0.00000	$0.00
0520		0.00		$0.00000	$0.00
0521		0.00		$0.00000	$0.00

Total for Group 0072: $1,628,025.09

Group 0073: Design Contingency Costs

0243	V-MC-CNTG MAJOR COST DRIVERS, CONTINGENCY COSTS	1.00	LS	$0.00000	$0.00
0244	V-OC-CNTG OTHER COSTS, CONTINGENCY COSTS *25%*	1.00	LS	$6,640,548.64000	$6,640,548.64

Total for Group 0073: $6,640,548.64

Group 0074: Inflation Contingency

0266	V-OC-CNTG OTHER COSTS, CONTINGENCY COSTS	0.00	LS	$0.00000	$0.00

Total for Group 0074: $0.00

PID KY-6 **County** Kenton **Route** 75 **Section** _____ **This R/W Acquisition cost estimate is prepared for Alternative** **E**

Macro View — Attributes

Acquisition	Unit (SF) or (Acreage)	X	Cost/Unit ($$/SF) ($$/Acre)	Subtotal Land Value	+	Structure Values (if Taken)	+	Damages (Loss in Value to the Residue)	Subtotal Structures & Damages	=	Total Non Labor Acquisition Costs	Parcel Count	Total Takes	Partial Takes	No. of Structures Impacted
-Residential	3.37	X	$96,480.75	$325,140	+	2085000	+	N/A	$2,085,000.00	=	$2,410,140.13	8	4	4	5
-Commercial	0.41	X	$4,950.50	$2,030	+	0	+	N/A	$0.00	=	$2,029.71	1	0	1	0
-Industrial	0	X	$0.00	$0	+	0	+	N/A	$0.00	=	$0.00	0	0	0	0
-Agricultural	0	X	$0.00	$0	+	0	+	N/A	$0.00	=	$0.00	0	0	0	0

Relocation	Unit (Displacement)	X	*RHP/*RSP	+	Move Cost	+	Reestablishment	=	Total Non Labor RAP Costs
-Residential									
Owner Occupant	5	X	$34,000	+	$6,000			=	$200,000
Tenant	18	X	$10,000	+	$1,750			=	$211,500
-Commerical/Farm/NPO									
Owner	0			X	$15,000	+	$10,000	=	$0
Tenant	0			X	$15,000	+	$10,000	=	$0
-Personal Property	0			X	$1,000			=	$0

Estimate amount of time necessary to relocate all RAP parcels = (months) 24

Estimate number of years until project wide R/W acquisition begins = 3.5

*RHP - Replacement Housing Payment
*RSP - Rent Supplemental Payment
*NPO - Non-Profit Organization

{[(Total Cost of Acquisition Cost)x0.90]x0.025}+{[(Total of Acquisition Cost)x0.15]x1.20}+{[(Total of Acquisition Cost)x0.10]x1.50} = Contingency

Contingency (Incidentals, Admin. Review & Appropriation)	850289.866
Total Non Labor R/W Costs	$3,673,959.70

Instruction for Acquisition & Relocation Cost Estimates

Estimate the total number of acres involved in the project and allocate those acres into the four categories shown.

Assign an average unit price for each category. These unit prices are typically taken from the auditors tax card data. Cost Estimates prepared at Step 4 (Step 7 on Major Projects) and thereafter must base unit prices on a project sales data book instead of tax card data.

Add structure values from the auditors tax cards only if the structures are taken.

Damages must be assessed by a pre-qualified expert with experience in Before & After analysis. This usually occurs at Step 4 for Minor projects (Step 6 on Major Projects) and requires some knowledge of the impacts of the project on structures.

Relocation Cost Estimates must consider the complexity of the move process. All move estimates that involve a business or a mulit-tenant residential structure should use the services of a relocation Assistance professionnal to accurately gauge costs.

Macro View

Labor (External)	Unit (Parcels)	X	Unit Price	=	Total Cost
Titles	9	X	$400	=	$3,600
Appraisal					
-Simple	4	X	$750	=	$3,000
-Detailed	5	X	$4,500	=	$22,500
Appraisal Review					
-Simple	4	X	$500	=	$2,000
-Detailed	5	X	$2,000	=	$10,000
Negotiations	9	X	$1,100	=	$9,900
Relocations					
-Personal Property	0	X	$1,500	=	$0
-Residential	23	X	$5,200	=	$119,600
-Commercial/Farm/*NPO	0	X	$5,600	=	$0
Closings	23	X	$400	=	$9,200
Project Management	23	X	$550	=	$12,650
Asbestos Testing & Abatement		X		=	
	Total Labor Costs				$192,450

*NPO = Non-Profit Organization

This R/W Cost Estimate Prepared by	Date
Chris Clemons	8/4/2010

This R/W Cost Estimate was performed at Step 6 of the PDP for MAJOR Projects using _____

Total Labor Costs	$192,450.00
Total Non Labor R/W Costs	$3,673,959.70
Inflation Adjustments	$317,045.60
Total R/W Costs	**$4,183,455.30**

Instructions for Labor Cost Estimates

Labor costs are a function of time, distance, and talent. Labor costs estimates should reflect the complexity of the project and the talent necessary to acquire the right of way in a timely manner. The person making the cost estimate may adjust the figures given for the particular project being estimated to reflect local labor costs. It is critical that the estimate be labeled to reflect the alignment alternative, the step in the PDP process and the person(s) performing the estimate.

Comments

Cost/Unit were generated from auditors tax card data.

P.D.P. R/W Cost Estimator

Estimate Alt E KY cont 7

Estimated Cost: $273,619,105.99

Contingency: 57.60%

Estimated Total: $431,223,711.04

Base Date: 01/01/15

Spec Year: 10

Unit System: E

Work Type: GEN CONST: INVLVS 2 OR MOR MAJ WRK TYPE

Highway Type: 451

Urban/Rural Type: URBAN CLASS

Season: SUMMER

County: HAMILTON

Midpoint of Latitude:

Midpoint of Longitude:

District:

Federal/State Project Number:

Estimate Type: C1

Prepared by Parsons Brinckerhoff on 07/22/10

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
Group 0001: Pavement Removal					
0001	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	0.00	LS	$0.00000	$0.00
0343	202E23000 PAVEMENT REMOVED	129,338.00	SY	$8.00000	$1,034,704.00
				Total for Group 0001:	$1,034,704.00
Group 0002: Excavation - Rock					
0003	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	80,360.00	CY	$30.00000	$2,410,800.00
				Total for Group 0002:	$2,410,800.00
Group 0003: Excavation - Soil					
0004	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0344	203E10000 EXCAVATION	120,540.00	CY	$8.00000	$964,320.00
				Total for Group 0003:	$964,320.00
Group 0004: Excavation - Hazardous					
0006	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
				Total for Group 0004:	$0.00
Group 0005: Fill - Embankment (includes wasting excess excavation)					
0007	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0345	203E20000 EMBANKMENT	268,200.00	CY	$6.00000	$1,609,200.00
				Total for Group 0005:	$1,609,200.00
Group 0006: Fill - Lime Modified Soil					
0010	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0346	205E10050 LIME STABILIZED EMBANKMENT	0.00	CY	$7.00000	$0.00
0347	205E10300 LIME	0.00	TON	$5.00000	$0.00
				Total for Group 0006:	$0.00
Group 0007: Fill - Borrow					
0011	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	67,300.00	CY	$8.00000	$538,400.00
				Total for Group 0007:	$538,400.00
Group 0008: Concrete Barrier					
0012	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0465	622E10060	6,150.00	FT	$110.00000	$676,500.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	CONCRETE BARRIER, SINGLE SLOPE, TYPE B				

Total for Group 0008: $676,500.00

Group 0009: Subgrade Treatment - Lime

0014	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0348	206E10000 LIME STABILIZED SUBGRADE	0.00	SY	$1.85000	$0.00
0349	206E10300 LIME	0.00	TON	$10.00000	$0.00
0350	206E11000 CURING COAT	0.00	SY	$1.00000	$0.00
0351	206E20000 TEST ROLLING	0.00	HOUR	$4.00000	$0.00

Total for Group 0009: $0.00

Group 0010: Subgrade Treatment - Cement

0016	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	162,575.00	SY	$2.50000	$406,437.50

Total for Group 0010: $406,437.50

Group 0011: Subgrade Treatment - Undercut & Backfill

0017	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00

Total for Group 0011: $0.00

Group 0012: Other Roadway Costs

0019	A-OC-RDWY OTHER COSTS, ROADWAY *Contingency*	0.00	LS	$0.00000	$0.00
0020	201E11000 CLEARING AND GRUBBING	0.00	LS	$856,500.00000	$0.00
0021	201E21800 TREE REMOVED, 18" SIZE	0.00	EACH	$250.00000	$0.00
0022	201E23000 TREE REMOVED, 30" SIZE	0.00	EACH	$405.00000	$0.00
0023	201E24800 TREE REMOVED, 48" SIZE	0.00	EACH	$772.00000	$0.00
0026	202E11000 STRUCTURE REMOVED	0.00	LS	$9,310.13000	$0.00
0028	202E35200 PIPE REMOVED, OVER 24"	0.00	FT		$0.00
0029	202E38000 GUARDRAIL REMOVED	0.00	FT		$0.00
0030	202E42206 ANCHOR ASSEMBLY REMOVED	0.00	EACH		$0.00
0031	202E58000 MANHOLE REMOVED	0.00	EACH		$0.00
0032	202E58100 CATCH BASIN REMOVED	0.00	EACH		$0.00
0033	202E75000 FENCE REMOVED	0.00	FT		$0.00
0034	204E45000	0.00	HOUR	$126.59000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	PROOF ROLLING				
0035	204E10000 SUBGRADE COMPACTION	0.00	SY	$0.81000	$0.00
0036	451E30000 SPECIAL - PRESSURE RELIEF JOINT, TYPE A	0.00	FT		$0.00
0037	606E13000 GUARDRAIL, TYPE 5	4,200.00	FT	$14.00000	$58,800.00
0038	606E22000 ANCHOR ASSEMBLY, TYPE B-98	0.00	EACH		$0.00
0039	606E22010 ANCHOR ASSEMBLY, TYPE E-98	0.00	EACH		$0.00
0040	606E26500 ANCHOR ASSEMBLY, TYPE T	0.00	EACH		$0.00
0041	606E35000 BRIDGE TERMINAL ASSEMBLY, TYPE 1	0.00	EACH		$0.00
0042	606E35100 BRIDGE TERMINAL ASSEMBLY, TYPE 2	0.00	EACH		$0.00
0043	606E60010 IMPACT ATTENUATOR, TYPE 1-98 (BIDIRECTIONAL)	0.00	EACH		$0.00
0044	607E15000 FENCE, TYPE 47 *For Fencing*	0.00	FT		$0.00
0423	304E20000 AGGREGATE BASE *For Fencing*	0.00	CY		$0.00
0424	601E32100 ROCK CHANNEL PROTECTION, TYPE B WITH FILTER *For Fencing*	0.00	CY		$0.00
0425	607E40500 GATE, TYPE 47 *For Fencing*	0.00	EACH		$0.00
0426	625E32000 GROUND ROD *For Fencing*	0.00	EACH		$0.00
0466		0.00		$0.00000	$0.00

Total for Group 0012: $58,800.00

Group 0014: Seeding & Mulching / Sodding

0045	B-MC-ERCO MAJOR COST DRIVERS, EROSION CONTROL	1.00	LS	$0.00000	$0.00
0467	659E10000 SEEDING AND MULCHING	35,254.00	SY	$1.00000	$35,254.00
0531	660E25000 SODDING STAKED	0.00	SY	$15.00000	$0.00

Total for Group 0014: $35,254.00

Group 0015: Rock Channel Protection

0047	B-MC-ERCO MAJOR COST DRIVERS, EROSION CONTROL	1.00	LS	$0.00000	$0.00
0469	601E32000 ROCK CHANNEL PROTECTION, TYPE A WITH FILTER	12.00	CY	$75.00000	$900.00

Total for Group 0015: $900.00

Group 0016: Erosion Control - Item 832

0048	B-MC-ERCO	1.00	LS	$0.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	MAJOR COST DRIVERS, EROSION CONTROL				
0470	832E10000 STORM WATER POLLUTION PREVENTION PLAN	1.00	LS	$50,000.00000	$50,000.00
0471	832E20000 EROSION CONTROL	170,000.00	EACH	$1.00000	$170,000.00

Total for Group 0016: $220,000.00

Group 0017: Other Erosion Control Costs

0049	670E00700 DITCH EROSION PROTECTION	0.00	SY		$0.00
0050	B-OC-ERCO OTHER COSTS, EROSION CONTROL	1.00	LS	$0.00000	$0.00
0051	659E00100 SOIL ANALYSIS TEST	0.00	EACH	$0.00000	$0.00
0052	659E00300 TOPSOIL	0.00	CY		$0.00
0053	659E14000 REPAIR SEEDING AND MULCHING	0.00	SY		$0.00
0054	659E15000 INTER-SEEDING	0.00	SY	$0.71000	$0.00
0055	659E20000 COMMERCIAL FERTILIZER	0.00	TON		$0.00
0056	659E31000 LIME	0.00	ACRE	$0.00000	$0.00
0057	659E35000 WATER	0.00	MGAL	$5.00000	$0.00
0058	659E40000 MOWING	0.00	MSF	$0.00000	$0.00

Total for Group 0017: $0.00

Group 0018: Underdrains

0059	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0062	605E05100 4" SHALLOW PIPE UNDERDRAINS	11,295.00	FT	$8.00000	$90,360.00

Total for Group 0018: $90,360.00

Group 0019: Culverts - Type A: < 5'

0474	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	0.00	LS	$0.00000	$0.00
0480	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Pipe Structures - Reinforced Concrete Pipe up to 60"*	0.00	FT	$350.00000	$0.00
0481	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Concrete Masonry*	0.00	EACH	$1,500.00000	$0.00

Total for Group 0019: $0.00

Group 0021: Culverts, Type A: 5' - 10'

0067	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0476	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	0.00	FT	$550.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	Pipe Structures - Reinforced Concrete 5'-10' 66" to 78"				
0477	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Concrete - Headwalls/wingwalls*	0.00	EACH	$1,500.00000	$0.00

Total for Group 0021: $0.00

Group 0022: Culverts, Type A: 10' - 20'

0486	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0487	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Pipe Structures - Reinforced Concrete Pipe 10'-20'*	0.00	FT	$1,400.00000	$0.00
0488	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Concrete Masonry*	0.00	EACH	$1,500.00000	$0.00

Total for Group 0022: $0.00

Group 0024: BMP's

0076	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00

Total for Group 0024: $0.00

Group 0025: Closed Storm System

0077	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0489	603E13400 30" CONDUIT, TYPE B (Average size)	23,930.00	FT	$75.00000	$1,794,750.00
0523	604E00800 CATCH BASIN, NO. 3A	150.00	EACH	$1,500.00000	$225,000.00
0524	604E31500 MANHOLE, NO. 3	35.00	EACH	$3,000.00000	$105,000.00
0525	604E36601 PRECAST REINFORCED CONCRETE OUTLET, AS PER PLAN	1.00	EACH	$1,250.00000	$1,250.00
0526	Special Pump Station (Storm)	1.00	LS	$6,400,000.00000	$6,400,000.00
0527	Special Stormceptors	6.00	EACH	$5,750.00000	$34,500.00
0529	Special Retention basin improvements	1.00	LS	$109,000.00000	$109,000.00

Total for Group 0025: $8,669,500.00

Group 0026: Other Drainage Costs

0078	C-OC-DRNG OTHER COSTS, DRAINAGE	1.00	LS	$0.00000	$0.00

Total for Group 0026: $0.00

Group 0027: Mainline - Travel Lanes

0095	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0494	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg Base and Subgrade Compaction*	61,502.00	SY	$68.00000	$4,182,136.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
				Total for Group 0027:	$4,182,136.00

Group 0028: Mainline - Outside Shoulder

0100	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0495	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg base and Subgrade Compaction*	13,630.00	SY	$68.00000	$926,840.00
				Total for Group 0028:	$926,840.00

Group 0030: Mainline - Inside Shoulder

0115	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0496	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg base and Subgrade Compaction*	15,649.00	SY	$68.00000	$1,064,132.00
				Total for Group 0030:	$1,064,132.00

Group 0031: Ramps (including shoulders)

0122	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0497	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg base and Subgrade Compaction*	27,291.00	SY	$68.00000	$1,855,788.00
				Total for Group 0031:	$1,855,788.00

Group 0032: Non - Mainline Lanes

0132	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0498	D-MC-PVMT Asphalt *Includes 3" 448, 9" 301, 6" Agg base and Subgrade Compaction*	44,394.00	SY	$41.00000	$1,820,154.00
				Total for Group 0032:	$1,820,154.00

Group 0041: Other Pavement Costs

0163	D-OC-PVMT OTHER COSTS, PAVEMENT	1.00	LS	$0.00000	$0.00
				Total for Group 0041:	$0.00

Group 0042: Water Works

0164	E-MC-WATR MAJOR COST DRIVERS, WATER LINE	0.00	LS	$0.00000	$0.00
0165	E-OC-WATR OTHER COSTS, WATER LINE	0.00	LS	$0.00000	$0.00
				Total for Group 0042:	$0.00

Group 0043: Sanitary Line

0170	F-MC-SANI MAJOR COST DRIVERS, SANITARY SEWER	0.00	LS	$0.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
				Total for Group 0043:	$0.00
Group 0044: Lighting - Full Interchange					
0173	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	1.00	LS	$0.00000	$0.00
0499	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	2.00	EACH	$469,000.00000	$938,000.00
				Total for Group 0044:	$938,000.00
Group 0045: Lighting - Partial Interchange					
0288	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	0.00	LS	$0.00000	$0.00
				Total for Group 0045:	$0.00
Group 0046: Lighting - Continuous Roadway					
0176	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	1.00	LS	$0.00000	$0.00
0500	G-MC-LTNG Lighting - Continuous	6,195.00	FT	$35.00000	$216,825.00
				Total for Group 0046:	$216,825.00
Group 0047: Other Lighting Costs					
0177	G-OC-LTNG OTHER COSTS, LIGHTING	0.00	LS	$0.00000	$0.00
				Total for Group 0047:	$0.00
Group 0048: Traffic Surveillance					
0178	H-OC-SURV OTHER COSTS, TRAFFIC SURVEILLANCE	1.00	LS	$2,083,872.78000	$2,083,872.78
				Total for Group 0048:	$2,083,872.78
Group 0049: Signs					
0179	J-MC-TRAF MAJOR COST DRIVERS, TRAFFIC CONTROL	1.00	LS	$0.00000	$0.00
0501	J-MC-TRAF Signs	1.17	MILE	$250,000.00000	$292,500.00
				Total for Group 0049:	$292,500.00
Group 0050: Pavement Marking					
0200	J-MC-TRAF MAJOR COST DRIVERS, TRAFFIC CONTROL	1.00	LS	$0.00000	$0.00
0502	644E00100 EDGE LINE	21.70	MILE	$3,000.00000	$65,100.00
0503	644E00200 LANE LINE	12.57	MILE	$2,000.00000	$25,140.00
				Total for Group 0050:	$90,240.00
Group 0051: Other Traffic Control Costs					

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
0208	J-OC-TRAF OTHER COSTS, TRAFFIC CONTROL	1.00	LS	$0.00000	$0.00

Total for Group 0051: $0.00

Group 0052: Signals - Intersections

0212	K-MC-SGNL MAJOR COST DRIVERS, SIGNALS	7.00	LS	$175,000.00000	$1,225,000.00

Total for Group 0052: $1,225,000.00

Group 0053: Other Traffic Signal Costs

0213	K-OC-SGNL OTHER COSTS, SIGNALS	1.00	LS	$0.00000	$0.00

Total for Group 0053: $0.00

Group 0054: Landscaping

0214	L-MC-LSCP MAJOR COST DRIVERS, LANDSCAPING	1.00	LS	$0.00000	$0.00
0215	L-OC-LSCP OTHER COSTS, LANDSCAPING	1.00	LS	$0.00000	$0.00

Total for Group 0054: $0.00

Group 0055: Retaining Walls $125 + $10/ft for caps, barriers and testing

0216	M-MC-WALL MAJOR COST DRIVERS, RETAINING WALLS	1.00	LS	$0.00000	$0.00
0504	M-MC-WALL Retaining Walls	124,855.00	SF	$135.00000	$16,855,425.00

Total for Group 0055: $16,855,425.00

Group 0056: Other Retaining Wall Costs

0217	M-OC-WALL OTHER COSTS, RETAINING WALLS	1.00	LS	$0.00000	$0.00

Total for Group 0056: $0.00

Group 0057: Building Demolition

0218	N-MC-DEMO MAJOR COST DRIVERS, BUILDING DEMOLITION	1.00	LS	$0.00000	$0.00
0219	N-OC-DEMO OTHER COSTS, BUILDING DEMOLITION	1.00	LS	$0.00000	$0.00
0532	202E98100 REMOVAL MISC.: *Radio Tower*	1.00	EACH	$8,500.00000	$8,500.00
0533	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Small Residential*	59.00	EACH	$7,500.00000	$442,500.00
0534	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Small Commercial*	7.00	EACH	$15,000.00000	$105,000.00
0535	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Large Commercial*	0.00	EACH	$30,000.00000	$0.00
0536	202E56101	4.00	EACH	$12,000.00000	$48,000.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	BUILDING DEMOLISHED, AS PER PLAN *Large Residential*				

Total for Group 0057: $604,000.00

Group 0058: Noise Barrier

0220	P-MC-NSBR MAJOR COST DRIVERS, NOISE BARRIER	1.00	LS	$0.00000	$0.00
0505	P-MC-NSBR Noise Barrier	47,992.00	SF	$25.00000	$1,199,800.00

Total for Group 0058: $1,199,800.00

Group 0059: Other Noise Barrier Costs

0221	P-OC-NSBR OTHER COSTS, NOISE BARRIER	1.00	LS	$0.00000	$0.00
0368	P-MC-NSBR MAJOR COST DRIVERS, NOISE BARRIER	0.00	LS	$0.00000	$0.00

Total for Group 0059: $0.00

Group 0060: New Structures

0222	R-MC-STRC MAJOR COST DRIVERS, STRUCTURES	1.00	LS	$0.00000	$0.00
0506	R-MC-STRC Tier 1 Structures to 25' Height	254,430.00	SF	$125.00000	$31,803,750.00
0507	R-MC-STRC Removal of Existing Structures non-complex	4,744.00	SF	$12.00000	$56,928.00
0508	R-MC-STRC Standard Removal of Existing Structures above average complex	175,222.00	SF	$17.00000	$2,978,774.00
0509	R-MC-STRC Removal of Existing Structures complex to very complex	113,347.00	SF	$30.00000	$3,400,410.00
0513	R-MC-STRC Tier 2 Structures 25' to 50' Height	491,540.00	SF	$150.00000	$73,731,000.00
0516	R-MC-STRC Tier 3 Structures 50' to 75' Height	239,227.00	SF	$200.00000	$47,845,400.00

Total for Group 0060: $159,816,262.00

Group 0061: Rehabilitated Structures

0223	R-MC-STRC MAJOR COST DRIVERS, STRUCTURES	0.00	SF	$45.00000	$0.00

Total for Group 0061: $0.00

Group 0062: Other Structure Costs

0224	R-OC-STRC OTHER COSTS, STRUCTURES *Contingency*	0.00	LS	$0.00000	$0.00

Total for Group 0062: $0.00

Group 0063: Temporary Road and Pavement Costs

0225	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
				Total for Group 0063:	$0.00
Group 0064: Portable Concrete Barrier (PCB)					
0226	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
				Total for Group 0064:	$0.00
Group 0065: Impact Attenuators					
0227	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
				Total for Group 0065:	$0.00
Group 0066: Sheeting					
0229	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
				Total for Group 0066:	$0.00
Group 0067: Temporary Signals					
0230	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	0.00	LS	$0.00000	$0.00
				Total for Group 0067:	$0.00
Group 0068: Work Zone Lighting					
0231	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	0.00	LS	$0.00000	$0.00
				Total for Group 0068:	$0.00
Group 0069: Innovative Contracting Incentatives					
0232	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	0.00	LS	$0.00000	$0.00
				Total for Group 0069:	$0.00
Group 0070: Other MOT Costs					
0233	S-OC-MNTC OTHER COSTS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
0512	S-OC-MNTC OTHER COSTS, MAINTENANCE OF TRAFFIC	1.17	MILE	$500,000.00000	$585,000.00
				Total for Group 0070:	$585,000.00
Group 0071: Wetland Construction					
0234	T-MC-WTLD MAJOR COST DRIVERS, WETLAND CONSTRUCTION	0.00	LS	$0.00000	$0.00
0360	T-MC-WTLD MAJOR COST DRIVERS, WETLAND CONSTRUCTION	0.00	LS	$0.00000	$0.00
				Total for Group 0071:	$0.00
Group 0072: Misc. Costs					

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
0235	U-MC-MISC MAJOR COST DRIVERS, MISCELLANEOUS COSTS	0.00	LS	$0.00000	$0.00
0236	U-OC-MISC OTHER COSTS, MISCELLANEOUS COSTS	0.00	LS	$0.00000	$0.00
0237	100E00300 SPECIAL - PREMIUM ON RAILROADS' PROTECTIVE PUBLIC LIABILITY AND PROPERTY DAMAGE LIABILITY INSURANCE	0.00	LS	$10,000.00000	$0.00
0238	623E10000 CONSTRUCTION LAYOUT STAKES *0.5%*	1.00	LS	$1,052,355.75000	$1,052,355.75
0239	614E11000 MAINTAINING TRAFFIC *2%*	1.00	LS	$4,209,423.01000	$4,209,423.01
0240	619E16020 FIELD OFFICE, TYPE C	44.00	MNTH	$2,500.00000	$110,000.00
0242	624E10000 MOBILIZATION	1.00	LS	$2,000,000.00000	$2,000,000.00
0511	103E05000 PREMIUM FOR CONTRACT PERFORMANCE BOND AND FOR PAYMENT BOND *0.5%*	1.00	LS	$1,052,355.75000	$1,052,355.75

Total for Group 0072: $8,424,134.51

Group 0073: Design Contingency Costs

0243	V-MC-CNTG MAJOR COST DRIVERS, CONTINGENCY COSTS	1.00	LS	$0.00000	$0.00
0244	V-OC-CNTG OTHER COSTS, CONTINGENCY COSTS *25%*	1.00	LS	$54,723,821.20000	$54,723,821.20

Total for Group 0073: $54,723,821.20

Group 0074: Inflation Contingency

0266	V-OC-CNTG OTHER COSTS, CONTINGENCY COSTS	0.00	LS	$0.00000	$0.00

Total for Group 0074: $0.00

PID KY-7 **County** Kenton **Route** 75 **Section** _____ **This R/W Acquisition cost estimate is prepared for Alternative** **E**

Macro View — Attributes

Acquisition	Unit (SF) or (Acreage)	X	Cost/Unit ($$/SF) ($$/Acre)	Subtotal Land Value	+	Structure Values (if Taken)	+	Damages (Loss in Value to the Residue)	Subtotal Structures & Damages	=	Total Non Labor Acquisition Costs	Parcel Count	Total Takes	Partial Takes	No. of Structures Impacted
-Residential	8.78	X	$66,719.36	$585,796	+	3126200	+	N/A	$3,126,200.00	=	$3,711,995.98	97	69	28	63
-Commercial	4.86	X	$593,135.38	$2,882,638	+	1176500	+	N/A	$1,176,500.00	=	$4,059,137.95	17	9	8	7
-Industrial	0	X	$0.00	$0	+	0	+	N/A	$0.00	=	$0.00	0	0	0	0
-Other	0.36	X	$7,723.48	$2,780	+	0	+	N/A	$0.00	=	$2,780.45	3	1	2	1

Relocation	Unit (Displacement)	X	*RHP/*RSP	+	Move Cost	+	Reestablishment	=	Total Non Labor RAP Costs
-Residential									
Owner Occupant	53	X	$34,000	+	$6,000			=	$2,120,000
Tenant	31	X	$10,000	+	$1,750			=	$364,250
-Commerical/Farm/NPO									
Owner	2			X	$15,000	+	$10,000	=	$50,000
Tenant	4			X	$15,000	+	$10,000	=	$100,000
-Personal Property	0			X	$1,000			=	$0

Estimate amount of time necessary to relocate all RAP parcels = (months) 24

Estimate number of years until project wide R/W acquisition begins = 3.5

{[(Total Cost of Acquisition Cost)x0.90]x0.025}+{[(Total of Acquisition Cost)x0.15]x1.20}+{[(Total of Acquisition Cost)x0.10]x1.50} = Contingency	Contingency (Incidentals, Admin. Review & Appropriation)	2740304.819
	Total Non Labor R/W Costs	$13,148,469.20

*RHP - Replacement Housing Payment
*RSP - Rent Supplemental Payment
*NPO - Non-Profit Organization

Instruction for Acquisition & Relocation Cost Estimates

Estimate the total number of acres involved in the project and allocate those acres into the four categories shown.

Assign an average unit price for each category. These unit prices are typically taken from the auditors tax card data. Cost Estimates prepared at Step 4 (Step 7 on Major Projects) and thereafter must base unit prices on a project sales data book instead of tax card data.

Add structure values from the auditors tax cards only if the structures are taken.

Damages must be assessed by a pre-qualified expert with experience in Before & After analysis. This usually occurs at Step 4 for Minor projects (Step 6 on Major Projects) and requires some knowledge of the impacts of the project on structures.

Relocation Cost Estimates must consider the complexity of the move process. All move estimates that involve a business or a mulit-tenant residential structure should use the services of a relocation Assistance professionnal to accurately gauge costs.

Macro View

Labor (External)	Unit (Parcels)	X	Unit Price	=	Total Cost
Titles	117	X	$400	=	$46,800
Appraisal					
-Simple	6	X	$750	=	$4,500
-Detailed	111	X	$4,500	=	$499,500
Appraisal Review					
-Simple	4	X	$500	=	$2,000
-Detailed	5	X	$2,000	=	$10,000
Negotiations	117	X	$1,100	=	$128,700
Relocations					
-Personal Property	0	X	$1,500	=	$0
-Residential	84	X	$5,200	=	$436,800
-Commercial/Farm/*NPO	6	X	$5,600	=	$33,600
Closings	117	X	$400	=	$46,800
Project Management	117	X	$550	=	$64,350
Asbestos Testing & Abatement		X		=	
	Total Labor Costs				$1,273,050

*NPO = Non-Profit Organization

This R/W Cost Estimate Prepared by	Date
Chris Clemons	8/4/2010

This R/W Cost Estimate was performed at Step 6 of the PDP for MAJOR Projects using _____

Total Labor Costs	$1,273,050.00
Total Non Labor R/W Costs	$13,148,469.20
Inflation Adjustments	$1,182,564.57
Total R/W Costs	**$15,604,083.77**

Instructions for Labor Cost Estimates

Labor costs are a function of time, distance, and talent. Labor costs estimates should reflect the complexity of the project and the talent necessary to acquire the right of way in a timely manner. The person making the cost estimate may adjust the figures given for the particular project being estimated to reflect local labor costs. It is critical that the estimate be labeled to reflect the alignment alternative, the step in the PDP process and the person(s) performing the estimate.

Comments

Cost/Unit were generated from auditors tax card data. Changed "Agriculture" category to "Other" to include Goebel Park and other properties that do not fit the main categories.

P.D.P. R/W Cost Estimator

Estimate Alt E KY cont 8

Estimated Cost: $40,553,981.01

Contingency: 65.50%

Estimated Total: $67,116,838.57

Base Date: 01/01/15

Spec Year: 10

Unit System: E

Work Type: GEN CONST: INVLVS 2 OR MOR MAJ WRK TYPE

Highway Type: 451

Urban/Rural Type: URBAN CLASS

Season: SUMMER

County: HAMILTON

Midpoint of Latitude:

Midpoint of Longitude:

District:

Federal/State Project Number:

Estimate Type: C1

Prepared by Parsons Brinckerhoff on 07/22/10

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
Group 0001: Pavement Removal					
0001	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	0.00	LS	$0.00000	$0.00
0343	202E23000 PAVEMENT REMOVED	0.00	SY	$8.00000	$0.00
				Total for Group 0001:	$0.00
Group 0002: Excavation - Rock					
0003	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	0.00	CY	$30.00000	$0.00
				Total for Group 0002:	$0.00
Group 0003: Excavation - Soil					
0004	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0344	203E10000 EXCAVATION	0.00	CY	$8.00000	$0.00
				Total for Group 0003:	$0.00
Group 0004: Excavation - Hazardous					
0006	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
				Total for Group 0004:	$0.00
Group 0005: Fill - Embankment (includes wasting excess excavation)					
0007	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0345	203E20000 EMBANKMENT	0.00	CY	$6.00000	$0.00
				Total for Group 0005:	$0.00
Group 0006: Fill - Lime Modified Soil					
0010	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0346	205E10050 LIME STABILIZED EMBANKMENT	0.00	CY	$7.00000	$0.00
0347	205E10300 LIME	0.00	TON	$5.00000	$0.00
				Total for Group 0006:	$0.00
Group 0007: Fill - Borrow					
0011	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	0.00	CY	$8.00000	$0.00
				Total for Group 0007:	$0.00
Group 0008: Concrete Barrier					
0012	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0465	622E10060	0.00	FT	$110.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	CONCRETE BARRIER, SINGLE SLOPE, TYPE B				

Total for Group 0008: $0.00

Group 0009: Subgrade Treatment - Lime

0014	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0348	206E10000 LIME STABILIZED SUBGRADE	0.00	SY	$1.85000	$0.00
0349	206E10300 LIME	0.00	TON	$10.00000	$0.00
0350	206E11000 CURING COAT	0.00	SY	$1.00000	$0.00
0351	206E20000 TEST ROLLING	0.00	HOUR	$4.00000	$0.00

Total for Group 0009: $0.00

Group 0010: Subgrade Treatment - Cement

0016	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	0.00	SY	$2.50000	$0.00

Total for Group 0010: $0.00

Group 0011: Subgrade Treatment - Undercut & Backfill

0017	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00

Total for Group 0011: $0.00

Group 0012: Other Roadway Costs

0019	A-OC-RDWY OTHER COSTS, ROADWAY *Contingency*	0.00	LS	$0.00000	$0.00
0020	201E11000 CLEARING AND GRUBBING	0.00	LS	$856,500.00000	$0.00
0021	201E21800 TREE REMOVED, 18" SIZE	0.00	EACH	$250.00000	$0.00
0022	201E23000 TREE REMOVED, 30" SIZE	0.00	EACH	$405.00000	$0.00
0023	201E24800 TREE REMOVED, 48" SIZE	0.00	EACH	$772.00000	$0.00
0026	202E11000 STRUCTURE REMOVED	0.00	LS	$9,310.13000	$0.00
0034	204E45000 PROOF ROLLING	0.00	HOUR	$126.59000	$0.00
0035	204E10000 SUBGRADE COMPACTION	0.00	SY	$0.81000	$0.00
0037	606E13000 GUARDRAIL, TYPE 5	0.00	FT	$14.00000	$0.00
0466		0.00		$0.00000	$0.00

Total for Group 0012: $0.00

Group 0014: Seeding & Mulching / Sodding

0045	B-MC-ERCO MAJOR COST DRIVERS, EROSION CONTROL	1.00	LS	$0.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
0467	659E10000 SEEDING AND MULCHING	0.00	SY	$1.00000	$0.00
0531	660E25000 SODDING STAKED	0.00	SY	$15.00000	$0.00

Total for Group 0014: $0.00

Group 0015: Rock Channel Protection

0047	B-MC-ERCO MAJOR COST DRIVERS, EROSION CONTROL	1.00	LS	$0.00000	$0.00
0469	601E32000 ROCK CHANNEL PROTECTION, TYPE A WITH FILTER	0.00	CY	$75.00000	$0.00

Total for Group 0015: $0.00

Group 0016: Erosion Control - Item 832

0048	B-MC-ERCO MAJOR COST DRIVERS, EROSION CONTROL	1.00	LS	$0.00000	$0.00
0470	832E10000 STORM WATER POLLUTION PREVENTION PLAN	1.00	LS	$20,000.00000	$20,000.00
0471	832E20000 EROSION CONTROL	2,000.00	EACH	$1.00000	$2,000.00

Total for Group 0016: $22,000.00

Group 0018: Underdrains

0059	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0062	605E05100 4" SHALLOW PIPE UNDERDRAINS	0.00	FT	$8.00000	$0.00

Total for Group 0018: $0.00

Group 0019: Culverts - Type A: < 5'

0474	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	0.00	LS	$0.00000	$0.00
0480	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Pipe Structures - Reinforced Concrete Pipe up to 60"*	0.00	FT	$350.00000	$0.00
0481	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Concrete Masonry*	0.00	EACH	$1,500.00000	$0.00

Total for Group 0019: $0.00

Group 0021: Culverts, Type A: 5' - 10'

0067	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0476	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Pipe Structures - Reinforced Concrete 5'-10' 66" to 78"*	0.00	FT	$550.00000	$0.00
0477	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Concrete - Headwalls/wingwalls*	0.00	EACH	$1,500.00000	$0.00

Total for Group 0021: $0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
Group 0022: Culverts, Type A: 10' - 20'					
0486	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0487	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Pipe Structures - Reinforced Concrete Pipe 10'-20'*	0.00	FT	$1,400.00000	$0.00
0488	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Concrete Masonry*	0.00	EACH	$1,500.00000	$0.00
				Total for Group 0022:	$0.00
Group 0024: BMP's					
0076	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
				Total for Group 0024:	$0.00
Group 0025: Closed Storm System					
0077	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0489	603E13400 30" CONDUIT, TYPE B (Average size)	0.00	FT	$75.00000	$0.00
0523	604E00800 CATCH BASIN, NO. 3A	0.00	EACH	$1,500.00000	$0.00
0524	604E31500 MANHOLE, NO. 3	0.00	EACH	$3,000.00000	$0.00
0525	604E36601 PRECAST REINFORCED CONCRETE OUTLET, AS PER PLAN	0.00	EACH	$0.00000	$0.00
0526	Special Pump Station (Storm)	0.00	LS	$6,400,000.00000	$0.00
0527	Special Stormceptors	0.00	EACH	$5,750.00000	$0.00
0529	Special Retention basin improvements	0.00	LS	$10,900.00000	$0.00
				Total for Group 0025:	$0.00
Group 0026: Other Drainage Costs					
0078	C-OC-DRNG OTHER COSTS, DRAINAGE	1.00	LS	$0.00000	$0.00
				Total for Group 0026:	$0.00
Group 0027: Mainline - Travel Lanes					
0095	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0494	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg Base and Subgrade Compaction*	0.00	SY	$68.00000	$0.00
				Total for Group 0027:	$0.00
Group 0028: Mainline - Outside Shoulder					
0100	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
0495	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg base and Subgrade Compaction*	0.00	SY	$59.00000	$0.00

Total for Group 0028: $0.00

Group 0030: Mainline - Inside Shoulder

0115	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0496	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg base and Subgrade Compaction*	0.00	SY	$59.00000	$0.00

Total for Group 0030: $0.00

Group 0031: Ramps (including shoulders)

0122	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0497	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg base and Subgrade Compaction*	0.00	SY	$68.00000	$0.00

Total for Group 0031: $0.00

Group 0032: Non - Mainline Lanes

0132	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0498	D-MC-PVMT Asphalt *Includes 3" 448, 9" 301, 6" Agg base and Subgrade Compaction*	0.00	SY	$40.00000	$0.00

Total for Group 0032: $0.00

Group 0041: Other Pavement Costs

0163	D-OC-PVMT OTHER COSTS, PAVEMENT	1.00	LS	$0.00000	$0.00

Total for Group 0041: $0.00

Group 0042: Water Works

0164	E-MC-WATR MAJOR COST DRIVERS, WATER LINE	0.00	LS	$0.00000	$0.00
0165	E-OC-WATR OTHER COSTS, WATER LINE	0.00	LS	$0.00000	$0.00

Total for Group 0042: $0.00

Group 0043: Sanitary Line

0170	F-MC-SANI MAJOR COST DRIVERS, SANITARY SEWER	0.00	LS	$0.00000	$0.00

Total for Group 0043: $0.00

Group 0044: Lighting - Full Interchange

0173	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	1.00	LS	$0.00000	$0.00
0499	G-MC-LTNG	0.00	EACH	$469,000.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	MAJOR COST DRIVERS, LIGHTING				
				Total for Group 0044:	$0.00

Group 0045: Lighting - Partial Interchange

0288	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	0.00	LS	$0.00000	$0.00
				Total for Group 0045:	$0.00

Group 0046: Lighting - Continuous Roadway

0176	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	1.00	LS	$0.00000	$0.00
0500	G-MC-LTNG Lighting - Continuous	3,492.00	FT	$35.00000	$122,220.00
				Total for Group 0046:	$122,220.00

Group 0047: Other Lighting Costs

0177	G-OC-LTNG OTHER COSTS, LIGHTING	0.00	LS	$0.00000	$0.00
				Total for Group 0047:	$0.00

Group 0048: Traffic Surveillance

0178	H-OC-SURV OTHER COSTS, TRAFFIC SURVEILLANCE	1.00	LS	$309,731.25000	$309,731.25
				Total for Group 0048:	$309,731.25

Group 0049: Signs

0179	J-MC-TRAF MAJOR COST DRIVERS, TRAFFIC CONTROL	1.00	LS	$0.00000	$0.00
0501	J-MC-TRAF Signs	0.66	MILE	$250,000.00000	$165,000.00
				Total for Group 0049:	$165,000.00

Group 0050: Pavement Marking

0200	J-MC-TRAF MAJOR COST DRIVERS, TRAFFIC CONTROL	1.00	LS	$0.00000	$0.00
0502	644E00100 EDGE LINE	1.32	MILE	$3,000.00000	$3,960.00
0503	644E00200 LANE LINE	0.99	MILE	$2,000.00000	$1,980.00
				Total for Group 0050:	$5,940.00

Group 0051: Other Traffic Control Costs

0208	J-OC-TRAF OTHER COSTS, TRAFFIC CONTROL	1.00	LS	$0.00000	$0.00
				Total for Group 0051:	$0.00

Group 0052: Signals - Intersections

0212	K-MC-SGNL	1.00	LS	$0.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	MAJOR COST DRIVERS, SIGNALS				

Total for Group 0052: $0.00

Group 0053: Other Traffic Signal Costs

0213	K-OC-SGNL OTHER COSTS, SIGNALS	1.00	LS	$0.00000	$0.00

Total for Group 0053: $0.00

Group 0054: Landscaping

0214	L-MC-LSCP MAJOR COST DRIVERS, LANDSCAPING	1.00	LS	$0.00000	$0.00
0215	L-OC-LSCP OTHER COSTS, LANDSCAPING	1.00	LS	$0.00000	$0.00

Total for Group 0054: $0.00

Group 0055: Retaining Walls $125 + $10/ft for caps, barriers and testing

0216	M-MC-WALL MAJOR COST DRIVERS, RETAINING WALLS	1.00	LS	$0.00000	$0.00
0504	M-MC-WALL Retaining Walls	0.00	SF	$135.00000	$0.00

Total for Group 0055: $0.00

Group 0056: Other Retaining Wall Costs

0217	M-OC-WALL OTHER COSTS, RETAINING WALLS	1.00	LS	$0.00000	$0.00

Total for Group 0056: $0.00

Group 0057: Building Demolition

0218	N-MC-DEMO MAJOR COST DRIVERS, BUILDING DEMOLITION	1.00	LS	$0.00000	$0.00
0219	N-OC-DEMO OTHER COSTS, BUILDING DEMOLITION	1.00	LS	$0.00000	$0.00
0538	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Large Commercial*	0.00	EACH	$30,000.00000	$0.00
0539	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Small Commercial*	0.00	EACH	$15,000.00000	$0.00
0540	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Large Residential*	0.00	EACH	$12,000.00000	$0.00
0541	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Small Residential*	0.00	EACH	$7,500.00000	$0.00
0542	202E98100 REMOVAL MISC.: *Radio Tower*	0.00	EACH	$8,500.00000	$0.00

Total for Group 0057: $0.00

Group 0058: Noise Barrier

0220	P-MC-NSBR	1.00	LS	$0.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	MAJOR COST DRIVERS, NOISE BARRIER				
0505	P-MC-NSBR Noise Barrier	0.00	LS	$400.00000	$0.00

Total for Group 0058: $0.00

Group 0059: Other Noise Barrier Costs

0221	P-OC-NSBR OTHER COSTS, NOISE BARRIER	1.00	LS	$0.00000	$0.00
0368	P-MC-NSBR MAJOR COST DRIVERS, NOISE BARRIER	0.00	LS	$0.00000	$0.00

Total for Group 0059: $0.00

Group 0060: New Structures

0222	R-MC-STRC MAJOR COST DRIVERS, STRUCTURES	1.00	LS	$0.00000	$0.00
0506	R-MC-STRC Tier 1 Structures to 25' Height	0.00	SF	$125.00000	$0.00
0507	R-MC-STRC Removal of Existing Structures non-complex	0.00	SF	$12.00000	$0.00
0508	R-MC-STRC Standard Removal of Existing Structures above average complex	0.00	SF	$17.00000	$0.00
0509	R-MC-STRC Removal of Existing Structures complex to very complex	0.00	SF	$30.00000	$0.00
0513	R-MC-STRC Tier 2 Structures 25' to 50' Height	0.00	SF	$150.00000	$0.00
0516	R-MC-STRC Tier 3 Structures 50' to 75' Height	0.00	SF	$200.00000	$0.00

Total for Group 0060: $0.00

Group 0061: Rehabilitated Structures

0223	R-MC-STRC MAJOR COST DRIVERS, STRUCTURES	1.00	LS	$0.00000	$0.00
0533	511E34434 CLASS S CONCRETE, BRIDGE DECK *new bridge deck on existing beams*	170,177.00	SF	$35.00000	$5,956,195.00
0535	514E99000 SPECIAL - BRIDGE PAINTING	1.00	LS	$22,000,000.00000	$22,000,000.00
0536	 Structural repair/rehabilitation	1.00	LS	$1,000,000.00000	$1,000,000.00
0537	202E11301 PORTIONS OF STRUCTURE REMOVED, AS PER PLAN *Briodge deck removal*	170,177.00	SF	$10.00000	$1,701,770.00

Total for Group 0061: $30,657,965.00

Group 0062: Other Structure Costs

0224	R-OC-STRC OTHER COSTS, STRUCTURES *Contingency*	0.00	LS	$0.00000	$0.00
0534		0.00		$0.00000	$0.00

Total for Group 0062: $0.00

Group 0063: Temporary Road and Pavement Costs

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
0225	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00

Total for Group 0063: $0.00

Group 0064: Portable Concrete Barrier (PCB)

0226	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00

Total for Group 0064: $0.00

Group 0065: Impact Attenuators

0227	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00

Total for Group 0065: $0.00

Group 0066: Sheeting

0229	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00

Total for Group 0066: $0.00

Group 0067: Temporary Signals

0230	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	0.00	LS	$0.00000	$0.00

Total for Group 0067: $0.00

Group 0068: Work Zone Lighting

0231	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	0.00	LS	$0.00000	$0.00

Total for Group 0068: $0.00

Group 0069: Innovative Contracting Incentatives

0232	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	0.00	LS	$0.00000	$0.00

Total for Group 0069: $0.00

Group 0070: Other MOT Costs

0233	S-OC-MNTC OTHER COSTS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
0512	S-OC-MNTC OTHER COSTS, MAINTENANCE OF TRAFFIC	0.00	MILE	$5,000,000.00000	$0.00

Total for Group 0070: $0.00

Group 0071: Wetland Construction

0234	T-MC-WTLD MAJOR COST DRIVERS, WETLAND CONSTRUCTION	0.00	LS	$0.00000	$0.00
0360	T-MC-WTLD MAJOR COST DRIVERS, WETLAND CONSTRUCTION	0.00	LS	$0.00000	$0.00

Total for Group 0071: $0.00

Line #	Item Number	Quantity	Units	Unit Price	Extension
	Description				
	Supplemental Description				

Group 0072: Misc. Costs

0235	U-MC-MISC	0.00	LS	$0.00000	$0.00
	MAJOR COST DRIVERS, MISCELLANEOUS COSTS				
0236	U-OC-MISC	0.00	LS	$0.00000	$0.00
	OTHER COSTS, MISCELLANEOUS COSTS				
0237	100E00300	0.00	LS	$10,000.00000	$0.00
	SPECIAL - PREMIUM ON RAILROADS' PROTECTIVE PUBLIC LIABILITY AND PROPERTY DAMAGE LIABILITY INSURANCE				
0238	623E10000	1.00	LS	$156,414.28000	$156,414.28
	CONSTRUCTION LAYOUT STAKES				
	0.5%				
0239	614E11000	0.00	LS	$0.00000	$0.00
	MAINTAINING TRAFFIC				
	2%				
0240	619E16020	19.00	MNTH	$2,500.00000	$47,500.00
	FIELD OFFICE, TYPE C				
0242	624E10000	1.00	LS	$800,000.00000	$800,000.00
	MOBILIZATION				
0511	103E05000	1.00	LS	$156,414.28000	$156,414.28
	PREMIUM FOR CONTRACT PERFORMANCE BOND AND FOR PAYMENT BOND				
	0.5%				

Total for Group 0072: $1,160,328.56

Group 0073: Design Contingency Costs

0243	V-MC-CNTG	1.00	LS	$0.00000	$0.00
	MAJOR COST DRIVERS, CONTINGENCY COSTS				
0244	V-OC-CNTG	1.00	LS	$8,110,796.20000	$8,110,796.20
	OTHER COSTS, CONTINGENCY COSTS				
	25%				

Total for Group 0073: $8,110,796.20

Group 0074: Inflation Contingency

0266	V-OC-CNTG	0.00	LS	$0.00000	$0.00
	OTHER COSTS, CONTINGENCY COSTS				

Total for Group 0074: $0.00

Estimate Alt E OH cont 2

Estimated Cost: $12,341,802.99

Contingency: 29.20%

Estimated Total: $15,945,609.46

Linn St Bridge Replacement and Gest St Reconstruction

Base Date: 07/22/10

Spec Year: 10

Unit System: E

Work Type: GEN CONST: INVLVS 2 OR MOR MAJ WRK TYPE

Highway Type: 451

Urban/Rural Type: URBAN CLASS

Season: SUMMER

County: HAMILTON

Midpoint of Latitude:

Midpoint of Longitude:

District: 8

Federal/State Project Number:

Estimate Type: C1

Prepared by Parsons Brinckerhoff on 07/22/10

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
Group 0001: Pavement Removal					
0001	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	0.00	LS	$0.00000	$0.00
0343	202E23000 PAVEMENT REMOVED	15,372.00	SY	$8.00000	$122,976.00
				Total for Group 0001:	$122,976.00
Group 0002: Excavation - Rock					
0003	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	0.00	CY	$30.00000	$0.00
				Total for Group 0002:	$0.00
Group 0003: Excavation - Soil					
0004	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0344	203E10000 EXCAVATION	9,087.00	CY	$8.00000	$72,696.00
				Total for Group 0003:	$72,696.00
Group 0004: Excavation - Hazardous					
0006	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
				Total for Group 0004:	$0.00
Group 0005: Fill - Embankment (includes wasting excess excavation)					
0007	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0345	203E20000 EMBANKMENT	9,087.00	CY	$6.00000	$54,522.00
				Total for Group 0005:	$54,522.00
Group 0006: Fill - Lime Modified Soil					
0010	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0346	205E10050 LIME STABILIZED EMBANKMENT	0.00	CY	$7.00000	$0.00
0347	205E10300 LIME	0.00	TON	$5.00000	$0.00
				Total for Group 0006:	$0.00
Group 0007: Fill - Borrow					
0011	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	0.00	CY	$8.00000	$0.00
				Total for Group 0007:	$0.00
Group 0008: Concrete Barrier					
0012	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0465	622E10060	0.00	FT	$110.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	CONCRETE BARRIER, SINGLE SLOPE, TYPE B				

Total for Group 0008: $0.00

Group 0009: Subgrade Treatment - Lime

0014	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0348	206E10000 LIME STABILIZED SUBGRADE	0.00	SY	$1.85000	$0.00
0349	206E10300 LIME	0.00	TON	$10.00000	$0.00
0350	206E11000 CURING COAT	0.00	SY	$1.00000	$0.00
0351	206E20000 TEST ROLLING	0.00	HOUR	$4.00000	$0.00

Total for Group 0009: $0.00

Group 0010: Subgrade Treatment - Cement

0016	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	13,837.00	SY	$2.50000	$34,592.50

Total for Group 0010: $34,592.50

Group 0011: Subgrade Treatment - Undercut & Backfill

0017	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00

Total for Group 0011: $0.00

Group 0012: Other Roadway Costs

0019	A-OC-RDWY OTHER COSTS, ROADWAY *Contingency*	0.00	LS	$0.00000	$0.00
0020	201E11000 CLEARING AND GRUBBING	0.00	LS	$2,200.00000	$0.00
0021	201E21800 TREE REMOVED, 18" SIZE	0.00	EACH	$250.00000	$0.00
0022	201E23000 TREE REMOVED, 30" SIZE	0.00	EACH	$405.00000	$0.00
0023	201E24800 TREE REMOVED, 48" SIZE	0.00	EACH	$772.00000	$0.00
0026	202E11000 STRUCTURE REMOVED	0.00	LS	$9,310.13000	$0.00
0028	202E35200 PIPE REMOVED, OVER 24"	0.00	FT	$0.00000	$0.00
0029	202E38000 GUARDRAIL REMOVED	0.00	FT	$0.00000	$0.00
0030	202E42206 ANCHOR ASSEMBLY REMOVED	0.00	EACH	$0.00000	$0.00
0031	202E58000 MANHOLE REMOVED	0.00	EACH	$0.00000	$0.00
0032	202E58100 CATCH BASIN REMOVED	0.00	EACH	$0.00000	$0.00
0033	202E75000 FENCE REMOVED	0.00	FT	$0.00000	$0.00
0034	204E45000	0.00	HOUR	$126.59000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	PROOF ROLLING				
0035	204E10000 SUBGRADE COMPACTION	0.00	SY	$0.81000	$0.00
0036	451E30000 SPECIAL - PRESSURE RELIEF JOINT, TYPE A	0.00	FT	$0.00000	$0.00
0037	606E13000 GUARDRAIL, TYPE 5	0.00	FT	$14.00000	$0.00
0038	606E22000 ANCHOR ASSEMBLY, TYPE B-98	0.00	EACH	$1,411.29597	$0.00
0039	606E22010 ANCHOR ASSEMBLY, TYPE E-98	0.00	EACH	$1,712.52574	$0.00
0040	606E26500 ANCHOR ASSEMBLY, TYPE T	0.00	EACH	$487.23435	$0.00
0041	606E35000 BRIDGE TERMINAL ASSEMBLY, TYPE 1	0.00	EACH	$969.12750	$0.00
0042	606E35100 BRIDGE TERMINAL ASSEMBLY, TYPE 2	0.00	EACH	$338.36354	$0.00
0043	606E60010 IMPACT ATTENUATOR, TYPE 1-98 (BIDIRECTIONAL)	0.00	EACH	$3,439.05897	$0.00
0044	607E15000 FENCE, TYPE 47 *For Fencing*	0.00	FT	$0.00000	$0.00
0423	304E20000 AGGREGATE BASE *For Fencing*	0.00	CY	$0.00000	$0.00
0424	601E32100 ROCK CHANNEL PROTECTION, TYPE B WITH FILTER *For Fencing*	0.00	CY	$0.00000	$0.00
0425	607E40500 GATE, TYPE 47 *For Fencing*	0.00	EACH	$731.31641	$0.00
0426	625E32000 GROUND ROD *For Fencing*	0.00	EACH	$0.00000	$0.00
0466		0.00		$0.00000	$0.00

Total for Group 0012: $0.00

Group 0014: Seeding & Mulching / Sodding

0045	B-MC-ERCO MAJOR COST DRIVERS, EROSION CONTROL	1.00	LS	$0.00000	$0.00
0467	659E10000 SEEDING AND MULCHING	2,746.00	SY	$1.00000	$2,746.00
0531	660E25000 SODDING STAKED	0.00	SY	$15.00000	$0.00

Total for Group 0014: $2,746.00

Group 0015: Rock Channel Protection

0047	B-MC-ERCO MAJOR COST DRIVERS, EROSION CONTROL	1.00	LS	$0.00000	$0.00
0469	601E32000 ROCK CHANNEL PROTECTION, TYPE A WITH FILTER	0.00	CY	$75.00000	$0.00

Total for Group 0015: $0.00

Group 0016: Erosion Control - Item 832

0048	B-MC-ERCO	1.00	LS	$0.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	MAJOR COST DRIVERS, EROSION CONTROL				
0470	832E10000 STORM WATER POLLUTION PREVENTION PLAN	1.00	LS	$20,000.00000	$20,000.00
0471	832E20000 EROSION CONTROL	6,000.00	EACH	$1.00000	$6,000.00

Total for Group 0016: $26,000.00

Group 0017: Other Erosion Control Costs

0049	670E00700 DITCH EROSION PROTECTION	0.00	SY	$0.00000	$0.00
0050	B-OC-ERCO OTHER COSTS, EROSION CONTROL	1.00	LS	$0.00000	$0.00
0051	659E00100 SOIL ANALYSIS TEST	0.00	EACH	$0.00000	$0.00
0052	659E00300 TOPSOIL	0.00	CY	$0.00000	$0.00
0053	659E14000 REPAIR SEEDING AND MULCHING	0.00	SY	$0.00000	$0.00
0054	659E15000 INTER-SEEDING	0.00	SY	$0.71000	$0.00
0055	659E20000 COMMERCIAL FERTILIZER	0.00	TON	$410.06813	$0.00
0056	659E31000 LIME	0.00	ACRE	$0.00000	$0.00
0057	659E35000 WATER	0.00	MGAL	$5.00000	$0.00
0058	659E40000 MOWING	0.00	MSF	$0.00000	$0.00

Total for Group 0017: $0.00

Group 0018: Underdrains

0059	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0062	605E05100 4" SHALLOW PIPE UNDERDRAINS	4,644.00	FT	$8.00000	$37,152.00

Total for Group 0018: $37,152.00

Group 0019: Culverts - Type A: < 5'

0474	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	0.00	LS	$0.00000	$0.00
0480	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Pipe Structures - Reinforced Concrete Pipe up to 60"*	0.00	FT	$350.00000	$0.00
0481	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Concrete Masonry*	0.00	EACH	$1,500.00000	$0.00

Total for Group 0019: $0.00

Group 0021: Culverts, Type A: 5' - 10'

0067	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0476	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	0.00	FT	$550.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	Pipe Structures - Reinforced Concrete 5'-10' 66" to 78"				
0477	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Concrete - Headwalls/wingwalls*	0.00	EACH	$1,500.00000	$0.00

Total for Group 0021: $0.00

Group 0022: Culverts, Type A: 10' - 20'

0486	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0487	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Pipe Structures - Reinforced Concrete Pipe 10'-20'*	0.00	FT	$1,400.00000	$0.00
0488	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Concrete Masonry*	0.00	EACH	$1,500.00000	$0.00

Total for Group 0022: $0.00

Group 0024: BMP's

0076	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00

Total for Group 0024: $0.00

Group 0025: Closed Storm System

0077	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0489	603E13400 30" CONDUIT, TYPE B (Average size)	1,647.00	FT	$75.00000	$123,525.00
0523	604E00800 CATCH BASIN, NO. 3A	21.00	EACH	$1,500.00000	$31,500.00
0524	604E31500 MANHOLE, NO. 3	3.00	EACH	$3,000.00000	$9,000.00
0525		0.00		$0.00000	$0.00
0526	Special Pump Station (Storm)	0.00	LS	$6,400,000.00000	$0.00
0527	Special Stormceptors	0.00	EACH	$5,750.00000	$0.00
0529	Special Retention basin improvements	0.00	LS	$109,000.00000	$0.00

Total for Group 0025: $164,025.00

Group 0026: Other Drainage Costs

0078	C-OC-DRNG OTHER COSTS, DRAINAGE	1.00	LS	$0.00000	$0.00

Total for Group 0026: $0.00

Group 0027: Mainline - Travel Lanes

0095	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0494	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg Base and Subgrade Compaction*	0.00	SY	$68.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
				Total for Group 0027:	$0.00

Group 0028: Mainline - Outside Shoulder

0100	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0495	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg base and Subgrade Compaction*	0.00	SY	$68.00000	$0.00
				Total for Group 0028:	$0.00

Group 0030: Mainline - Inside Shoulder

0115	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0496	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg base and Subgrade Compaction*	0.00	SY	$68.00000	$0.00
				Total for Group 0030:	$0.00

Group 0031: Ramps (including shoulders)

0122	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0497	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg base and Subgrade Compaction*	0.00	SY	$68.00000	$0.00
				Total for Group 0031:	$0.00

Group 0032: Non - Mainline Lanes

0132	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0498	D-MC-PVMT Asphalt *Includes 3" 448, 9" 301, 6" Agg base and Subgrade Compaction*	13,837.00	SY	$41.00000	$567,317.00
				Total for Group 0032:	$567,317.00

Group 0041: Other Pavement Costs

0163	D-OC-PVMT OTHER COSTS, PAVEMENT	1.00	LS	$0.00000	$0.00
				Total for Group 0041:	$0.00

Group 0042: Water Works

0164	E-MC-WATR MAJOR COST DRIVERS, WATER LINE	0.00	LS	$0.00000	$0.00
0165	E-OC-WATR OTHER COSTS, WATER LINE	0.00	LS	$0.00000	$0.00
				Total for Group 0042:	$0.00

Group 0043: Sanitary Line

0170	F-MC-SANI MAJOR COST DRIVERS, SANITARY SEWER	0.00	LS	$0.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
				Total for Group 0043:	$0.00
Group 0044: Lighting - Full Interchange					
0173	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	1.00	LS	$0.00000	$0.00
0499	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	0.00	EACH	$469,000.00000	$0.00
				Total for Group 0044:	$0.00
Group 0045: Lighting - Partial Interchange					
0288	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	0.00	LS	$0.00000	$0.00
				Total for Group 0045:	$0.00
Group 0046: Lighting - Continuous Roadway					
0176	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	1.00	LS	$0.00000	$0.00
0500	G-MC-LTNG Lighting - Continuous	2,640.00	FT	$35.00000	$92,400.00
				Total for Group 0046:	$92,400.00
Group 0047: Other Lighting Costs					
0177	G-OC-LTNG OTHER COSTS, LIGHTING	0.00	LS	$0.00000	$0.00
				Total for Group 0047:	$0.00
Group 0048: Traffic Surveillance					
0178	H-OC-SURV OTHER COSTS, TRAFFIC SURVEILLANCE	0.00	LS	$0.00000	$0.00
				Total for Group 0048:	$0.00
Group 0049: Signs					
0179	J-MC-TRAF MAJOR COST DRIVERS, TRAFFIC CONTROL	1.00	LS	$0.00000	$0.00
0501	J-MC-TRAF Signs	0.50	MILE	$250,000.00000	$125,000.00
0532		0.00		$0.00000	$0.00
				Total for Group 0049:	$125,000.00
Group 0050: Pavement Marking					
0200	J-MC-TRAF MAJOR COST DRIVERS, TRAFFIC CONTROL	1.00	LS	$0.00000	$0.00
0502	644E00100 EDGE LINE	1.04	MILE	$3,000.00000	$3,120.00
0503	644E00200 LANE LINE	1.09	MILE	$2,000.00000	$2,180.00
				Total for Group 0050:	$5,300.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
Group 0051: Other Traffic Control Costs					
0208	J-OC-TRAF OTHER COSTS, TRAFFIC CONTROL	1.00	LS	$0.00000	$0.00
				Total for Group 0051:	$0.00
Group 0052: Signals - Intersections					
0212	K-MC-SGNL MAJOR COST DRIVERS, SIGNALS	1.00	LS	$175,000.00000	$175,000.00
				Total for Group 0052:	$175,000.00
Group 0053: Other Traffic Signal Costs					
0213	K-OC-SGNL OTHER COSTS, SIGNALS	1.00	LS	$0.00000	$0.00
				Total for Group 0053:	$0.00
Group 0054: Landscaping					
0214	L-MC-LSCP MAJOR COST DRIVERS, LANDSCAPING	1.00	LS	$0.00000	$0.00
0215	L-OC-LSCP OTHER COSTS, LANDSCAPING	1.00	LS	$0.00000	$0.00
				Total for Group 0054:	$0.00
Group 0055: Retaining Walls $125 + $10/ft for caps, barriers and testing					
0216	M-MC-WALL MAJOR COST DRIVERS, RETAINING WALLS	1.00	LS	$0.00000	$0.00
0504	M-MC-WALL Retaining Walls	11,840.00	SF	$135.00000	$1,598,400.00
				Total for Group 0055:	$1,598,400.00
Group 0056: Other Retaining Wall Costs					
0217	M-OC-WALL OTHER COSTS, RETAINING WALLS	1.00	LS	$0.00000	$0.00
				Total for Group 0056:	$0.00
Group 0057: Building Demolition					
0218	N-MC-DEMO MAJOR COST DRIVERS, BUILDING DEMOLITION	1.00	LS	$0.00000	$0.00
0219	N-OC-DEMO OTHER COSTS, BUILDING DEMOLITION	1.00	LS	$0.00000	$0.00
0534	202E98100 REMOVAL MISC.: *Radio Tower*	0.00	EACH	$8,500.00000	$0.00
0535	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Small Residential*	0.00	EACH	$7,500.00000	$0.00
0536	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Small Commercial*	0.00	EACH	$15,000.00000	$0.00
0537	202E56101 BUILDING DEMOLISHED, AS PER PLAN	0.00	EACH	$12,000.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	Large Residential				
0538	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Large Commercial*	0.00	EACH	$30,000.00000	$0.00

Total for Group 0057: $0.00

Group 0058: Noise Barrier

0220	P-MC-NSBR MAJOR COST DRIVERS, NOISE BARRIER	1.00	LS	$0.00000	$0.00
0505	P-MC-NSBR Noise Barrier	0.00	LS	$25.00000	$0.00

Total for Group 0058: $0.00

Group 0059: Other Noise Barrier Costs

0221	P-OC-NSBR OTHER COSTS, NOISE BARRIER	1.00	LS	$0.00000	$0.00
0368	P-MC-NSBR MAJOR COST DRIVERS, NOISE BARRIER	0.00	LS	$0.00000	$0.00

Total for Group 0059: $0.00

Group 0060: New Structures

0222	R-MC-STRC MAJOR COST DRIVERS, STRUCTURES	1.00	LS	$0.00000	$0.00
0506	R-MC-STRC Tier 1 Structures to 25' Height	40,364.00	SF	$125.00000	$5,045,500.00
0507	R-MC-STRC Removal of Existing Structures non-complex	0.00	SF	$12.00000	$0.00
0508	R-MC-STRC Standard Removal of Existing Structures above average complex	57,459.00	SF	$17.00000	$976,803.00
0509	R-MC-STRC Removal of Existing Structures complex to very complex	0.00	SF	$30.00000	$0.00
0513	R-MC-STRC Tier 2 Structures 25' to 50' Height	0.00	SF	$150.00000	$0.00
0516	R-MC-STRC Tier 3 Structures 50' to 75' Height	0.00	SF	$200.00000	$0.00

Total for Group 0060: $6,022,303.00

Group 0061: Rehabilitated Structures

0223	R-MC-STRC MAJOR COST DRIVERS, STRUCTURES	0.00	SF	$45.00000	$0.00

Total for Group 0061: $0.00

Group 0062: Other Structure Costs

0224	R-OC-STRC OTHER COSTS, STRUCTURES *Contingency*	0.00	LS	$0.00000	$0.00

Total for Group 0062: $0.00

Group 0063: Temporary Road and Pavement Costs

0225	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
				Total for Group 0063:	$0.00
Group 0064: Portable Concrete Barrier (PCB)					
0226	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
				Total for Group 0064:	$0.00
Group 0065: Impact Attenuators					
0227	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
				Total for Group 0065:	$0.00
Group 0066: Sheeting					
0229	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
				Total for Group 0066:	$0.00
Group 0067: Temporary Signals					
0230	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	0.00	LS	$0.00000	$0.00
				Total for Group 0067:	$0.00
Group 0068: Work Zone Lighting					
0231	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	0.00	LS	$0.00000	$0.00
				Total for Group 0068:	$0.00
Group 0069: Innovative Contracting Incentatives					
0232	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	0.00	LS	$0.00000	$0.00
				Total for Group 0069:	$0.00
Group 0070: Other MOT Costs					
0233	S-OC-MNTC OTHER COSTS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
0512	S-OC-MNTC OTHER COSTS, MAINTENANCE OF TRAFFIC	0.50	MILE	$500,000.00000	$250,000.00
0533		0.00		$0.00000	$0.00
				Total for Group 0070:	$250,000.00
Group 0071: Wetland Construction					
0234	T-MC-WTLD MAJOR COST DRIVERS, WETLAND CONSTRUCTION	0.00	LS	$0.00000	$0.00
0360	T-MC-WTLD MAJOR COST DRIVERS, WETLAND CONSTRUCTION	0.00	LS	$0.00000	$0.00
				Total for Group 0071:	$0.00

Line #	Item Number	Quantity	Units	Unit Price	Extension
	Description				
	Supplemental Description				

Group 0072: Misc. Costs

0235	U-MC-MISC	0.00	LS	$0.00000	$0.00
	MAJOR COST DRIVERS, MISCELLANEOUS COSTS				
0236	100E00300	0.00	LS	$10,000.00000	$0.00
	SPECIAL - PREMIUM ON RAILROADS' PROTECTIVE PUBLIC LIABILITY AND PROPERTY DAMAGE LIABILITY INSURANCE				
0237	U-OC-MISC	0.00	LS	$0.00000	$0.00
	OTHER COSTS, MISCELLANEOUS COSTS				
0238	623E10000	1.00	LS	$46,752.15000	$46,752.15
	CONSTRUCTION LAYOUT STAKES				
	0.5%				
0239	614E11000	1.00	LS	$187,008.59000	$187,008.59
	MAINTAINING TRAFFIC				
	2%				
0240	619E16020	17.00	MNTH	$2,500.00000	$42,500.00
	FIELD OFFICE, TYPE C				
0242	624E10000	1.00	LS	$200,000.00000	$200,000.00
	MOBILIZATION				
0511	103E05000	1.00	LS	$46,752.15000	$46,752.15
	PREMIUM FOR CONTRACT PERFORMANCE BOND AND FOR PAYMENT BOND				
	0.5%				

Total for Group 0072: $523,012.89

Group 0073: Design Contingency Costs

0243	V-MC-CNTG	1.00	LS	$0.00000	$0.00
	MAJOR COST DRIVERS, CONTINGENCY COSTS				
0244	V-OC-CNTG	1.00	LS	$2,468,360.60000	$2,468,360.60
	OTHER COSTS, CONTINGENCY COSTS				
	25%				

Total for Group 0073: $2,468,360.60

Group 0074: Inflation Contingency

0266	V-OC-CNTG	0.00	LS	$0.00000	$0.00
	OTHER COSTS, CONTINGENCY COSTS				

Total for Group 0074: $0.00

PID 89056 **County** HAM **Route** 75 **Section** 1.04 **This R/W Acquisition cost estimate is prepared for Alternative** **E**

Macro View

Acquisition	Unit (SF) or (Acreage)	X	Cost/Unit ($$/SF) ($$/Acre)	Subtotal Land Value	+	Structure Values (if Taken)	+	Damages (Loss in Value to the Residue)	Subtotal Structures & Damages	=	Total Non Labor Acquisition Costs
-Residential	0	X	$0.00	$0	+	0	+	N/A	$0.00	=	$0.00
-Commercial	0.25	X	$330,153.78	$82,538	+	0	+	N/A	$0.00	=	$82,538.45
-Industrial	0	X	$0.00	$0	+	0	+	N/A	$0.00	=	$0.00
-Agricultural	0	X	$0.00	$0	+	0	+	N/A	$0.00	=	$0.00

Attributes

Parcel Count	Total Takes	Partial Takes	No. of Structures Impacted
0	0	0	0
3	0	3	0
0	0	0	0
0	0	0	0

Relocation	Unit (Displacement)	X	*RHP/*RSP	+	Move Cost	+	Reestablishment	=	Total Non Labor RAP Costs
-Residential									
Owner Occupant	0	X	$34,000	+	$6,000			=	$0
Tenant	0	X	$10,000	+	$1,750			=	$0
-Commerical/Farm/NPO									
Owner	0			X	$15,000	+	$10,000	=	$0
Tenant	0			X	$15,000	+	$10,000	=	$0
-Personal Property	0			X	$1,000			=	$0

Estimate amount of time necessary to relocate all RAP parcels = (months) 18

Estimate number of years until project wide R/W acquisition begins = 1.75

{[(Total Cost of Acquisition Cost)x0.90]x0.025}+{[(Total of Acquisition Cost)x0.15]x1.20}+{[(Total of Acquisition Cost)x0.10]x1.50} = Contingency	Contingency (Incidentals, Admin. Review & Appropriation)	29094.80186
	Total Non Labor R/W Costs	$111,633.25

*RHP - Replacement Housing Payment
*RSP - Rent Supplemental Payment
*NPO - Non-Profit Organization

Instruction for Acquisition & Relocation Cost Estimates

Estimate the total number of acres involved in the project and allocate those acres into the four categories shown.

Assign an average unit price for each category. These unit prices are typically taken from the auditors tax card data. Cost Estimates prepared at Step 4 (Step 7 on Major Projects) and thereafter must base unit prices on a project sales data book instead of tax card data.

Add structure values from the auditors tax cards only if the structures are taken.

Damages must be assessed by a pre-qualified expert with experience in Before & After analysis. This usually occurs at Step 4 for Minor projects (Step 6 on Major Projects) and requires some knowledge of the impacts of the project on structures.

Relocation Cost Estimates must consider the complexity of the move process. All move estimates that involve a business or a mulit-tenant residential structure should use the services of a relocation Assistance professionnal to accurately gauge costs.

Macro View

Labor (External)	Unit (Parcels)	X	Unit Price	=	Total Cost
Titles	3	X	$400	=	$1,200
Appraisal					
-Simple	0	X	$750	=	$0
-Detailed	3	X	$4,500	=	$13,500
Appraisal Review					
-Simple	0	X	$500	=	$0
-Detailed	3	X	$2,000	=	$6,000
Negotiations	3	X	$1,100	=	$3,300
Relocations					
-Personal Property	0	X	$1,500	=	$0
-Residential	0	X	$5,200	=	$0
-Commercial/Farm/*NPO	0	X	$5,600	=	$0
Closings	3	X	$400	=	$1,200
Project Management	3	X	$550	=	$1,650
Asbestos Testing & Abatement		X		=	
	Total Labor Costs				$26,850

*NPO = Non-Profit Organization

This R/W Cost Estimate Prepared by	Date
Chris Clemons	8/4/2010

This R/W Cost Estimate was performed at Step 6 of the PDP for MAJOR Projects using

Total Labor Costs	$26,850.00
Total Non Labor R/W Costs	$111,633.25
Inflation Adjustments	$8,447.48
Total R/W Costs	**$146,930.73**

Instructions for Labor Cost Estimates

Labor costs are a function of time, distance, and talent. Labor costs estimates should reflect the complexity of the project and the talent necessary to acquire the right of way in a timely manner. The person making the cost estimate may adjust the figures given for the particular project being estimated to reflect local labor costs. It is critical that the estimate be labeled to reflect the alignment alternative, the step in the PDP process and the person(s) performing the estimate.

Comments

Cost/Unit were generated from auditors tax card data.

P.D.P. R/W Cost Estimator

Estimate Alt E OH cont 3

Estimated Cost: $23,264,774.05

Contingency: 32.90%

Estimated Total: $30,918,884.71

OH-3 Ezzard Charles - Bridge Replacement, Western Ave Reconst., Freeman, Winchell, Court, 9th

Base Date: 07/22/10

Spec Year: 10

Unit System: E

Work Type: GEN CONST: INVLVS 2 OR MOR MAJ WRK TYPE

Highway Type: 451

Urban/Rural Type: URBAN CLASS

Season: SUMMER

County: HAMILTON

Midpoint of Latitude:

Midpoint of Longitude:

District: 8

Federal/State Project Number:

Estimate Type: C1

Prepared by Parsons Brinckerhoff on 07/22/10

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
Group 0001: Pavement Removal					
0001	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	0.00	LS	$0.00000	$0.00
0343	202E23000 PAVEMENT REMOVED	21,262.00	SY	$8.00000	$170,096.00
				Total for Group 0001:	$170,096.00
Group 0002: Excavation - Rock					
0003	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	0.00	CY	$30.00000	$0.00
				Total for Group 0002:	$0.00
Group 0003: Excavation - Soil					
0004	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0344	203E10000 EXCAVATION	74,822.00	CY	$8.00000	$598,576.00
				Total for Group 0003:	$598,576.00
Group 0004: Excavation - Hazardous					
0006	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
				Total for Group 0004:	$0.00
Group 0005: Fill - Embankment (includes wasting excess excavation)					
0007	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0345	203E20000 EMBANKMENT	74,822.00	CY	$6.00000	$448,932.00
				Total for Group 0005:	$448,932.00
Group 0006: Fill - Lime Modified Soil					
0010	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0346	205E10050 LIME STABILIZED EMBANKMENT	0.00	CY	$7.00000	$0.00
0347	205E10300 LIME	0.00	TON	$5.00000	$0.00
				Total for Group 0006:	$0.00
Group 0007: Fill - Borrow					
0011	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	0.00	CY	$8.00000	$0.00
				Total for Group 0007:	$0.00
Group 0008: Concrete Barrier					
0012	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0465	622E10060	2,420.00	FT	$110.00000	$266,200.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	CONCRETE BARRIER, SINGLE SLOPE, TYPE B				

Total for Group 0008: $266,200.00

Group 0009: Subgrade Treatment - Lime

0014	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0348	206E10000 LIME STABILIZED SUBGRADE	0.00	SY	$1.85000	$0.00
0349	206E10300 LIME	0.00	TON	$10.00000	$0.00
0350	206E11000 CURING COAT	0.00	SY	$1.00000	$0.00
0351	206E20000 TEST ROLLING	0.00	HOUR	$4.00000	$0.00

Total for Group 0009: $0.00

Group 0010: Subgrade Treatment - Cement

0016	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	32,714.00	SY	$2.50000	$81,785.00

Total for Group 0010: $81,785.00

Group 0011: Subgrade Treatment - Undercut & Backfill

0017	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00

Total for Group 0011: $0.00

Group 0012: Other Roadway Costs

0019	A-OC-RDWY OTHER COSTS, ROADWAY *Contingency*	0.00	LS	$0.00000	$0.00
0020	201E11000 CLEARING AND GRUBBING	0.00	LS	$856,500.00000	$0.00
0021	201E21800 TREE REMOVED, 18" SIZE	0.00	EACH	$250.00000	$0.00
0022	201E23000 TREE REMOVED, 30" SIZE	0.00	EACH	$405.00000	$0.00
0023	201E24800 TREE REMOVED, 48" SIZE	0.00	EACH	$772.00000	$0.00
0026	202E11000 STRUCTURE REMOVED	0.00	LS	$9,310.13000	$0.00
0028	202E35200 PIPE REMOVED, OVER 24"	0.00	FT	$0.00000	$0.00
0029	202E38000 GUARDRAIL REMOVED	0.00	FT	$0.00000	$0.00
0030	202E42206 ANCHOR ASSEMBLY REMOVED	0.00	EACH	$0.00000	$0.00
0031	202E58000 MANHOLE REMOVED	0.00	EACH	$0.00000	$0.00
0032	202E58100 CATCH BASIN REMOVED	0.00	EACH	$0.00000	$0.00
0033	202E75000 FENCE REMOVED	0.00	FT	$0.00000	$0.00
0034	204E45000	0.00	HOUR	$126.59000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	PROOF ROLLING				
0035	204E10000 SUBGRADE COMPACTION	0.00	SY	$0.81000	$0.00
0036	451E30000 SPECIAL - PRESSURE RELIEF JOINT, TYPE A	0.00	FT	$0.00000	$0.00
0037	606E13000 GUARDRAIL, TYPE 5	0.00	FT	$14.00000	$0.00
0038	606E22000 ANCHOR ASSEMBLY, TYPE B-98	0.00	EACH	$1,411.29597	$0.00
0039	606E22010 ANCHOR ASSEMBLY, TYPE E-98	0.00	EACH	$1,712.52574	$0.00
0040	606E26500 ANCHOR ASSEMBLY, TYPE T	0.00	EACH	$487.23435	$0.00
0041	606E35000 BRIDGE TERMINAL ASSEMBLY, TYPE 1	0.00	EACH	$969.12750	$0.00
0042	606E35100 BRIDGE TERMINAL ASSEMBLY, TYPE 2	0.00	EACH	$338.36354	$0.00
0043	606E60010 IMPACT ATTENUATOR, TYPE 1-98 (BIDIRECTIONAL)	0.00	EACH	$3,439.05897	$0.00
0044	607E15000 FENCE, TYPE 47 *For Fencing*	0.00	FT	$0.00000	$0.00
0423	304E20000 AGGREGATE BASE *For Fencing*	0.00	CY	$0.00000	$0.00
0424	601E32100 ROCK CHANNEL PROTECTION, TYPE B WITH FILTER *For Fencing*	0.00	CY	$0.00000	$0.00
0425	607E40500 GATE, TYPE 47 *For Fencing*	0.00	EACH	$731.31641	$0.00
0426	625E32000 GROUND ROD *For Fencing*	0.00	EACH	$0.00000	$0.00
0466		0.00		$0.00000	$0.00

Total for Group 0012: $0.00

Group 0014: Seeding & Mulching / Sodding

0045	B-MC-ERCO MAJOR COST DRIVERS, EROSION CONTROL	1.00	LS	$0.00000	$0.00
0467	659E10000 SEEDING AND MULCHING	21,752.00	SY	$1.00000	$21,752.00
0531	660E25000 SODDING STAKED	0.00	SY	$15.00000	$0.00

Total for Group 0014: $21,752.00

Group 0015: Rock Channel Protection

0047	B-MC-ERCO MAJOR COST DRIVERS, EROSION CONTROL	1.00	LS	$0.00000	$0.00
0469	601E32000 ROCK CHANNEL PROTECTION, TYPE A WITH FILTER	0.00	CY	$75.00000	$0.00

Total for Group 0015: $0.00

Group 0016: Erosion Control - Item 832

0048	B-MC-ERCO	1.00	LS	$0.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	MAJOR COST DRIVERS, EROSION CONTROL				
0470	832E10000 STORM WATER POLLUTION PREVENTION PLAN	1.00	LS	$50,000.00000	$50,000.00
0471	832E20000 EROSION CONTROL	35,000.00	EACH	$1.00000	$35,000.00

Total for Group 0016: $85,000.00

Group 0017: Other Erosion Control Costs

0049	670E00700 DITCH EROSION PROTECTION	0.00	SY	$0.00000	$0.00
0050	B-OC-ERCO OTHER COSTS, EROSION CONTROL	1.00	LS	$0.00000	$0.00
0051	659E00100 SOIL ANALYSIS TEST	0.00	EACH	$0.00000	$0.00
0052	659E00300 TOPSOIL	0.00	CY	$0.00000	$0.00
0053	659E14000 REPAIR SEEDING AND MULCHING	0.00	SY	$0.00000	$0.00
0054	659E15000 INTER-SEEDING	0.00	SY	$0.71000	$0.00
0055	659E20000 COMMERCIAL FERTILIZER	0.00	TON	$410.06813	$0.00
0056	659E31000 LIME	0.00	ACRE	$0.00000	$0.00
0057	659E35000 WATER	0.00	MGAL	$5.00000	$0.00
0058	659E40000 MOWING	0.00	MSF	$0.00000	$0.00

Total for Group 0017: $0.00

Group 0018: Underdrains

0059	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0062	605E05100 4" SHALLOW PIPE UNDERDRAINS	27,245.00	FT	$8.00000	$217,960.00

Total for Group 0018: $217,960.00

Group 0019: Culverts - Type A: < 5'

0474	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	0.00	LS	$0.00000	$0.00
0480	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Pipe Structures - Reinforced Concrete Pipe up to 60"*	0.00	FT	$350.00000	$0.00
0481	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Concrete Masonry*	0.00	EACH	$1,500.00000	$0.00

Total for Group 0019: $0.00

Group 0021: Culverts, Type A: 5' - 10'

0067	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0476	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	0.00	FT	$550.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	Pipe Structures - Reinforced Concrete 5'-10' 66" to 78"				
0477	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Concrete - Headwalls/wingwalls*	0.00	EACH	$1,500.00000	$0.00

Total for Group 0021: $0.00

Group 0022: Culverts, Type A: 10' - 20'

0486	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0487	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Pipe Structures - Reinforced Concrete Pipe 10'-20'*	0.00	FT	$1,400.00000	$0.00
0488	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Concrete Masonry*	0.00	EACH	$1,500.00000	$0.00

Total for Group 0022: $0.00

Group 0024: BMP's

0076	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00

Total for Group 0024: $0.00

Group 0025: Closed Storm System

0077	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0489	603E13400 30" CONDUIT, TYPE B (Average size)	1,679.00	FT	$75.00000	$125,925.00
0523	604E00800 CATCH BASIN, NO. 3A	28.00	EACH	$1,500.00000	$42,000.00
0524	604E31500 MANHOLE, NO. 3	4.00	EACH	$3,000.00000	$12,000.00
0526	Special Pump Station (Storm)	0.00	LS	$6,400,000.00000	$0.00
0527	Special Stormceptors	0.00	EACH	$5,750.00000	$0.00
0529	Special Retention basin improvements	0.00	LS	$109,000.00000	$0.00
0533	604E36601 PRECAST REINFORCED CONCRETE OUTLET, AS PER PLAN	0.00	EACH	$0.00000	$0.00

Total for Group 0025: $179,925.00

Group 0026: Other Drainage Costs

0078	C-OC-DRNG OTHER COSTS, DRAINAGE	1.00	LS	$0.00000	$0.00

Total for Group 0026: $0.00

Group 0027: Mainline - Travel Lanes

0095	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0494	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg Base and Subgrade Compaction*	0.00	SY	$68.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension

Total for Group 0027: $0.00

Group 0028: Mainline - Outside Shoulder

0100	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0495	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg base and Subgrade Compaction*	0.00	SY	$68.00000	$0.00

Total for Group 0028: $0.00

Group 0030: Mainline - Inside Shoulder

0115	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0496	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg base and Subgrade Compaction*	0.00	SY	$68.00000	$0.00

Total for Group 0030: $0.00

Group 0031: Ramps (including shoulders)

0122	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0497	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg base and Subgrade Compaction*	8,088.00	SY	$68.00000	$549,984.00

Total for Group 0031: $549,984.00

Group 0032: Non - Mainline Lanes

0132	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0498	D-MC-PVMT Asphalt *Includes 3" 448, 9" 301, 6" Agg base and Subgrade Compaction*	24,626.00	SY	$41.00000	$1,009,666.00
0534	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Large Commercial*	0.00	EACH	$30,000.00000	$0.00
0535	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Large Residential*	0.00	EACH	$12,000.00000	$0.00
0536	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Small Commercial*	0.00	EACH	$15,000.00000	$0.00
0537	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Small Residential*	0.00	EACH	$7,500.00000	$0.00
0538	202E98100 REMOVAL MISC.: *Radio Tower*	0.00	EACH	$8,500.00000	$0.00

Total for Group 0032: $1,009,666.00

Group 0041: Other Pavement Costs

0163	D-OC-PVMT OTHER COSTS, PAVEMENT	1.00	LS	$0.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
				Total for Group 0041:	$0.00
Group 0042: Water Works					
0164	E-MC-WATR MAJOR COST DRIVERS, WATER LINE	0.00	LS	$0.00000	$0.00
0165	E-OC-WATR OTHER COSTS, WATER LINE	0.00	LS	$0.00000	$0.00
				Total for Group 0042:	$0.00
Group 0043: Sanitary Line					
0170	F-MC-SANI MAJOR COST DRIVERS, SANITARY SEWER	0.00	LS	$0.00000	$0.00
				Total for Group 0043:	$0.00
Group 0044: Lighting - Full Interchange					
0173	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	1.00	LS	$0.00000	$0.00
0499	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	0.00	EACH	$469,000.00000	$0.00
				Total for Group 0044:	$0.00
Group 0045: Lighting - Partial Interchange					
0288	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	0.00	LS	$0.00000	$0.00
				Total for Group 0045:	$0.00
Group 0046: Lighting - Continuous Roadway					
0176	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	1.00	LS	$0.00000	$0.00
0500	G-MC-LTNG Lighting - Continuous	3,696.00	FT	$35.00000	$129,360.00
				Total for Group 0046:	$129,360.00
Group 0047: Other Lighting Costs					
0177	G-OC-LTNG OTHER COSTS, LIGHTING	0.00	LS	$0.00000	$0.00
				Total for Group 0047:	$0.00
Group 0048: Traffic Surveillance					
0178	H-OC-SURV OTHER COSTS, TRAFFIC SURVEILLANCE	0.00	LS	$0.00000	$0.00
				Total for Group 0048:	$0.00
Group 0049: Signs					
0179	J-MC-TRAF MAJOR COST DRIVERS, TRAFFIC CONTROL	1.00	LS	$0.00000	$0.00
0501	J-MC-TRAF Signs	0.70	MILE	$250,000.00000	$175,000.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
				Total for Group 0049:	$175,000.00
Group 0050: Pavement Marking					
0200	J-MC-TRAF MAJOR COST DRIVERS, TRAFFIC CONTROL	1.00	LS	$0.00000	$0.00
0502	644E00100 EDGE LINE	4.04	MILE	$3,000.00000	$12,120.00
0503	644E00200 LANE LINE	0.85	MILE	$2,000.00000	$1,700.00
				Total for Group 0050:	$13,820.00
Group 0051: Other Traffic Control Costs					
0208	J-OC-TRAF OTHER COSTS, TRAFFIC CONTROL	1.00	LS	$0.00000	$0.00
				Total for Group 0051:	$0.00
Group 0052: Signals - Intersections					
0212	K-MC-SGNL MAJOR COST DRIVERS, SIGNALS	1.00	LS	$0.00000	$0.00
				Total for Group 0052:	$0.00
Group 0053: Other Traffic Signal Costs					
0213	K-OC-SGNL OTHER COSTS, SIGNALS	1.00	LS	$0.00000	$0.00
				Total for Group 0053:	$0.00
Group 0054: Landscaping					
0214	L-MC-LSCP MAJOR COST DRIVERS, LANDSCAPING	1.00	LS	$0.00000	$0.00
0215	L-OC-LSCP OTHER COSTS, LANDSCAPING	1.00	LS	$0.00000	$0.00
				Total for Group 0054:	$0.00
Group 0055: Retaining Walls $125 + $10/ft for caps, barriers and testing					
0216	M-MC-WALL MAJOR COST DRIVERS, RETAINING WALLS	1.00	LS	$0.00000	$0.00
0504	M-MC-WALL Retaining Walls	33,465.00	SF	$135.00000	$4,517,775.00
				Total for Group 0055:	$4,517,775.00
Group 0056: Other Retaining Wall Costs					
0217	M-OC-WALL OTHER COSTS, RETAINING WALLS	1.00	LS	$0.00000	$0.00
				Total for Group 0056:	$0.00
Group 0057: Building Demolition					
0218	N-MC-DEMO MAJOR COST DRIVERS, BUILDING DEMOLITION	1.00	LS	$0.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
0219	N-OC-DEMO OTHER COSTS, BUILDING DEMOLITION	1.00	LS	$0.00000	$0.00

Total for Group 0057: $0.00

Group 0058: Noise Barrier

0220	P-MC-NSBR MAJOR COST DRIVERS, NOISE BARRIER	1.00	LS	$0.00000	$0.00
0505	P-MC-NSBR Noise Barrier	13,370.00	SF	$25.00000	$334,250.00

Total for Group 0058: $334,250.00

Group 0059: Other Noise Barrier Costs

0221	P-OC-NSBR OTHER COSTS, NOISE BARRIER	1.00	LS	$0.00000	$0.00
0368	P-MC-NSBR MAJOR COST DRIVERS, NOISE BARRIER	0.00	LS	$0.00000	$0.00

Total for Group 0059: $0.00

Group 0060: New Structures

0222	R-MC-STRC MAJOR COST DRIVERS, STRUCTURES	1.00	LS	$0.00000	$0.00
0506	R-MC-STRC Tier 1 Structures to 25' Height	63,551.00	SF	$125.00000	$7,943,875.00
0507	R-MC-STRC Removal of Existing Structures non-complex	2,637.00	SF	$12.00000	$31,644.00
0508	R-MC-STRC Standard Removal of Existing Structures above average complex	28,124.00	SF	$17.00000	$478,108.00
0509	R-MC-STRC Removal of Existing Structures complex to very complex	0.00	SF	$30.00000	$0.00
0513	R-MC-STRC Tier 2 Structures 25' to 50' Height	0.00	SF	$150.00000	$0.00
0516	R-MC-STRC Tier 3 Structures 50' to 75' Height	0.00	SF	$200.00000	$0.00

Total for Group 0060: $8,453,627.00

Group 0061: Rehabilitated Structures

0223	R-MC-STRC MAJOR COST DRIVERS, STRUCTURES	0.00	SF	$45.00000	$0.00

Total for Group 0061: $0.00

Group 0062: Other Structure Costs

0224	R-OC-STRC OTHER COSTS, STRUCTURES *Contingency*	0.00	LS	$0.00000	$0.00

Total for Group 0062: $0.00

Group 0063: Temporary Road and Pavement Costs

0225	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
				Total for Group 0063:	$0.00
Group 0064: Portable Concrete Barrier (PCB)					
0226	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
				Total for Group 0064:	$0.00
Group 0065: Impact Attenuators					
0227	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
				Total for Group 0065:	$0.00
Group 0066: Sheeting					
0229	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
				Total for Group 0066:	$0.00
Group 0067: Temporary Signals					
0230	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	0.00	LS	$0.00000	$0.00
				Total for Group 0067:	$0.00
Group 0068: Work Zone Lighting					
0231	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	0.00	LS	$0.00000	$0.00
				Total for Group 0068:	$0.00
Group 0069: Innovative Contracting Incentatives					
0232	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	0.00	LS	$0.00000	$0.00
				Total for Group 0069:	$0.00
Group 0070: Other MOT Costs					
0233	S-OC-MNTC OTHER COSTS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
0512	S-OC-MNTC OTHER COSTS, MAINTENANCE OF TRAFFIC	0.70	MILE	$500,000.00000	$350,000.00
				Total for Group 0070:	$350,000.00
Group 0071: Wetland Construction					
0234	T-MC-WTLD MAJOR COST DRIVERS, WETLAND CONSTRUCTION	0.00	LS	$0.00000	$0.00
0360	T-MC-WTLD MAJOR COST DRIVERS, WETLAND CONSTRUCTION	0.00	LS	$0.00000	$0.00
				Total for Group 0071:	$0.00
Group 0072: Misc. Costs					

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
0235	U-MC-MISC MAJOR COST DRIVERS, MISCELLANEOUS COSTS	0.00	LS	$0.00000	$0.00
0236	U-OC-MISC OTHER COSTS, MISCELLANEOUS COSTS	0.00	LS	$0.00000	$0.00
0237	100E00300 SPECIAL - PREMIUM ON RAILROADS' PROTECTIVE PUBLIC LIABILITY AND PROPERTY DAMAGE LIABILITY INSURANCE	0.00	LS	$10,000.00000	$0.00
0239	623E10000 CONSTRUCTION LAYOUT STAKES *0.5%*	1.00	LS	$88,018.54000	$88,018.54
0240	614E11000 MAINTAINING TRAFFIC *2%*	1.00	LS	$352,074.16000	$352,074.16
0241	619E16020 FIELD OFFICE, TYPE C	32.00	MNTH	$2,500.00000	$80,000.00
0242	624E10000 MOBILIZATION	1.00	LS	$400,000.00000	$400,000.00
0511	103E05000 PREMIUM FOR CONTRACT PERFORMANCE BOND AND FOR PAYMENT BOND *0.5%*	1.00	LS	$88,018.54000	$88,018.54
0518		0.00		$0.00000	$0.00
0519		0.00		$0.00000	$0.00
0520		0.00		$0.00000	$0.00
0521		0.00		$0.00000	$0.00
0532		0.00		$0.00000	$0.00

Total for Group 0072: $1,008,111.24

Group 0073: Design Contingency Costs

0243	V-MC-CNTG MAJOR COST DRIVERS, CONTINGENCY COSTS	1.00	LS	$0.00000	$0.00
0244	V-OC-CNTG OTHER COSTS, CONTINGENCY COSTS *25%*	1.00	LS	$4,652,954.81000	$4,652,954.81

Total for Group 0073: $4,652,954.81

Group 0074: Inflation Contingency

0266	V-OC-CNTG OTHER COSTS, CONTINGENCY COSTS	0.00	LS	$0.00000	$0.00

Total for Group 0074: $0.00

PID 89065 **County** HAM **Route** 75 **Section** 1.15 **This R/W Acquisition cost estimate is prepared for Alternative** **E**

Macro View

Acquisition	Unit (SF) or (Acreage)	X	Cost/Unit ($$/SF) ($$/Acre)	Subtotal Land Value	+	Structure Values (if Taken)	+	Damages (Loss in Value to the Residue)	Subtotal Structures & Damages	=	Total Non Labor Acquisition Costs
-Residential	8.71	X	$2.33	$20	+	0	+	N/A	$0.00	=	$20.29
-Commercial	0.07	X	$96,828.08	$6,778	+	0	+	N/A	$0.00	=	$6,777.97
-Industrial	0	X	$0.00	$0	+	0	+	N/A	$0.00	=	$0.00
-Park	0.21	X	$955.66	$201	+	0	+	N/A	$0.00	=	$200.69

Attributes

Parcel Count	Total Takes	Partial Takes	No. of Structures Impacted
1	0	1	0
1	0	1	0
0	0	0	0
1	0	1	0

Relocation	Unit (Displacement)	X	*RHP/*RSP	+	Move Cost	+	Reestablishment	=	Total Non Labor RAP Costs
-Residential									
Owner Occupant	0	X	$34,000	+	$6,000			=	$0
Tenant	0	X	$10,000	+	$1,750			=	$0
-Commerical/Farm/NPO									
Owner	0			X	$15,000	+	$10,000	=	$0
Tenant	0			X	$15,000	+	$10,000	=	$0
-Personal Property	0			X	$1,000			=	$0

Estimate amount of time necessary to relocate all RAP parcels = (months) 18

Estimate number of years until project wide R/W acquisition begins = 1.75

{[(Total Cost of Acquisition Cost)x0.90]x0.025}+{[(Total of Acquisition Cost)x0.15]x1.20}+{[(Total of Acquisition Cost)x0.10]x1.50} = Contingency

Contingency (Incidentals, Admin. Review & Appropriation)	2467.129346
Total Non Labor R/W Costs	$9,466.08

*RHP - Replacement Housing Payment
*RSP - Rent Supplemental Payment
*NPO - Non-Profit Organization

Macro View

Labor (External)	Unit (Parcels)	X	Unit Price	=	Total Cost
Titles	3	X	$400	=	$1,200
Appraisal					
-Simple	1	X	$750	=	$750
-Detailed	2	X	$4,500	=	$9,000
Appraisal Review					
-Simple	1	X	$500	=	$500
-Detailed	2	X	$2,000	=	$4,000
Negotiations	2	X	$1,100	=	$2,200
Relocations					
-Personal Property	0	X	$1,500	=	$0
-Residential	0	X	$5,200	=	$0
-Commercial/Farm/*NPO	0	X	$5,600	=	$0
Closings	3	X	$400	=	$1,200
Project Management	3	X	$550	=	$1,650
Asbestos Testing & Abatement		X		=	
	Total Labor Costs				$20,500

*NPO = Non-Profit Organization

P.D.P. R/W Cost Estimator

This R/W Cost Estimate Prepared by	Date
Chris Clemons	8/4/2010

This R/W Cost Estimate was performed at Step 6 of the PDP for MAJOR Projects using

Total Labor Costs	$20,500.00
Total Non Labor R/W Costs	$9,466.08
Inflation Adjustments	$1,827.93
Total R/W Costs	**$31,794.01**

Instruction for Acquisition & Relocation Cost Estimates

Estimate the total number of acres involved in the project and allocate those acres into the four categories shown.

Assign an average unit price for each category. These unit prices are typically taken from the auditors tax card data. Cost Estimates prepared at Step 4 (Step 7 on Major Projects) and thereafter must base unit prices on a project sales data book instead of tax card data.

Add structure values from the auditors tax cards only if the structures are taken.

Damages must be assessed by a pre-qualified expert with experience in Before & After analysis. This usually occurs at Step 4 for Minor projects (Step 6 on Major Projects) and requires some knowledge of the impacts of the project on structures.

Relocation Cost Estimates must consider the complexity of the move process. All move estimates that involve a business or a mulit-tenant residential structure should use the services of a relocation Assistance professionnal to accurately gauge costs.

Instructions for Labor Cost Estimates

Labor costs are a function of time, distance, and talent. Labor costs estimates should reflect the complexity of the project and the talent necessary to acquire the right of way in a timely manner. The person making the cost estimate may adjust the figures given for the particular project being estimated to reflect local labor costs. It is critical that the estimate be labeled to reflect the alignment alternative, the step in the PDP process and the person(s) performing the estimate.

Comments

Cost/Unit were generated from auditors tax card data. Changed "Agriculture" category to "Park" to include the Queensgate Ball Fields.

Estimate Alt E OH cont 4

Estimated Cost: $40,561,231.89

Contingency: 32.90%

Estimated Total: $53,905,877.18

OH-4 Seventh St, Eigth St, Ninth Street and 6th St northbound entrance ramps

Base Date: 07/22/10

Spec Year: 10

Unit System: E

Work Type: GEN CONST: INVLVS 2 OR MOR MAJ WRK TYPE

Highway Type: 451

Urban/Rural Type: URBAN CLASS

Season: SUMMER

County: HAMILTON

Midpoint of Latitude:

Midpoint of Longitude:

District: 8

Federal/State Project Number:

Estimate Type: C1

Prepared by Parsons Brinckerhoff on 07/22/10

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
Group 0001: Pavement Removal					
0001	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	0.00	LS	$0.00000	$0.00
0343	202E23000 PAVEMENT REMOVED	8,349.00	SY	$8.00000	$66,792.00
				Total for Group 0001:	$66,792.00
Group 0002: Excavation - Rock					
0003	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	0.00	CY	$30.00000	$0.00
				Total for Group 0002:	$0.00
Group 0003: Excavation - Soil					
0004	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0344	203E10000 EXCAVATION	11,864.00	CY	$8.00000	$94,912.00
				Total for Group 0003:	$94,912.00
Group 0004: Excavation - Hazardous					
0006	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
				Total for Group 0004:	$0.00
Group 0005: Fill - Embankment (includes wasting excess excavation)					
0007	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0345	203E20000 EMBANKMENT	11,864.00	CY	$6.00000	$71,184.00
				Total for Group 0005:	$71,184.00
Group 0006: Fill - Lime Modified Soil					
0010	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0346	205E10050 LIME STABILIZED EMBANKMENT	0.00	CY	$7.00000	$0.00
0347	205E10300 LIME	0.00	TON	$5.00000	$0.00
				Total for Group 0006:	$0.00
Group 0007: Fill - Borrow					
0011	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	0.00	CY	$8.00000	$0.00
				Total for Group 0007:	$0.00
Group 0008: Concrete Barrier					
0012	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0465	622E10060	2,905.00	FT	$110.00000	$319,550.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	CONCRETE BARRIER, SINGLE SLOPE, TYPE B				

Total for Group 0008: $319,550.00

Group 0009: Subgrade Treatment - Lime

0014	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0348	206E10000 LIME STABILIZED SUBGRADE	0.00	SY	$1.85000	$0.00
0349	206E10300 LIME	0.00	TON	$10.00000	$0.00
0350	206E11000 CURING COAT	0.00	SY	$1.00000	$0.00
0351	206E20000 TEST ROLLING	0.00	HOUR	$4.00000	$0.00

Total for Group 0009: $0.00

Group 0010: Subgrade Treatment - Cement

0016	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	8,083.00	SY	$2.50000	$20,207.50

Total for Group 0010: $20,207.50

Group 0011: Subgrade Treatment - Undercut & Backfill

0017	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00

Total for Group 0011: $0.00

Group 0012: Other Roadway Costs

0019	A-OC-RDWY OTHER COSTS, ROADWAY *Contingency*	0.00	LS	$0.00000	$0.00
0020	201E11000 CLEARING AND GRUBBING	0.00	LS	$856,500.00000	$0.00
0021	201E21800 TREE REMOVED, 18" SIZE	0.00	EACH	$250.00000	$0.00
0022	201E23000 TREE REMOVED, 30" SIZE	0.00	EACH	$405.00000	$0.00
0023	201E24800 TREE REMOVED, 48" SIZE	0.00	EACH	$772.00000	$0.00
0026	202E11000 STRUCTURE REMOVED	0.00	LS	$9,310.13000	$0.00
0028	202E35200 PIPE REMOVED, OVER 24"	0.00	FT	$0.00000	$0.00
0029	202E38000 GUARDRAIL REMOVED	0.00	FT	$0.00000	$0.00
0030	202E42206 ANCHOR ASSEMBLY REMOVED	0.00	EACH	$0.00000	$0.00
0031	202E58000 MANHOLE REMOVED	0.00	EACH	$0.00000	$0.00
0032	202E58100 CATCH BASIN REMOVED	0.00	EACH	$0.00000	$0.00
0033	202E75000 FENCE REMOVED	0.00	FT	$0.00000	$0.00
0034	204E45000	0.00	HOUR	$126.59000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	PROOF ROLLING				
0035	204E10000 SUBGRADE COMPACTION	0.00	SY	$0.81000	$0.00
0036	451E30000 SPECIAL - PRESSURE RELIEF JOINT, TYPE A	0.00	FT	$0.00000	$0.00
0037	606E13000 GUARDRAIL, TYPE 5	0.00	FT	$14.00000	$0.00
0038	606E22000 ANCHOR ASSEMBLY, TYPE B-98	0.00	EACH	$1,411.29597	$0.00
0039	606E22010 ANCHOR ASSEMBLY, TYPE E-98	0.00	EACH	$1,712.52574	$0.00
0040	606E26500 ANCHOR ASSEMBLY, TYPE T	0.00	EACH	$487.23435	$0.00
0041	606E35000 BRIDGE TERMINAL ASSEMBLY, TYPE 1	0.00	EACH	$969.12750	$0.00
0042	606E35100 BRIDGE TERMINAL ASSEMBLY, TYPE 2	0.00	EACH	$338.36354	$0.00
0043	606E60010 IMPACT ATTENUATOR, TYPE 1-98 (BIDIRECTIONAL)	0.00	EACH	$3,439.05897	$0.00
0044	607E15000 FENCE, TYPE 47 *For Fencing*	0.00	FT	$0.00000	$0.00
0423	304E20000 AGGREGATE BASE *For Fencing*	0.00	CY	$0.00000	$0.00
0424	601E32100 ROCK CHANNEL PROTECTION, TYPE B WITH FILTER *For Fencing*	0.00	CY	$0.00000	$0.00
0425	607E40500 GATE, TYPE 47 *For Fencing*	0.00	EACH	$731.31641	$0.00
0426	625E32000 GROUND ROD *For Fencing*	0.00	EACH	$0.00000	$0.00
0466		0.00		$0.00000	$0.00

Total for Group 0012: $0.00

Group 0014: Seeding & Mulching / Sodding

0045	B-MC-ERCO MAJOR COST DRIVERS, EROSION CONTROL	1.00	LS	$0.00000	$0.00
0467	659E10000 SEEDING AND MULCHING	3,553.00	SY	$1.00000	$3,553.00
0531	660E25000 SODDING STAKED	0.00	SY	$15.00000	$0.00

Total for Group 0014: $3,553.00

Group 0015: Rock Channel Protection

0047	B-MC-ERCO MAJOR COST DRIVERS, EROSION CONTROL	1.00	LS	$0.00000	$0.00
0469	601E32000 ROCK CHANNEL PROTECTION, TYPE A WITH FILTER	0.00	CY	$75.00000	$0.00

Total for Group 0015: $0.00

Group 0016: Erosion Control - Item 832

0048	B-MC-ERCO	1.00	LS	$0.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	MAJOR COST DRIVERS, EROSION CONTROL				
0470	832E10000 STORM WATER POLLUTION PREVENTION PLAN	1.00	LS	$50,000.00000	$50,000.00
0471	832E20000 EROSION CONTROL	6,000.00	EACH	$1.00000	$6,000.00

Total for Group 0016: $56,000.00

Group 0017: Other Erosion Control Costs

0049	670E00700 DITCH EROSION PROTECTION	0.00	SY	$0.00000	$0.00
0050	B-OC-ERCO OTHER COSTS, EROSION CONTROL	1.00	LS	$0.00000	$0.00
0051	659E00100 SOIL ANALYSIS TEST	0.00	EACH	$0.00000	$0.00
0052	659E00300 TOPSOIL	0.00	CY	$0.00000	$0.00
0053	659E14000 REPAIR SEEDING AND MULCHING	0.00	SY	$0.00000	$0.00
0054	659E15000 INTER-SEEDING	0.00	SY	$0.71000	$0.00
0055	659E20000 COMMERCIAL FERTILIZER	0.00	TON	$410.06813	$0.00
0056	659E31000 LIME	0.00	ACRE	$0.00000	$0.00
0057	659E35000 WATER	0.00	MGAL	$5.00000	$0.00
0058	659E40000 MOWING	0.00	MSF	$0.00000	$0.00

Total for Group 0017: $0.00

Group 0018: Underdrains

0059	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0062	605E05100 4" SHALLOW PIPE UNDERDRAINS	6,974.00	FT	$8.00000	$55,792.00

Total for Group 0018: $55,792.00

Group 0019: Culverts - Type A: < 5'

0474	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	0.00	LS	$0.00000	$0.00
0480	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Pipe Structures - Reinforced Concrete Pipe up to 60"*	0.00	FT	$350.00000	$0.00
0481	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Concrete Masonry*	0.00	EACH	$1,500.00000	$0.00

Total for Group 0019: $0.00

Group 0021: Culverts, Type A: 5' - 10'

0067	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0476	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	0.00	FT	$550.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	Pipe Structures - Reinforced Concrete 5'-10' 66" to 78"				
0477	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Concrete - Headwalls/wingwalls*	0.00	EACH	$1,500.00000	$0.00

Total for Group 0021: $0.00

Group 0022: Culverts, Type A: 10' - 20'

0486	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0487	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Pipe Structures - Reinforced Concrete Pipe 10'-20'*	0.00	FT	$1,400.00000	$0.00
0488	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Concrete Masonry*	0.00	EACH	$1,500.00000	$0.00

Total for Group 0022: $0.00

Group 0024: BMP's

0076	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00

Total for Group 0024: $0.00

Group 0025: Closed Storm System

0077	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0489	603E13400 30" CONDUIT, TYPE B (Average size)	55.00	FT	$75.00000	$4,125.00
0523	604E00800 CATCH BASIN, NO. 3A	7.00	EACH	$1,500.00000	$10,500.00
0524	604E31500 MANHOLE, NO. 3	1.00	EACH	$3,000.00000	$3,000.00
0525		0.00		$0.00000	$0.00
0526	Special Pump Station (Storm)	0.00	LS	$6,400,000.00000	$0.00
0527	Special Stormceptors	0.00	EACH	$5,750.00000	$0.00
0529	Special Retention basin improvements	0.00	LS	$109,000.00000	$0.00

Total for Group 0025: $17,625.00

Group 0026: Other Drainage Costs

0078	C-OC-DRNG OTHER COSTS, DRAINAGE	1.00	LS	$0.00000	$0.00

Total for Group 0026: $0.00

Group 0027: Mainline - Travel Lanes

0095	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0494	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg Base and Subgrade Compaction*	0.00	SY	$68.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
				Total for Group 0027:	$0.00

Group 0028: Mainline - Outside Shoulder

0100	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0495	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg base and Subgrade Compaction*	0.00	SY	$68.00000	$0.00
				Total for Group 0028:	$0.00

Group 0030: Mainline - Inside Shoulder

0115	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0496	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg base and Subgrade Compaction*	0.00	SY	$68.00000	$0.00
				Total for Group 0030:	$0.00

Group 0031: Ramps (including shoulders)

0122	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0497	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg base and Subgrade Compaction*	2,932.00	SY	$68.00000	$199,376.00
				Total for Group 0031:	$199,376.00

Group 0032: Non - Mainline Lanes

0132	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0498	D-MC-PVMT Asphalt *Includes 3" 448, 9" 301, 6" Agg base and Subgrade Compaction*	5,151.00	SY	$41.00000	$211,191.00
				Total for Group 0032:	$211,191.00

Group 0041: Other Pavement Costs

0163	D-OC-PVMT OTHER COSTS, PAVEMENT	1.00	LS	$0.00000	$0.00
				Total for Group 0041:	$0.00

Group 0042: Water Works

0164	E-MC-WATR MAJOR COST DRIVERS, WATER LINE	0.00	LS	$0.00000	$0.00
0165	E-OC-WATR OTHER COSTS, WATER LINE	0.00	LS	$0.00000	$0.00
				Total for Group 0042:	$0.00

Group 0043: Sanitary Line

0170	F-MC-SANI MAJOR COST DRIVERS, SANITARY SEWER	0.00	LS	$0.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
				Total for Group 0043:	$0.00
Group 0044: Lighting - Full Interchange					
0173	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	1.00	LS	$0.00000	$0.00
0499	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	0.00	EACH	$469,000.00000	$0.00
				Total for Group 0044:	$0.00
Group 0045: Lighting - Partial Interchange					
0288	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	0.00	LS	$0.00000	$0.00
				Total for Group 0045:	$0.00
Group 0046: Lighting - Continuous Roadway					
0176	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	1.00	LS	$0.00000	$0.00
0500	G-MC-LTNG Lighting - Continuous	3,168.00	FT	$35.00000	$110,880.00
				Total for Group 0046:	$110,880.00
Group 0047: Other Lighting Costs					
0177	G-OC-LTNG OTHER COSTS, LIGHTING	0.00	LS	$0.00000	$0.00
				Total for Group 0047:	$0.00
Group 0048: Traffic Surveillance					
0178	H-OC-SURV OTHER COSTS, TRAFFIC SURVEILLANCE	0.00	LS	$0.00000	$0.00
				Total for Group 0048:	$0.00
Group 0049: Signs					
0179	J-MC-TRAF MAJOR COST DRIVERS, TRAFFIC CONTROL	1.00	LS	$0.00000	$0.00
0501	J-MC-TRAF Signs	0.60	MILE	$250,000.00000	$150,000.00
				Total for Group 0049:	$150,000.00
Group 0050: Pavement Marking					
0200	J-MC-TRAF MAJOR COST DRIVERS, TRAFFIC CONTROL	1.00	LS	$0.00000	$0.00
0502	644E00100 EDGE LINE	2.13	MILE	$3,000.00000	$6,390.00
0503	644E00200 LANE LINE	1.09	MILE	$2,000.00000	$2,180.00
				Total for Group 0050:	$8,570.00
Group 0051: Other Traffic Control Costs					

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
0208	J-OC-TRAF OTHER COSTS, TRAFFIC CONTROL	1.00	LS	$0.00000	$0.00

Total for Group 0051: $0.00

Group 0052: Signals - Intersections

0212	K-MC-SGNL MAJOR COST DRIVERS, SIGNALS	1.00	LS	$0.00000	$0.00

Total for Group 0052: $0.00

Group 0053: Other Traffic Signal Costs

0213	K-OC-SGNL OTHER COSTS, SIGNALS	1.00	LS	$0.00000	$0.00

Total for Group 0053: $0.00

Group 0054: Landscaping

0214	L-MC-LSCP MAJOR COST DRIVERS, LANDSCAPING	1.00	LS	$0.00000	$0.00
0215	L-OC-LSCP OTHER COSTS, LANDSCAPING	1.00	LS	$0.00000	$0.00

Total for Group 0054: $0.00

Group 0055: Retaining Walls $125 + $10/ft for caps, barriers and testing

0216	M-MC-WALL MAJOR COST DRIVERS, RETAINING WALLS	1.00	LS	$0.00000	$0.00
0504	M-MC-WALL Retaining Walls	4,125.00	SF	$135.00000	$556,875.00

Total for Group 0055: $556,875.00

Group 0056: Other Retaining Wall Costs

0217	M-OC-WALL OTHER COSTS, RETAINING WALLS	1.00	LS	$0.00000	$0.00

Total for Group 0056: $0.00

Group 0057: Building Demolition

0218	N-MC-DEMO MAJOR COST DRIVERS, BUILDING DEMOLITION	1.00	LS	$0.00000	$0.00
0219	N-OC-DEMO OTHER COSTS, BUILDING DEMOLITION	1.00	LS	$0.00000	$0.00
0532	202E98100 REMOVAL MISC.: *Radio Tower*	0.00	EACH	$8,500.00000	$0.00
0533	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Small Residential*	0.00	EACH	$7,500.00000	$0.00
0534	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Small Commercial*	1.00	EACH	$15,000.00000	$15,000.00
0535	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Large Residential*	0.00	EACH	$12,000.00000	$0.00
0536	202E56101	1.00	EACH	$30,000.00000	$30,000.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	BUILDING DEMOLISHED, AS PER PLAN *Large Commercial*				

Total for Group 0057: $45,000.00

Group 0058: Noise Barrier

0220	P-MC-NSBR MAJOR COST DRIVERS, NOISE BARRIER	1.00	LS	$0.00000	$0.00
0505	P-MC-NSBR Noise Barrier	0.00	LS	$25.00000	$0.00

Total for Group 0058: $0.00

Group 0059: Other Noise Barrier Costs

0221	P-OC-NSBR OTHER COSTS, NOISE BARRIER	1.00	LS	$0.00000	$0.00
0368	P-MC-NSBR MAJOR COST DRIVERS, NOISE BARRIER	0.00	LS	$0.00000	$0.00

Total for Group 0059: $0.00

Group 0060: New Structures

0222	R-MC-STRC MAJOR COST DRIVERS, STRUCTURES	1.00	LS	$0.00000	$0.00
0506	R-MC-STRC Tier 1 Structures to 25' Height	0.00	SF	$125.00000	$0.00
0507	R-MC-STRC Removal of Existing Structures non-complex	0.00	SF	$12.00000	$0.00
0508	R-MC-STRC Standard Removal of Existing Structures above average complex	85,729.00	SF	$17.00000	$1,457,393.00
0509	R-MC-STRC Removal of Existing Structures complex to very complex	0.00	SF	$30.00000	$0.00
0513	R-MC-STRC Tier 2 Structures 25' to 50' Height	179,364.00	SF	$150.00000	$26,904,600.00
0516	R-MC-STRC Tier 3 Structures 50' to 75' Height	0.00	SF	$200.00000	$0.00

Total for Group 0060: $28,361,993.00

Group 0061: Rehabilitated Structures

0223	R-MC-STRC MAJOR COST DRIVERS, STRUCTURES	0.00	SF	$45.00000	$0.00

Total for Group 0061: $0.00

Group 0062: Other Structure Costs

0224	R-OC-STRC OTHER COSTS, STRUCTURES *Contingency*	0.00	LS	$0.00000	$0.00

Total for Group 0062: $0.00

Group 0063: Temporary Road and Pavement Costs

0225	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
				Total for Group 0063:	$0.00
Group 0064: Portable Concrete Barrier (PCB)					
0226	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
				Total for Group 0064:	$0.00
Group 0065: Impact Attenuators					
0227	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
				Total for Group 0065:	$0.00
Group 0066: Sheeting					
0229	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
				Total for Group 0066:	$0.00
Group 0067: Temporary Signals					
0230	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	0.00	LS	$0.00000	$0.00
				Total for Group 0067:	$0.00
Group 0068: Work Zone Lighting					
0231	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	0.00	LS	$0.00000	$0.00
				Total for Group 0068:	$0.00
Group 0069: Innovative Contracting Incentatives					
0232	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	0.00	LS	$0.00000	$0.00
				Total for Group 0069:	$0.00
Group 0070: Other MOT Costs					
0233	S-OC-MNTC OTHER COSTS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
0512	S-OC-MNTC OTHER COSTS, MAINTENANCE OF TRAFFIC	0.60	MILE	$500,000.00000	$300,000.00
				Total for Group 0070:	$300,000.00
Group 0071: Wetland Construction					
0234	T-MC-WTLD MAJOR COST DRIVERS, WETLAND CONSTRUCTION	0.00	LS	$0.00000	$0.00
0360	T-MC-WTLD MAJOR COST DRIVERS, WETLAND CONSTRUCTION	0.00	LS	$0.00000	$0.00
				Total for Group 0071:	$0.00
Group 0072: Misc. Costs					

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
0235	U-MC-MISC MAJOR COST DRIVERS, MISCELLANEOUS COSTS	0.00	LS	$0.00000	$0.00
0236	U-OC-MISC OTHER COSTS, MISCELLANEOUS COSTS	0.00	LS	$0.00000	$0.00
0237	100E00300 SPECIAL - PREMIUM ON RAILROADS' PROTECTIVE PUBLIC LIABILITY AND PROPERTY DAMAGE LIABILITY INSURANCE	0.00	LS	$10,000.00000	$0.00
0238	623E10000 CONSTRUCTION LAYOUT STAKES *0.5%*	1.00	LS	$153,247.50000	$153,247.50
0239	614E11000 MAINTAINING TRAFFIC *2%*	1.00	LS	$612,990.01000	$612,990.01
0240	619E16020 FIELD OFFICE, TYPE C	32.00	MNTH	$2,500.00000	$80,000.00
0242	624E10000 MOBILIZATION	1.00	LS	$800,000.00000	$800,000.00
0511	103E05000 PREMIUM FOR CONTRACT PERFORMANCE BOND AND FOR PAYMENT BOND *0.5%*	1.00	LS	$153,247.50000	$153,247.50
0518		0.00		$0.00000	$0.00
0519		0.00		$0.00000	$0.00
0520		0.00		$0.00000	$0.00
0521		0.00		$0.00000	$0.00

Total for Group 0072: $1,799,485.01

Group 0073: Design Contingency Costs

0243	V-MC-CNTG MAJOR COST DRIVERS, CONTINGENCY COSTS	1.00	LS	$0.00000	$0.00
0244	V-OC-CNTG OTHER COSTS, CONTINGENCY COSTS *25%*	1.00	LS	$8,112,246.38000	$8,112,246.38

Total for Group 0073: $8,112,246.38

Group 0074: Inflation Contingency

0266	V-OC-CNTG OTHER COSTS, CONTINGENCY COSTS	0.00	LS	$0.00000	$0.00

Total for Group 0074: $0.00

PID 89067 **County** HAM **Route** 75 **Section** 0.63 **This R/W Acquisition cost estimate is prepared for Alternative** **E**

Macro View

Acquisition	Unit (SF) or (Acreage)	X	Cost/Unit ($$/SF) ($$/Acre)	Subtotal Land Value	+	Structure Values (if Taken)	+	Damages (Loss in Value to the Residue)	Subtotal Structures & Damages	=	Total Non Labor Acquisition Costs
-Residential	0.02	X	###########	$26,845	+	0	+	N/A	$0.00	=	$26,845.33
-Commercial	0.8	X	$659,087.22	$527,270	+	4843600	+	N/A	$4,843,600.00	=	$5,370,869.78
-Industrial	0	X	$0.00	$0	+	0	+	N/A	$0.00	=	$0.00
-Agricultural	0	X	$0.00	$0	+	0	+	N/A	$0.00	=	$0.00

Attributes

Parcel Count	Total Takes	Partial Takes	No. of Structures Impacted
1	0	1	0
3	0	3	2
0	0	0	0
0	0	0	0

Relocation	Unit (Displacement)	X	*RHP/*RSP	+	Move Cost	+	Reestablishment	=	Total Non Labor RAP Costs
-Residential									
Owner Occupant	0	X	$34,000	+	$6,000			=	$0
Tenant	0	X	$10,000	+	$1,750			=	$0
-Commerical/Farm/NPO									
Owner	1			X	$15,000	+	$10,000	=	$25,000
Tenant	0			X	$15,000	+	$10,000	=	$0
-Personal Property	0			X	$1,000			=	$0

Estimate amount of time necessary to relocate all RAP parcels = (months) 18

Estimate number of years until project wide R/W acquisition begins = 1.75

{[(Total Cost of Acquisition Cost)x0.90]x0.025}+{[(Total of Acquisition Cost)x0.15]x1.20}+{[(Total of Acquisition Cost)x0.10]x1.50} = Contingency

Contingency (Incidentals, Admin. Review & Appropriation)	1902694.575
Total Non Labor R/W Costs	$7,325,409.68

*RHP - Replacement Housing Payment
*RSP - Rent Supplemental Payment
*NPO - Non-Profit Organization

Instruction for Acquisition & Relocation Cost Estimates

Estimate the total number of acres involved in the project and allocate those acres into the four categories shown.

Assign an average unit price for each category. These unit prices are typically taken from the auditors tax card data. Cost Estimates prepared at Step 4 (Step 7 on Major Projects) and thereafter must base unit prices on a project sales data book instead of tax card data.

Add structure values from the auditors tax cards only if the structures are taken.

Damages must be assessed by a pre-qualified expert with experience in Before & After analysis. This usually occurs at Step 4 for Minor projects (Step 6 on Major Projects) and requires some knowledge of the impacts of the project on structures.

Relocation Cost Estimates must consider the complexity of the move process. All move estimates that involve a business or a mulit-tenant residential structure should use the services of a relocation Assistance professionnal to accurately gauge costs.

Macro View

Labor (External)	Unit (Parcels)	X	Unit Price	=	Total Cost
Titles	4	X	$400	=	$1,600
Appraisal					
-Simple	1	X	$750	=	$750
-Detailed	3	X	$4,500	=	$13,500
Appraisal Review					
-Simple	1	X	$500	=	$500
-Detailed	3	X	$2,000	=	$6,000
Negotiations	4	X	$1,100	=	$4,400
Relocations					
-Personal Property	0	X	$1,500	=	$0
-Residential	0	X	$5,200	=	$0
-Commercial/Farm/*NPO	1	X	$5,600	=	$5,600
Closings	4	X	$400	=	$1,600
Project Management	4	X	$550	=	$2,200
Asbestos Testing & Abatement		X		=	
	Total Labor Costs				$36,150

*NPO = Non-Profit Organization

This R/W Cost Estimate Prepared by	Date
Chris Clemons	8/4/2010

This R/W Cost Estimate was performed at Step 6 of the PDP for MAJOR Projects using

Total Labor Costs	$36,150.00
Total Non Labor R/W Costs	$7,325,409.68
Inflation Adjustments	$449,055.14
Total R/W Costs	**$7,810,614.82**

Instructions for Labor Cost Estimates

Labor costs are a function of time, distance, and talent. Labor costs estimates should reflect the complexity of the project and the talent necessary to acquire the right of way in a timely manner. The person making the cost estimate may adjust the figures given for the particular project being estimated to reflect local labor costs. It is critical that the estimate be labeled to reflect the alignment alternative, the step in the PDP process and the person(s) performing the estimate.

Comments

Cost/Unit were generated from auditors tax card data.

P.D.P. R/W Cost Estimator

Estimate Alt E OH cont 5

Estimated Cost: $160,063,863.43

Contingency: 51.30%

Estimated Total: $242,176,625.37

OH-5 Reconstruct I-75 from Findlay to the Northern Terminus of the Corridor

Base Date: 07/22/10

Spec Year: 10

Unit System: E

Work Type: GEN CONST: INVLVS 2 OR MOR MAJ WRK TYPE

Highway Type: 451

Urban/Rural Type: URBAN CLASS

Season: SUMMER

County: HAMILTON

Midpoint of Latitude:

Midpoint of Longitude:

District: 8

Federal/State Project Number:

Estimate Type: C1

Prepared by Parsons Brinckerhoff on 07/22/10

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
Group 0001: Pavement Removal					
0001	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	0.00	LS	$0.00000	$0.00
0343	202E23000 PAVEMENT REMOVED	121,484.00	SY	$8.00000	$971,872.00
				Total for Group 0001:	$971,872.00
Group 0002: Excavation - Rock					
0003	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	0.00	CY	$30.00000	$0.00
0532	203E10001 EXCAVATION, AS PER PLAN	9,835.00	CY	$30.00000	$295,050.00
				Total for Group 0002:	$295,050.00
Group 0003: Excavation - Soil					
0004	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0344	203E10000 EXCAVATION	132,253.00	CY	$8.00000	$1,058,024.00
				Total for Group 0003:	$1,058,024.00
Group 0004: Excavation - Hazardous					
0006	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
				Total for Group 0004:	$0.00
Group 0005: Fill - Embankment (includes wasting excess excavation)					
0007	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0345	203E20000 EMBANKMENT	273,627.00	CY	$6.00000	$1,641,762.00
				Total for Group 0005:	$1,641,762.00
Group 0006: Fill - Lime Modified Soil					
0010	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0346	205E10050 LIME STABILIZED EMBANKMENT	0.00	CY	$7.00000	$0.00
0347	205E10300 LIME	0.00	TON	$5.00000	$0.00
				Total for Group 0006:	$0.00
Group 0007: Fill - Borrow					
0011	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	131,539.00	CY	$8.00000	$1,052,312.00
				Total for Group 0007:	$1,052,312.00
Group 0008: Concrete Barrier					
0012	A-MC-RDWY	1.00	LS	$0.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	MAJOR COST DRIVERS, ROADWAY				
0465	622E10060 CONCRETE BARRIER, SINGLE SLOPE, TYPE B	18,340.00	FT	$110.00000	$2,017,400.00

Total for Group 0008: $2,017,400.00

Group 0009: Subgrade Treatment - Lime

0014	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0348	206E10000 LIME STABILIZED SUBGRADE	0.00	SY	$1.85000	$0.00
0349	206E10300 LIME	0.00	TON	$10.00000	$0.00
0350	206E11000 CURING COAT	0.00	SY	$1.00000	$0.00
0351	206E20000 TEST ROLLING	0.00	HOUR	$4.00000	$0.00

Total for Group 0009: $0.00

Group 0010: Subgrade Treatment - Cement

0016	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	383,252.00	SY	$2.50000	$958,130.00

Total for Group 0010: $958,130.00

Group 0011: Subgrade Treatment - Undercut & Backfill

0017	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00

Total for Group 0011: $0.00

Group 0012: Other Roadway Costs

0019	A-OC-RDWY OTHER COSTS, ROADWAY *Contingency*	0.00	LS	$0.00000	$0.00
0020	201E11000 CLEARING AND GRUBBING	0.00	LS	$856,500.00000	$0.00
0021	201E21800 TREE REMOVED, 18" SIZE	0.00	EACH	$250.00000	$0.00
0022	201E23000 TREE REMOVED, 30" SIZE	0.00	EACH	$405.00000	$0.00
0023	201E24800 TREE REMOVED, 48" SIZE	0.00	EACH	$772.00000	$0.00
0026	202E11000 STRUCTURE REMOVED	0.00	LS	$9,310.13000	$0.00
0028	202E35200 PIPE REMOVED, OVER 24"	0.00	FT	$0.00000	$0.00
0029	202E38000 GUARDRAIL REMOVED	0.00	FT	$0.00000	$0.00
0030	202E42206 ANCHOR ASSEMBLY REMOVED	0.00	EACH	$0.00000	$0.00
0031	202E58000 MANHOLE REMOVED	0.00	EACH	$0.00000	$0.00
0032	202E58100 CATCH BASIN REMOVED	0.00	EACH	$0.00000	$0.00
0033	202E75000	0.00	FT	$0.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	FENCE REMOVED				
0034	204E45000 PROOF ROLLING	0.00	HOUR	$126.59000	$0.00
0035	204E10000 SUBGRADE COMPACTION	0.00	SY	$0.81000	$0.00
0036	451E30000 SPECIAL - PRESSURE RELIEF JOINT, TYPE A	0.00	FT	$0.00000	$0.00
0037	606E13000 GUARDRAIL, TYPE 5	1,863.00	FT	$14.00000	$26,082.00
0038	606E22000 ANCHOR ASSEMBLY, TYPE B-98	0.00	EACH	$1,411.29597	$0.00
0039	606E22010 ANCHOR ASSEMBLY, TYPE E-98	0.00	EACH	$1,712.52574	$0.00
0040	606E26500 ANCHOR ASSEMBLY, TYPE T	0.00	EACH	$487.23435	$0.00
0041	606E35000 BRIDGE TERMINAL ASSEMBLY, TYPE 1	0.00	EACH	$969.12750	$0.00
0042	606E35100 BRIDGE TERMINAL ASSEMBLY, TYPE 2	0.00	EACH	$338.36354	$0.00
0043	606E60010 IMPACT ATTENUATOR, TYPE 1-98 (BIDIRECTIONAL)	0.00	EACH	$3,439.05897	$0.00
0044	607E15000 FENCE, TYPE 47 *For Fencing*	0.00	FT	$0.00000	$0.00
0423	304E20000 AGGREGATE BASE *For Fencing*	0.00	CY	$0.00000	$0.00
0424	601E32100 ROCK CHANNEL PROTECTION, TYPE B WITH FILTER *For Fencing*	0.00	CY	$0.00000	$0.00
0425	607E40500 GATE, TYPE 47 *For Fencing*	0.00	EACH	$731.31641	$0.00
0426	625E32000 GROUND ROD *For Fencing*	0.00	EACH	$0.00000	$0.00
0466		0.00		$0.00000	$0.00

Total for Group 0012: $26,082.00

Group 0014: Seeding & Mulching / Sodding

0045	B-MC-ERCO MAJOR COST DRIVERS, EROSION CONTROL	1.00	LS	$0.00000	$0.00
0467	659E10000 SEEDING AND MULCHING	0.00	SY	$1.00000	$0.00
0531	660E25000 SODDING STAKED	0.00	SY	$15.00000	$0.00

Total for Group 0014: $0.00

Group 0015: Rock Channel Protection

0047	B-MC-ERCO MAJOR COST DRIVERS, EROSION CONTROL	1.00	LS	$0.00000	$0.00
0469	601E32000 ROCK CHANNEL PROTECTION, TYPE A WITH FILTER	24.00	CY	$75.00000	$1,800.00

Total for Group 0015: $1,800.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension

Group 0016: Erosion Control - Item 832

0048	B-MC-ERCO MAJOR COST DRIVERS, EROSION CONTROL	1.00	LS	$0.00000	$0.00
0470	832E10000 STORM WATER POLLUTION PREVENTION PLAN	1.00	LS	$50,000.00000	$50,000.00
0471	832E20000 EROSION CONTROL	120,000.00	EACH	$1.00000	$120,000.00

Total for Group 0016: $170,000.00

Group 0017: Other Erosion Control Costs

0049	670E00700 DITCH EROSION PROTECTION	0.00	SY	$0.00000	$0.00
0050	B-OC-ERCO OTHER COSTS, EROSION CONTROL	1.00	LS	$0.00000	$0.00
0051	659E00100 SOIL ANALYSIS TEST	0.00	EACH	$0.00000	$0.00
0052	659E00300 TOPSOIL	0.00	CY	$0.00000	$0.00
0053	659E14000 REPAIR SEEDING AND MULCHING	0.00	SY	$0.00000	$0.00
0054	659E15000 INTER-SEEDING	0.00	SY	$0.71000	$0.00
0055	659E20000 COMMERCIAL FERTILIZER	0.00	TON	$410.06813	$0.00
0056	659E31000 LIME	0.00	ACRE	$0.00000	$0.00
0057	659E35000 WATER	0.00	MGAL	$5.00000	$0.00
0058	659E40000 MOWING	0.00	MSF	$0.00000	$0.00

Total for Group 0017: $0.00

Group 0018: Underdrains

0059	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0062	605E05100 4" SHALLOW PIPE UNDERDRAINS	62,408.00	FT	$8.00000	$499,264.00

Total for Group 0018: $499,264.00

Group 0019: Culverts - Type A: < 5'

0474	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	0.00	LS	$0.00000	$0.00
0480	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Pipe Structures - Reinforced Concrete Pipe up to 60"*	0.00	FT	$350.00000	$0.00
0481	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Concrete Masonry*	0.00	EACH	$1,500.00000	$0.00

Total for Group 0019: $0.00

Group 0021: Culverts, Type A: 5' - 10'

0067	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
0476	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Pipe Structures - Reinforced Concrete 5'-10' 66" to 78"*	0.00	FT	$550.00000	$0.00
0477	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Concrete - Headwalls/wingwalls*	0.00	EACH	$1,500.00000	$0.00

Total for Group 0021: $0.00

Group 0022: Culverts, Type A: 10' - 20'

0486	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0487	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Pipe Structures - Reinforced Concrete Pipe 10'-20'*	0.00	FT	$1,400.00000	$0.00
0488	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Concrete Masonry*	0.00	EACH	$1,500.00000	$0.00

Total for Group 0022: $0.00

Group 0024: BMP's

0076	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00

Total for Group 0024: $0.00

Group 0025: Closed Storm System

0077	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0489	603E13400 30" CONDUIT, TYPE B (Average size)	12,495.00	FT	$75.00000	$937,125.00
0523	604E00800 CATCH BASIN, NO. 3A	126.00	EACH	$1,500.00000	$189,000.00
0524	604E31500 MANHOLE, NO. 3	13.00	EACH	$3,000.00000	$39,000.00
0526	Special Pump Station (Storm)	0.00	LS	$6,400,000.00000	$0.00
0527	Special Stormceptors	0.00	EACH	$5,750.00000	$0.00
0529	Special Retention basin improvements	0.00	LS	$109,000.00000	$0.00
0533	604E36601 PRECAST REINFORCED CONCRETE OUTLET, AS PER PLAN	2.00	EACH	$1,250.00000	$2,500.00

Total for Group 0025: $1,167,625.00

Group 0026: Other Drainage Costs

0078	C-OC-DRNG OTHER COSTS, DRAINAGE	1.00	LS	$0.00000	$0.00

Total for Group 0026: $0.00

Group 0027: Mainline - Travel Lanes

0095	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0494	D-MC-PVMT	67,878.00	SY	$68.00000	$4,615,704.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	13" Reinforced Concrete Pavement *Includes 6" Agg Base and Subgrade Compaction*				

Total for Group 0027: $4,615,704.00

Group 0028: Mainline - Outside Shoulder

0100	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0495	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg base and Subgrade Compaction*	21,164.00	SY	$68.00000	$1,439,152.00

Total for Group 0028: $1,439,152.00

Group 0030: Mainline - Inside Shoulder

0115	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0496	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg base and Subgrade Compaction*	15,864.00	SY	$68.00000	$1,078,752.00

Total for Group 0030: $1,078,752.00

Group 0031: Ramps (including shoulders)

0122	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0497	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg base and Subgrade Compaction*	33,743.00	SY	$68.00000	$2,294,524.00

Total for Group 0031: $2,294,524.00

Group 0032: Non - Mainline Lanes

0132	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0498	D-MC-PVMT Asphalt *Includes 3" 448, 9" 301, 6" Agg base and Subgrade Compaction*	244,603.00	SY	$41.00000	$10,028,723.00

Total for Group 0032: $10,028,723.00

Group 0041: Other Pavement Costs

0163	D-OC-PVMT OTHER COSTS, PAVEMENT	1.00	LS	$0.00000	$0.00

Total for Group 0041: $0.00

Group 0042: Water Works

0164	E-MC-WATR MAJOR COST DRIVERS, WATER LINE	0.00	LS	$0.00000	$0.00
0165	E-OC-WATR OTHER COSTS, WATER LINE	0.00	LS	$0.00000	$0.00

Total for Group 0042: $0.00

Group 0043: Sanitary Line

0170	F-MC-SANI	0.00	LS	$0.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	MAJOR COST DRIVERS, SANITARY SEWER				
				Total for Group 0043:	$0.00

Group 0044: Lighting - Full Interchange

0173	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	1.00	LS	$0.00000	$0.00
0499	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	1.00	EACH	$469,000.00000	$469,000.00
				Total for Group 0044:	$469,000.00

Group 0045: Lighting - Partial Interchange

0288	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	0.00	LS	$0.00000	$0.00
				Total for Group 0045:	$0.00

Group 0046: Lighting - Continuous Roadway

0176	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	1.00	LS	$0.00000	$0.00
0500	G-MC-LTNG Lighting - Continuous	10,720.00	FT	$35.00000	$375,200.00
				Total for Group 0046:	$375,200.00

Group 0047: Other Lighting Costs

0177	G-OC-LTNG OTHER COSTS, LIGHTING	0.00	LS	$0.00000	$0.00
				Total for Group 0047:	$0.00

Group 0048: Traffic Surveillance

0178	H-OC-SURV OTHER COSTS, TRAFFIC SURVEILLANCE	1.00	LS	$1,210,022.02000	$1,210,022.02
				Total for Group 0048:	$1,210,022.02

Group 0049: Signs

0179	J-MC-TRAF MAJOR COST DRIVERS, TRAFFIC CONTROL	1.00	LS	$0.00000	$0.00
0501	J-MC-TRAF Signs	2.03	MILE	$250,000.00000	$507,500.00
				Total for Group 0049:	$507,500.00

Group 0050: Pavement Marking

0200	J-MC-TRAF MAJOR COST DRIVERS, TRAFFIC CONTROL	1.00	LS	$0.00000	$0.00
0502	644E00100 EDGE LINE	10.98	MILE	$3,000.00000	$32,940.00
0503	644E00200 LANE LINE	11.91	MILE	$2,000.00000	$23,820.00
				Total for Group 0050:	$56,760.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
Group 0051: Other Traffic Control Costs					
0208	J-OC-TRAF OTHER COSTS, TRAFFIC CONTROL	1.00	LS	$0.00000	$0.00
				Total for Group 0051:	$0.00
Group 0052: Signals - Intersections					
0212	K-MC-SGNL MAJOR COST DRIVERS, SIGNALS	4.00	LS	$175,000.00000	$700,000.00
				Total for Group 0052:	$700,000.00
Group 0053: Other Traffic Signal Costs					
0213	K-OC-SGNL OTHER COSTS, SIGNALS	1.00	LS	$0.00000	$0.00
				Total for Group 0053:	$0.00
Group 0054: Landscaping					
0214	L-MC-LSCP MAJOR COST DRIVERS, LANDSCAPING	1.00	LS	$0.00000	$0.00
0215	L-OC-LSCP OTHER COSTS, LANDSCAPING	1.00	LS	$0.00000	$0.00
				Total for Group 0054:	$0.00
Group 0055: Retaining Walls $125 + $10/ft for caps, barriers and testing					
0216	M-MC-WALL MAJOR COST DRIVERS, RETAINING WALLS	1.00	LS	$0.00000	$0.00
0504	M-MC-WALL Retaining Walls	278,121.00	SF	$135.00000	$37,546,335.00
				Total for Group 0055:	$37,546,335.00
Group 0056: Other Retaining Wall Costs					
0217	M-OC-WALL OTHER COSTS, RETAINING WALLS	1.00	LS	$0.00000	$0.00
				Total for Group 0056:	$0.00
Group 0057: Building Demolition					
0218	N-MC-DEMO MAJOR COST DRIVERS, BUILDING DEMOLITION	1.00	LS	$0.00000	$0.00
0219	N-OC-DEMO OTHER COSTS, BUILDING DEMOLITION	1.00	LS	$0.00000	$0.00
0534	202E98100 REMOVAL MISC.: *Radio Tower*	0.00	EACH	$8,500.00000	$0.00
0535	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Small Residential*	10.00	EACH	$7,500.00000	$75,000.00
0536	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Small Commercial*	4.00	EACH	$15,000.00000	$60,000.00
0537	202E56101 BUILDING DEMOLISHED, AS PER PLAN	5.00	EACH	$12,000.00000	$60,000.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	Large Residential				
0538	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Large Commercial*	0.00	EACH	$30,000.00000	$0.00

Total for Group 0057: $195,000.00

Group 0058: Noise Barrier

0220	P-MC-NSBR MAJOR COST DRIVERS, NOISE BARRIER	1.00	LS	$0.00000	$0.00
0505	P-MC-NSBR Noise Barrier	0.00	LS	$25.00000	$0.00

Total for Group 0058: $0.00

Group 0059: Other Noise Barrier Costs

0221	P-OC-NSBR OTHER COSTS, NOISE BARRIER	1.00	LS	$0.00000	$0.00
0368	P-MC-NSBR MAJOR COST DRIVERS, NOISE BARRIER	0.00	LS	$0.00000	$0.00

Total for Group 0059: $0.00

Group 0060: New Structures

0222	R-MC-STRC MAJOR COST DRIVERS, STRUCTURES	1.00	LS	$0.00000	$0.00
0506	R-MC-STRC Tier 1 Structures to 25' Height	147,873.00	SF	$125.00000	$18,484,125.00
0507	R-MC-STRC Removal of Existing Structures non-complex	0.00	SF	$12.00000	$0.00
0508	R-MC-STRC Standard Removal of Existing Structures above average complex	100,928.00	SF	$17.00000	$1,715,776.00
0509	R-MC-STRC Removal of Existing Structures complex to very complex	130,786.00	SF	$30.00000	$3,923,580.00
0513	R-MC-STRC Tier 2 Structures 25' to 50' Height	177,985.00	SF	$150.00000	$26,697,750.00
0516	R-MC-STRC Tier 3 Structures 50' to 75' Height	0.00	SF	$200.00000	$0.00

Total for Group 0060: $50,821,231.00

Group 0061: Rehabilitated Structures

0223	R-MC-STRC MAJOR COST DRIVERS, STRUCTURES	0.00	SF	$45.00000	$0.00

Total for Group 0061: $0.00

Group 0062: Other Structure Costs

0224	R-OC-STRC OTHER COSTS, STRUCTURES *Contingency*	0.00	LS	$0.00000	$0.00

Total for Group 0062: $0.00

Group 0063: Temporary Road and Pavement Costs

0225	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
				Total for Group 0063:	$0.00
Group 0064: Portable Concrete Barrier (PCB)					
0226	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
				Total for Group 0064:	$0.00
Group 0065: Impact Attenuators					
0227	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
				Total for Group 0065:	$0.00
Group 0066: Sheeting					
0229	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
				Total for Group 0066:	$0.00
Group 0067: Temporary Signals					
0230	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	0.00	LS	$0.00000	$0.00
				Total for Group 0067:	$0.00
Group 0068: Work Zone Lighting					
0231	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	0.00	LS	$0.00000	$0.00
				Total for Group 0068:	$0.00
Group 0069: Innovative Contracting Incentatives					
0232	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	0.00	LS	$0.00000	$0.00
				Total for Group 0069:	$0.00
Group 0070: Other MOT Costs					
0233	S-OC-MNTC OTHER COSTS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
0512	S-OC-MNTC OTHER COSTS, MAINTENANCE OF TRAFFIC	2.03	MILE	$500,000.00000	$1,015,000.00
				Total for Group 0070:	$1,015,000.00
Group 0071: Wetland Construction					
0234	T-MC-WTLD MAJOR COST DRIVERS, WETLAND CONSTRUCTION	0.00	LS	$0.00000	$0.00
0360	T-MC-WTLD MAJOR COST DRIVERS, WETLAND CONSTRUCTION	0.00	LS	$0.00000	$0.00
				Total for Group 0071:	$0.00
Group 0072: Misc. Costs					

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
0235	U-MC-MISC MAJOR COST DRIVERS, MISCELLANEOUS COSTS	0.00	LS	$0.00000	$0.00
0236	U-OC-MISC OTHER COSTS, MISCELLANEOUS COSTS	0.00	LS	$0.00000	$0.00
0237	100E00300 SPECIAL - PREMIUM ON RAILROADS' PROTECTIVE PUBLIC LIABILITY AND PROPERTY DAMAGE LIABILITY INSURANCE	1.00	LS	$10,000.00000	$10,000.00
0238	623E10000 CONSTRUCTION LAYOUT STAKES *0.5%*	1.00	LS	$611,061.12000	$611,061.12
0239	614E11000 MAINTAINING TRAFFIC *5%*	1.00	LS	$2,444,244.48000	$2,444,244.48
0240	619E16020 FIELD OFFICE, TYPE C	65.00	MNTH	$2,500.00000	$162,500.00
0242	624E10000 MOBILIZATION	1.00	LS	$2,000,000.00000	$2,000,000.00
0511	103E05000 PREMIUM FOR CONTRACT PERFORMANCE BOND AND FOR PAYMENT BOND *0.5%*	1.00	LS	$611,061.12000	$611,061.12

Total for Group 0072: $5,838,866.72

Group 0073: Design Contingency Costs

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
0243	V-MC-CNTG MAJOR COST DRIVERS, CONTINGENCY COSTS	1.00	LS	$0.00000	$0.00
0244	V-OC-CNTG OTHER COSTS, CONTINGENCY COSTS *25%*	1.00	LS	$32,012,772.69000	$32,012,772.69

Total for Group 0073: $32,012,772.69

Group 0074: Inflation Contingency

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
0266	V-OC-CNTG OTHER COSTS, CONTINGENCY COSTS	0.00	LS	$0.00000	$0.00

Total for Group 0074: $0.00

PID 89069 **County** HAM **Route** 75 **Section** 1.9 **This R/W Acquisition cost estimate is prepared for Alternative** **E**

Macro View

Acquisition	Unit (SF) or (Acreage)	X	Cost/Unit ($$/SF) ($$/Acre)	Subtotal Land Value	+	Structure Values (if Taken)	+	Damages (Loss in Value to the Residue)	Subtotal Structures & Damages	=	Total Non Labor Acquisition Costs
-Residential	2.18	X	$128,297.57	$279,689	+	782660	+	N/A	$782,660.00	=	$1,062,348.70
-Commercial	1.1	X	$93,288.38	$102,617	+	642800	+	N/A	$642,800.00	=	$745,417.22
-Industrial	0.39	X	$142,576.25	$55,605	+	0	+	N/A	$0.00	=	$55,604.74
-Agricultural	0	X	$0.00	$0	+	0	+	N/A	$0.00	=	$0.00

Attributes

Parcel Count	Total Takes	Partial Takes	No. of Structures Impacted
31	27	4	15
23	8	15	4
13	3	10	0
0	0	0	0

Relocation	Unit (Displacement)	X	*RHP/*RSP	+	Move Cost	+	Reestablishment	=	Total Non Labor RAP Costs
-Residential									
Owner Occupant	14	X	$34,000	+	$6,000			=	$560,000
Tenant	27	X	$10,000	+	$1,750			=	$317,250
-Commerical/Farm/NPO									
Owner	2			X	$15,000	+	$10,000	=	$50,000
Tenant	2			X	$15,000	+	$10,000	=	$50,000
-Personal Property	0			X	$1,000			=	$0

Estimate amount of time necessary to relocate all RAP parcels = (months) 24

Estimate number of years until project wide R/W acquisition begins = 2

{[(Total Cost of Acquisition Cost)x0.90]x0.025}+{[(Total of Acquisition Cost)x0.15]x1.20}+{[(Total of Acquisition Cost)x0.10]x1.50} = Contingency

Contingency (Incidentals, Admin. Review & Appropriation)	656838.157
Total Non Labor R/W Costs	$3,497,458.82

*RHP - Replacement Housing Payment
*RSP - Rent Supplemental Payment
*NPO - Non-Profit Organization

Instruction for Acquisition & Relocation Cost Estimates

Estimate the total number of acres involved in the project and allocate those acres into the four categories shown.

Assign an average unit price for each category. These unit prices are typically taken from the auditors tax card data. Cost Estimates prepared at Step 4 (Step 7 on Major Projects) and thereafter must base unit prices on a project sales data book instead of tax card data.

Add structure values from the auditors tax cards only if the structures are taken.

Damages must be assessed by a pre-qualified expert with experience in Before & After analysis. This usually occurs at Step 4 for Minor projects (Step 6 on Major Projects) and requires some knowledge of the impacts of the project on structures.

Relocation Cost Estimates must consider the complexity of the move process. All move estimates that involve a business or a mulit-tenant residential structure should use the services of a relocation Assistance professionnal to accurately gauge costs.

Macro View

Labor (External)	Unit (Parcels)	X	Unit Price	=	Total Cost
Titles	67	X	$400	=	$26,800
Appraisal					
-Simple	12	X	$750	=	$9,000
-Detailed	55	X	$4,500	=	$247,500
Appraisal Review					
-Simple	12	X	$500	=	$6,000
-Detailed	55	X	$2,000	=	$110,000
Negotiations	67	X	$1,100	=	$73,700
Relocations					
-Personal Property	0	X	$1,500	=	$0
-Residential	41	X	$5,200	=	$213,200
-Commercial/Farm/*NPO	4	X	$5,600	=	$22,400
Closings	67	X	$400	=	$26,800
Project Management	67	X	$550	=	$36,850
Asbestos Testing & Abatement		X		=	
	Total Labor Costs				$772,250

*NPO = Non-Profit Organization

This R/W Cost Estimate Prepared by	Date
Chris Clemons	8/4/2010

This R/W Cost Estimate was performed at Step 6 of the PDP for MAJOR Projects using

Total Labor Costs	$772,250.00
Total Non Labor R/W Costs	$3,497,458.82
Inflation Adjustments	$350,116.12
Total R/W Costs	**$4,619,824.94**

Instructions for Labor Cost Estimates

Labor costs are a function of time, distance, and talent. Labor costs estimates should reflect the complexity of the project and the talent necessary to acquire the right of way in a timely manner. The person making the cost estimate may adjust the figures given for the particular project being estimated to reflect local labor costs. It is critical that the estimate be labeled to reflect the alignment alternative, the step in the PDP process and the person(s) performing the estimate.

Comments

Cost/Unit were generated from auditors tax card data.

P.D.P. R/W Cost Estimator

Estimate Alt E OH cont 6

Estimated Cost: $24,818,545.94

Contingency: 57.60%

Estimated Total: $39,114,028.40

OH-6 Reconstruction from North of Linn St to Findlay St

Base Date: 07/22/10

Spec Year: 10

Unit System: E

Work Type: GEN CONST: INVLVS 2 OR MOR MAJ WRK TYPE

Highway Type: 451

Urban/Rural Type: URBAN CLASS

Season: SUMMER

County: HAMILTON

Midpoint of Latitude:

Midpoint of Longitude:

District:

Federal/State Project Number:

Estimate Type: C1

Prepared by Parsons Brinckerhoff on 07/22/10

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
Group 0001: Pavement Removal					
0001	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	0.00	LS	$0.00000	$0.00
0343	202E23000 PAVEMENT REMOVED	72,055.00	SY	$8.00000	$576,440.00
				Total for Group 0001:	$576,440.00
Group 0002: Excavation - Rock					
0003	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	0.00	CY	$30.00000	$0.00
				Total for Group 0002:	$0.00
Group 0003: Excavation - Soil					
0004	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0344	203E10000 EXCAVATION	121,755.00	CY	$8.00000	$974,040.00
				Total for Group 0003:	$974,040.00
Group 0004: Excavation - Hazardous					
0006	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
				Total for Group 0004:	$0.00
Group 0005: Fill - Embankment (includes wasting excess excavation)					
0007	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0345	203E20000 EMBANKMENT	121,755.00	CY	$6.00000	$730,530.00
				Total for Group 0005:	$730,530.00
Group 0006: Fill - Lime Modified Soil					
0010	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0346	205E10050 LIME STABILIZED EMBANKMENT	0.00	CY	$7.00000	$0.00
0347	205E10300 LIME	0.00	TON	$5.00000	$0.00
				Total for Group 0006:	$0.00
Group 0007: Fill - Borrow					
0011	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	0.00	CY	$8.00000	$0.00
				Total for Group 0007:	$0.00
Group 0008: Concrete Barrier					
0012	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0465	622E10060	4,953.00	FT	$110.00000	$544,830.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	CONCRETE BARRIER, SINGLE SLOPE, TYPE B				

Total for Group 0008: $544,830.00

Group 0009: Subgrade Treatment - Lime

0014	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0348	206E10000 LIME STABILIZED SUBGRADE	0.00	SY	$1.85000	$0.00
0349	206E10300 LIME	0.00	TON	$10.00000	$0.00
0350	206E11000 CURING COAT	0.00	SY	$1.00000	$0.00
0351	206E20000 TEST ROLLING	0.00	HOUR	$4.00000	$0.00

Total for Group 0009: $0.00

Group 0010: Subgrade Treatment - Cement

0016	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	93,609.00	SY	$2.50000	$234,022.50

Total for Group 0010: $234,022.50

Group 0011: Subgrade Treatment - Undercut & Backfill

0017	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00

Total for Group 0011: $0.00

Group 0012: Other Roadway Costs

0019	A-OC-RDWY OTHER COSTS, ROADWAY *Contingency*	0.00	LS	$0.00000	$0.00
0020	201E11000 CLEARING AND GRUBBING	0.00	LS	$856,500.00000	$0.00
0021	201E21800 TREE REMOVED, 18" SIZE	0.00	EACH	$250.00000	$0.00
0022	201E23000 TREE REMOVED, 30" SIZE	0.00	EACH	$405.00000	$0.00
0023	201E24800 TREE REMOVED, 48" SIZE	0.00	EACH	$772.00000	$0.00
0026	202E11000 STRUCTURE REMOVED	0.00	LS	$9,310.13000	$0.00
0028	202E35200 PIPE REMOVED, OVER 24"	0.00	FT	$0.00000	$0.00
0029	202E38000 GUARDRAIL REMOVED	0.00	FT	$0.00000	$0.00
0030	202E42206 ANCHOR ASSEMBLY REMOVED	0.00	EACH	$0.00000	$0.00
0031	202E58000 MANHOLE REMOVED	0.00	EACH	$0.00000	$0.00
0032	202E58100 CATCH BASIN REMOVED	0.00	EACH	$0.00000	$0.00
0033	202E75000 FENCE REMOVED	0.00	FT	$0.00000	$0.00
0034	204E45000	0.00	HOUR	$126.59000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	PROOF ROLLING				
0035	204E10000 SUBGRADE COMPACTION	0.00	SY	$0.81000	$0.00
0036	451E30000 SPECIAL - PRESSURE RELIEF JOINT, TYPE A	0.00	FT	$0.00000	$0.00
0037	606E13000 GUARDRAIL, TYPE 5	2,291.00	FT	$14.00000	$32,074.00
0038	606E22000 ANCHOR ASSEMBLY, TYPE B-98	0.00	EACH	$1,411.29597	$0.00
0039	606E22010 ANCHOR ASSEMBLY, TYPE E-98	0.00	EACH	$1,712.52574	$0.00
0040	606E26500 ANCHOR ASSEMBLY, TYPE T	0.00	EACH	$487.23435	$0.00
0041	606E35000 BRIDGE TERMINAL ASSEMBLY, TYPE 1	0.00	EACH	$969.12750	$0.00
0042	606E35100 BRIDGE TERMINAL ASSEMBLY, TYPE 2	0.00	EACH	$338.36354	$0.00
0043	606E60010 IMPACT ATTENUATOR, TYPE 1-98 (BIDIRECTIONAL)	0.00	EACH	$3,439.05897	$0.00
0044	607E15000 FENCE, TYPE 47 *For Fencing*	0.00	FT	$0.00000	$0.00
0423	304E20000 AGGREGATE BASE *For Fencing*	0.00	CY	$0.00000	$0.00
0424	601E32100 ROCK CHANNEL PROTECTION, TYPE B WITH FILTER *For Fencing*	0.00	CY	$0.00000	$0.00
0425	607E40500 GATE, TYPE 47 *For Fencing*	0.00	EACH	$731.31641	$0.00
0426	625E32000 GROUND ROD *For Fencing*	0.00	EACH	$0.00000	$0.00
0466		0.00		$0.00000	$0.00

Total for Group 0012: $32,074.00

Group 0014: Seeding & Mulching / Sodding

0045	B-MC-ERCO MAJOR COST DRIVERS, EROSION CONTROL	1.00	LS	$0.00000	$0.00
0467	659E10000 SEEDING AND MULCHING	0.00	SY	$1.00000	$0.00
0531	660E25000 SODDING STAKED	0.00	SY	$15.00000	$0.00

Total for Group 0014: $0.00

Group 0015: Rock Channel Protection

0047	B-MC-ERCO MAJOR COST DRIVERS, EROSION CONTROL	1.00	LS	$0.00000	$0.00
0469	601E32000 ROCK CHANNEL PROTECTION, TYPE A WITH FILTER	0.00	CY	$75.00000	$0.00

Total for Group 0015: $0.00

Group 0016: Erosion Control - Item 832

0048	B-MC-ERCO	1.00	LS	$0.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	MAJOR COST DRIVERS, EROSION CONTROL				
0470	832E10000 STORM WATER POLLUTION PREVENTION PLAN	1.00	LS	$50,000.00000	$50,000.00
0471	832E20000 EROSION CONTROL	35,000.00	EACH	$1.00000	$35,000.00

Total for Group 0016: $85,000.00

Group 0017: Other Erosion Control Costs

0049	670E00700 DITCH EROSION PROTECTION	0.00	SY	$0.00000	$0.00
0050	B-OC-ERCO OTHER COSTS, EROSION CONTROL	1.00	LS	$0.00000	$0.00
0051	659E00100 SOIL ANALYSIS TEST	0.00	EACH	$0.00000	$0.00
0052	659E00300 TOPSOIL	0.00	CY	$0.00000	$0.00
0053	659E14000 REPAIR SEEDING AND MULCHING	0.00	SY	$0.00000	$0.00
0054	659E15000 INTER-SEEDING	0.00	SY	$0.71000	$0.00
0055	659E20000 COMMERCIAL FERTILIZER	0.00	TON	$410.06813	$0.00
0056	659E31000 LIME	0.00	ACRE	$0.00000	$0.00
0057	659E35000 WATER	0.00	MGAL	$5.00000	$0.00
0058	659E40000 MOWING	0.00	MSF	$0.00000	$0.00

Total for Group 0017: $0.00

Group 0018: Underdrains

0059	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0062	605E05100 4" SHALLOW PIPE UNDERDRAINS	51,204.00	FT	$8.00000	$409,632.00

Total for Group 0018: $409,632.00

Group 0019: Culverts - Type A: < 5'

0474	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	0.00	LS	$0.00000	$0.00
0480	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Pipe Structures - Reinforced Concrete Pipe up to 60"*	0.00	FT	$350.00000	$0.00
0481	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Concrete Masonry*	0.00	EACH	$1,500.00000	$0.00

Total for Group 0019: $0.00

Group 0021: Culverts, Type A: 5' - 10'

0067	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0476	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	0.00	FT	$550.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	Pipe Structures - Reinforced Concrete 5'-10' 66" to 78"				
0477	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Concrete - Headwalls/wingwalls*	0.00	EACH	$1,500.00000	$0.00

Total for Group 0021: $0.00

Group 0022: Culverts, Type A: 10' - 20'

0486	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0487	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Pipe Structures - Reinforced Concrete Pipe 10'-20'*	0.00	FT	$1,400.00000	$0.00
0488	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Concrete Masonry*	0.00	EACH	$1,500.00000	$0.00

Total for Group 0022: $0.00

Group 0024: BMP's

0076	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00

Total for Group 0024: $0.00

Group 0025: Closed Storm System

0077	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0489	603E13400 30" CONDUIT, TYPE B (Average size)	7,258.00	FT	$75.00000	$544,350.00
0523	604E00800 CATCH BASIN, NO. 3A	70.00	EACH	$1,500.00000	$105,000.00
0524	604E31500 MANHOLE, NO. 3	7.00	EACH	$3,000.00000	$21,000.00
0525	604E36601 PRECAST REINFORCED CONCRETE OUTLET, AS PER PLAN	0.00	EACH	$0.00000	$0.00
0526	Special Pump Station (Storm)	0.00	LS	$6,400,000.00000	$0.00
0527	Special Stormceptors	0.00	EACH	$5,750.00000	$0.00
0529	Special Retention basin improvements	0.00	LS	$109,000.00000	$0.00

Total for Group 0025: $670,350.00

Group 0026: Other Drainage Costs

0078	C-OC-DRNG OTHER COSTS, DRAINAGE	1.00	LS	$0.00000	$0.00

Total for Group 0026: $0.00

Group 0027: Mainline - Travel Lanes

0095	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0494	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg Base and Subgrade Compaction*	68,710.00	SY	$68.00000	$4,672,280.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension

Total for Group 0027: $4,672,280.00

Group 0028: Mainline - Outside Shoulder

0100	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0495	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg base and Subgrade Compaction*	11,609.00	SY	$68.00000	$789,412.00

Total for Group 0028: $789,412.00

Group 0030: Mainline - Inside Shoulder

0115	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0496	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg base and Subgrade Compaction*	13,290.00	SY	$68.00000	$903,720.00

Total for Group 0030: $903,720.00

Group 0031: Ramps (including shoulders)

0122	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0497	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg base and Subgrade Compaction*	0.00	SY	$68.00000	$0.00

Total for Group 0031: $0.00

Group 0032: Non - Mainline Lanes

0132	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0498	D-MC-PVMT Asphalt *Includes 3" 448, 9" 301, 6" Agg base and Subgrade Compaction*	0.00	SY	$41.00000	$0.00

Total for Group 0032: $0.00

Group 0041: Other Pavement Costs

0163	D-OC-PVMT OTHER COSTS, PAVEMENT	1.00	LS	$0.00000	$0.00

Total for Group 0041: $0.00

Group 0042: Water Works

0164	E-MC-WATR MAJOR COST DRIVERS, WATER LINE	0.00	LS	$0.00000	$0.00
0165	E-OC-WATR OTHER COSTS, WATER LINE	0.00	LS	$0.00000	$0.00

Total for Group 0042: $0.00

Group 0043: Sanitary Line

0170	F-MC-SANI MAJOR COST DRIVERS, SANITARY SEWER	0.00	LS	$0.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
				Total for Group 0043:	$0.00
Group 0044: Lighting - Full Interchange					
0173	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	1.00	LS	$0.00000	$0.00
0499	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	0.00	EACH	$469,000.00000	$0.00
				Total for Group 0044:	$0.00
Group 0045: Lighting - Partial Interchange					
0288	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	0.00	LS	$0.00000	$0.00
				Total for Group 0045:	$0.00
Group 0046: Lighting - Continuous Roadway					
0176	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	1.00	LS	$0.00000	$0.00
0500	G-MC-LTNG Lighting - Continuous	0.00	FT	$138.00000	$0.00
				Total for Group 0046:	$0.00
Group 0047: Other Lighting Costs					
0177	G-OC-LTNG OTHER COSTS, LIGHTING	4,276.00	LS	$35.00000	$149,660.00
				Total for Group 0047:	$149,660.00
Group 0048: Traffic Surveillance					
0178	H-OC-SURV OTHER COSTS, TRAFFIC SURVEILLANCE	1.00	LS	$185,954.41000	$185,954.41
				Total for Group 0048:	$185,954.41
Group 0049: Signs					
0179	J-MC-TRAF MAJOR COST DRIVERS, TRAFFIC CONTROL	1.00	LS	$0.00000	$0.00
0501	J-MC-TRAF Signs	0.81	MILE	$250,000.00000	$202,500.00
				Total for Group 0049:	$202,500.00
Group 0050: Pavement Marking					
0200	J-MC-TRAF MAJOR COST DRIVERS, TRAFFIC CONTROL	1.00	LS	$0.00000	$0.00
0502	644E00100 EDGE LINE	4.88	MILE	$3,000.00000	$14,640.00
0503	644E00200 LANE LINE	6.47	MILE	$2,000.00000	$12,940.00
				Total for Group 0050:	$27,580.00
Group 0051: Other Traffic Control Costs					

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
0208	J-OC-TRAF OTHER COSTS, TRAFFIC CONTROL	1.00	LS	$0.00000	$0.00

Total for Group 0051: $0.00

Group 0052: Signals - Intersections

0212	K-MC-SGNL MAJOR COST DRIVERS, SIGNALS	1.00	LS	$0.00000	$0.00

Total for Group 0052: $0.00

Group 0053: Other Traffic Signal Costs

0213	K-OC-SGNL OTHER COSTS, SIGNALS	1.00	LS	$0.00000	$0.00

Total for Group 0053: $0.00

Group 0054: Landscaping

0214	L-MC-LSCP MAJOR COST DRIVERS, LANDSCAPING	1.00	LS	$0.00000	$0.00
0215	L-OC-LSCP OTHER COSTS, LANDSCAPING	1.00	LS	$0.00000	$0.00

Total for Group 0054: $0.00

Group 0055: Retaining Walls $125 + $10/ft for caps, barriers and testing

0216	M-MC-WALL MAJOR COST DRIVERS, RETAINING WALLS	1.00	LS	$0.00000	$0.00
0504	M-MC-WALL Retaining Walls	7,780.00	SF	$135.00000	$1,050,300.00

Total for Group 0055: $1,050,300.00

Group 0056: Other Retaining Wall Costs

0217	M-OC-WALL OTHER COSTS, RETAINING WALLS	1.00	LS	$0.00000	$0.00

Total for Group 0056: $0.00

Group 0057: Building Demolition

0218	N-MC-DEMO MAJOR COST DRIVERS, BUILDING DEMOLITION	1.00	LS	$0.00000	$0.00
0219	N-OC-DEMO OTHER COSTS, BUILDING DEMOLITION	1.00	LS	$0.00000	$0.00
0532	202E98100 REMOVAL MISC.: *Radio Tower*	0.00	EACH	$8,500.00000	$0.00
0533	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Small Residential*	0.00	EACH	$7,500.00000	$0.00
0534	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Small Commercial*	0.00	EACH	$15,000.00000	$0.00
0535	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Large Residential*	0.00	EACH	$12,000.00000	$0.00
0536	202E56101	0.00	EACH	$30,000.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	BUILDING DEMOLISHED, AS PER PLAN *Large Commercial*				

Total for Group 0057: $0.00

Group 0058: Noise Barrier

0220	P-MC-NSBR MAJOR COST DRIVERS, NOISE BARRIER	1.00	LS	$0.00000	$0.00
0505	P-MC-NSBR Noise Barrier	40,012.00	SF	$25.00000	$1,000,300.00

Total for Group 0058: $1,000,300.00

Group 0059: Other Noise Barrier Costs

0221	P-OC-NSBR OTHER COSTS, NOISE BARRIER	1.00	LS	$0.00000	$0.00
0368	P-MC-NSBR MAJOR COST DRIVERS, NOISE BARRIER	0.00	LS	$0.00000	$0.00

Total for Group 0059: $0.00

Group 0060: New Structures

0222	R-MC-STRC MAJOR COST DRIVERS, STRUCTURES	1.00	LS	$0.00000	$0.00
0506	R-MC-STRC Tier 1 Structures to 25' Height	36,980.00	SF	$125.00000	$4,622,500.00
0507	R-MC-STRC Removal of Existing Structures non-complex	0.00	SF	$12.00000	$0.00
0508	R-MC-STRC Standard Removal of Existing Structures above average complex	30,310.00	SF	$17.00000	$515,270.00
0509	R-MC-STRC Removal of Existing Structures complex to very complex	0.00	SF	$30.00000	$0.00
0513	R-MC-STRC Tier 2 Structures 25' to 50' Height	0.00	SF	$150.00000	$0.00
0516	R-MC-STRC Tier 3 Structures 50' to 75' Height	0.00	SF	$200.00000	$0.00

Total for Group 0060: $5,137,770.00

Group 0061: Rehabilitated Structures

0223	R-MC-STRC MAJOR COST DRIVERS, STRUCTURES	0.00	SF	$45.00000	$0.00

Total for Group 0061: $0.00

Group 0062: Other Structure Costs

0224	R-OC-STRC OTHER COSTS, STRUCTURES *Contingency*	0.00	LS	$0.00000	$0.00

Total for Group 0062: $0.00

Group 0063: Temporary Road and Pavement Costs

0225	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
				Total for Group 0063:	$0.00
Group 0064: Portable Concrete Barrier (PCB)					
0226	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
				Total for Group 0064:	$0.00
Group 0065: Impact Attenuators					
0227	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
				Total for Group 0065:	$0.00
Group 0066: Sheeting					
0229	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
				Total for Group 0066:	$0.00
Group 0067: Temporary Signals					
0230	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	0.00	LS	$0.00000	$0.00
				Total for Group 0067:	$0.00
Group 0068: Work Zone Lighting					
0231	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	0.00	LS	$0.00000	$0.00
				Total for Group 0068:	$0.00
Group 0069: Innovative Contracting Incentatives					
0232	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	0.00	LS	$0.00000	$0.00
				Total for Group 0069:	$0.00
Group 0070: Other MOT Costs					
0233	S-OC-MNTC OTHER COSTS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
0512	S-OC-MNTC OTHER COSTS, MAINTENANCE OF TRAFFIC	0.81	MILE	$500,000.00000	$405,000.00
				Total for Group 0070:	$405,000.00
Group 0071: Wetland Construction					
0234	T-MC-WTLD MAJOR COST DRIVERS, WETLAND CONSTRUCTION	0.00	LS	$0.00000	$0.00
0360	T-MC-WTLD MAJOR COST DRIVERS, WETLAND CONSTRUCTION	0.00	LS	$0.00000	$0.00
				Total for Group 0071:	$0.00
Group 0072: Misc. Costs					

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
0235	U-MC-MISC MAJOR COST DRIVERS, MISCELLANEOUS COSTS	0.00	LS	$0.00000	$0.00
0236	U-OC-MISC OTHER COSTS, MISCELLANEOUS COSTS	0.00	LS	$0.00000	$0.00
0237	100E00300 SPECIAL - PREMIUM ON RAILROADS' PROTECTIVE PUBLIC LIABILITY AND PROPERTY DAMAGE LIABILITY INSURANCE	0.00	LS	$10,000.00000	$0.00
0238	623E10000 CONSTRUCTION LAYOUT STAKES *0.5%*	1.00	LS	$93,906.97000	$93,906.97
0239	614E11000 MAINTAINING TRAFFIC *2%*	1.00	LS	$375,627.90000	$375,627.90
0240	619E16020 FIELD OFFICE, TYPE C	44.00	MNTH	$2,500.00000	$110,000.00
0242	624E10000 MOBILIZATION	1.00	LS	$400,000.00000	$400,000.00
0511	103E05000 PREMIUM FOR CONTRACT PERFORMANCE BOND AND FOR PAYMENT BOND *0.5%*	1.00	LS	$93,906.97000	$93,906.97
0518		0.00		$0.00000	$0.00
0519		0.00		$0.00000	$0.00
0520		0.00		$0.00000	$0.00
0521		0.00		$0.00000	$0.00

Total for Group 0072: $1,073,441.84

Group 0073: Design Contingency Costs

0243	V-MC-CNTG MAJOR COST DRIVERS, CONTINGENCY COSTS	1.00	LS	$0.00000	$0.00
0244	V-OC-CNTG OTHER COSTS, CONTINGENCY COSTS *25%*	1.00	LS	$4,963,709.19000	$4,963,709.19

Total for Group 0073: $4,963,709.19

Group 0074: Inflation Contingency

0266	V-OC-CNTG OTHER COSTS, CONTINGENCY COSTS	0.00	LS	$0.00000	$0.00

Total for Group 0074: $0.00

Estimate Alt E OH cont 7

Estimated Cost: $411,459,793.70

Contingency: 57.60%

Estimated Total: $648,460,634.87

OH-7 Reconstruction of the New Bridge over the Ohio to North of Linn St

Base Date: 07/22/10

Spec Year: 10

Unit System: E

Work Type: GEN CONST: INVLVS 2 OR MOR MAJ WRK TYPE

Highway Type: 451

Urban/Rural Type: URBAN CLASS

Season: SUMMER

County: HAMILTON

Midpoint of Latitude:

Midpoint of Longitude:

District: 8

Federal/State Project Number:

Estimate Type: C1

Prepared by Parsons Brinckerhoff on 07/22/10

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
Group 0001: Pavement Removal					
0001	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	0.00	LS	$0.00000	$0.00
0343	202E23000 PAVEMENT REMOVED	117,932.00	SY	$8.00000	$943,456.00
				Total for Group 0001:	$943,456.00
Group 0002: Excavation - Rock					
0003	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	0.00	CY	$30.00000	$0.00
				Total for Group 0002:	$0.00
Group 0003: Excavation - Soil					
0004	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0344	203E10000 EXCAVATION	193,736.00	CY	$8.00000	$1,549,888.00
				Total for Group 0003:	$1,549,888.00
Group 0004: Excavation - Hazardous					
0006	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
				Total for Group 0004:	$0.00
Group 0005: Fill - Embankment (includes wasting excess excavation)					
0007	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0345	203E20000 EMBANKMENT	197,488.00	CY	$6.00000	$1,184,928.00
				Total for Group 0005:	$1,184,928.00
Group 0006: Fill - Lime Modified Soil					
0010	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0346	205E10050 LIME STABILIZED EMBANKMENT	0.00	CY	$7.00000	$0.00
0347	205E10300 LIME	0.00	TON	$5.00000	$0.00
				Total for Group 0006:	$0.00
Group 0007: Fill - Borrow					
0011	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	3,752.00	CY	$8.00000	$30,016.00
				Total for Group 0007:	$30,016.00
Group 0008: Concrete Barrier					
0012	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0465	622E10060	11,155.00	FT	$110.00000	$1,227,050.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	CONCRETE BARRIER, SINGLE SLOPE, TYPE B				

Total for Group 0008: $1,227,050.00

Group 0009: Subgrade Treatment - Lime

0014	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0348	206E10000 LIME STABILIZED SUBGRADE	0.00	SY	$1.85000	$0.00
0349	206E10300 LIME	0.00	TON	$10.00000	$0.00
0350	206E11000 CURING COAT	0.00	SY	$1.00000	$0.00
0351	206E20000 TEST ROLLING	0.00	HOUR	$4.00000	$0.00

Total for Group 0009: $0.00

Group 0010: Subgrade Treatment - Cement

0016	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	122,406.00	SY	$2.50000	$306,015.00

Total for Group 0010: $306,015.00

Group 0011: Subgrade Treatment - Undercut & Backfill

0017	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00

Total for Group 0011: $0.00

Group 0012: Other Roadway Costs

0019	A-OC-RDWY OTHER COSTS, ROADWAY *Contingency*	0.00	LS	$0.00000	$0.00
0020	201E11000 CLEARING AND GRUBBING	0.00	LS	$856,500.00000	$0.00
0021	201E21800 TREE REMOVED, 18" SIZE	0.00	EACH	$250.00000	$0.00
0022	201E23000 TREE REMOVED, 30" SIZE	0.00	EACH	$405.00000	$0.00
0023	201E24800 TREE REMOVED, 48" SIZE	0.00	EACH	$772.00000	$0.00
0026	202E11000 STRUCTURE REMOVED	0.00	LS	$9,310.13000	$0.00
0028	202E35200 PIPE REMOVED, OVER 24"	0.00	FT	$0.00000	$0.00
0029	202E38000 GUARDRAIL REMOVED	0.00	FT	$0.00000	$0.00
0030	202E42206 ANCHOR ASSEMBLY REMOVED	0.00	EACH	$0.00000	$0.00
0031	202E58000 MANHOLE REMOVED	0.00	EACH	$0.00000	$0.00
0032	202E58100 CATCH BASIN REMOVED	0.00	EACH	$0.00000	$0.00
0033	202E75000 FENCE REMOVED	0.00	FT	$0.00000	$0.00
0034	204E45000	0.00	HOUR	$126.59000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	PROOF ROLLING				
0035	204E10000 SUBGRADE COMPACTION	0.00	SY	$0.81000	$0.00
0036	451E30000 SPECIAL - PRESSURE RELIEF JOINT, TYPE A	0.00	FT	$0.00000	$0.00
0037	606E13000 GUARDRAIL, TYPE 5	14,675.00	FT	$14.00000	$205,450.00
0038	606E22000 ANCHOR ASSEMBLY, TYPE B-98	0.00	EACH	$1,411.29597	$0.00
0039	606E22010 ANCHOR ASSEMBLY, TYPE E-98	0.00	EACH	$1,712.52574	$0.00
0040	606E26500 ANCHOR ASSEMBLY, TYPE T	0.00	EACH	$487.23435	$0.00
0041	606E35000 BRIDGE TERMINAL ASSEMBLY, TYPE 1	0.00	EACH	$969.12750	$0.00
0042	606E35100 BRIDGE TERMINAL ASSEMBLY, TYPE 2	0.00	EACH	$338.36354	$0.00
0043	606E60010 IMPACT ATTENUATOR, TYPE 1-98 (BIDIRECTIONAL)	0.00	EACH	$3,439.05897	$0.00
0044	607E15000 FENCE, TYPE 47 *For Fencing*	0.00	FT	$0.00000	$0.00
0423	304E20000 AGGREGATE BASE *For Fencing*	0.00	CY	$0.00000	$0.00
0424	601E32100 ROCK CHANNEL PROTECTION, TYPE B WITH FILTER *For Fencing*	0.00	CY	$0.00000	$0.00
0425	607E40500 GATE, TYPE 47 *For Fencing*	0.00	EACH	$731.31641	$0.00
0426	625E32000 GROUND ROD *For Fencing*	0.00	EACH	$0.00000	$0.00
0466		0.00		$0.00000	$0.00

Total for Group 0012: $205,450.00

Group 0014: Seeding & Mulching / Sodding

0045	B-MC-ERCO MAJOR COST DRIVERS, EROSION CONTROL	1.00	LS	$0.00000	$0.00
0467	659E10000 SEEDING AND MULCHING	35,073.00	SY	$1.00000	$35,073.00
0531	660E25000 SODDING STAKED	0.00	SY	$15.00000	$0.00

Total for Group 0014: $35,073.00

Group 0015: Rock Channel Protection

0047	B-MC-ERCO MAJOR COST DRIVERS, EROSION CONTROL	1.00	LS	$0.00000	$0.00
0469	601E32000 ROCK CHANNEL PROTECTION, TYPE A WITH FILTER	0.00	CY	$75.00000	$0.00

Total for Group 0015: $0.00

Group 0016: Erosion Control - Item 832

0048	B-MC-ERCO	1.00	LS	$0.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	MAJOR COST DRIVERS, EROSION CONTROL				
0470	832E10000 STORM WATER POLLUTION PREVENTION PLAN	1.00	LS	$50,000.00000	$50,000.00
0471	832E20000 EROSION CONTROL	42,000.00	EACH	$1.00000	$42,000.00

Total for Group 0016: $92,000.00

Group 0017: Other Erosion Control Costs

0049	670E00700 DITCH EROSION PROTECTION	0.00	SY	$0.00000	$0.00
0050	B-OC-ERCO OTHER COSTS, EROSION CONTROL	1.00	LS	$0.00000	$0.00
0051	659E00100 SOIL ANALYSIS TEST	0.00	EACH	$0.00000	$0.00
0052	659E00300 TOPSOIL	0.00	CY	$0.00000	$0.00
0053	659E14000 REPAIR SEEDING AND MULCHING	0.00	SY	$0.00000	$0.00
0054	659E15000 INTER-SEEDING	0.00	SY	$0.71000	$0.00
0055	659E20000 COMMERCIAL FERTILIZER	0.00	TON	$410.06813	$0.00
0056	659E31000 LIME	0.00	ACRE	$0.00000	$0.00
0057	659E35000 WATER	0.00	MGAL	$5.00000	$0.00
0058	659E40000 MOWING	0.00	MSF	$0.00000	$0.00

Total for Group 0017: $0.00

Group 0018: Underdrains

0059	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0062	605E05100 4" SHALLOW PIPE UNDERDRAINS	75,225.00	FT	$8.00000	$601,800.00

Total for Group 0018: $601,800.00

Group 0019: Culverts - Type A: < 5'

0474	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	0.00	LS	$0.00000	$0.00
0480	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Pipe Structures - Reinforced Concrete Pipe up to 60"*	0.00	FT	$350.00000	$0.00
0481	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Concrete Masonry*	0.00	EACH	$1,500.00000	$0.00

Total for Group 0019: $0.00

Group 0021: Culverts, Type A: 5' - 10'

0067	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0476	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	0.00	FT	$550.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	Pipe Structures - Reinforced Concrete 5'-10' 66" to 78"				
0477	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Concrete - Headwalls/wingwalls*	0.00	EACH	$1,500.00000	$0.00

Total for Group 0021: $0.00

Group 0022: Culverts, Type A: 10' - 20'

0486	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0487	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Pipe Structures - Reinforced Concrete Pipe 10'-20'*	0.00	FT	$1,400.00000	$0.00
0488	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Concrete Masonry*	0.00	EACH	$1,500.00000	$0.00

Total for Group 0022: $0.00

Group 0024: BMP's

0076	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00

Total for Group 0024: $0.00

Group 0025: Closed Storm System

0077	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0489	603E13400 30" CONDUIT, TYPE B (Average size)	12,454.00	FT	$75.00000	$934,050.00
0523	604E00800 CATCH BASIN, NO. 3A	128.00	EACH	$1,500.00000	$192,000.00
0524	604E31500 MANHOLE, NO. 3	9.00	EACH	$3,000.00000	$27,000.00
0525	604E36601 PRECAST REINFORCED CONCRETE OUTLET, AS PER PLAN	0.00	EACH	$0.00000	$0.00
0526	Special Pump Station (Storm)	0.00	LS	$6,400,000.00000	$0.00
0527	Special Stormceptors	0.00	EACH	$5,750.00000	$0.00
0529	Special Retention basin improvements	0.00	LS	$109,000.00000	$0.00

Total for Group 0025: $1,153,050.00

Group 0026: Other Drainage Costs

0078	C-OC-DRNG OTHER COSTS, DRAINAGE	1.00	LS	$0.00000	$0.00

Total for Group 0026: $0.00

Group 0027: Mainline - Travel Lanes

0095	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0494	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg Base and Subgrade Compaction*	39,260.00	SY	$68.00000	$2,669,680.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension

Total for Group 0027: $2,669,680.00

Group 0028: Mainline - Outside Shoulder

0100	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0495	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg base and Subgrade Compaction*	8,453.00	SY	$68.00000	$574,804.00

Total for Group 0028: $574,804.00

Group 0030: Mainline - Inside Shoulder

0115	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0496	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg base and Subgrade Compaction*	8,932.00	SY	$68.00000	$607,376.00

Total for Group 0030: $607,376.00

Group 0031: Ramps (including shoulders)

0122	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0497	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg base and Subgrade Compaction*	29,120.00	SY	$68.00000	$1,980,160.00

Total for Group 0031: $1,980,160.00

Group 0032: Non - Mainline Lanes

0132	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0498	D-MC-PVMT Asphalt *Includes 3" 448, 9" 301, 6" Agg base and Subgrade Compaction*	36,641.00	SY	$41.00000	$1,502,281.00

Total for Group 0032: $1,502,281.00

Group 0041: Other Pavement Costs

0163	D-OC-PVMT OTHER COSTS, PAVEMENT	1.00	LS	$0.00000	$0.00

Total for Group 0041: $0.00

Group 0042: Water Works

0164	E-MC-WATR MAJOR COST DRIVERS, WATER LINE	0.00	LS	$0.00000	$0.00
0165	E-OC-WATR OTHER COSTS, WATER LINE	0.00	LS	$0.00000	$0.00

Total for Group 0042: $0.00

Group 0043: Sanitary Line

0170	F-MC-SANI MAJOR COST DRIVERS, SANITARY SEWER	0.00	LS	$0.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
				Total for Group 0043:	$0.00
Group 0044: Lighting - Full Interchange					
0173	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	1.00	LS	$0.00000	$0.00
0499	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	3.00	EACH	$469,000.00000	$1,407,000.00
				Total for Group 0044:	$1,407,000.00
Group 0045: Lighting - Partial Interchange					
0288	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	0.00	LS	$0.00000	$0.00
				Total for Group 0045:	$0.00
Group 0046: Lighting - Continuous Roadway					
0176	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	1.00	LS	$0.00000	$0.00
0500	G-MC-LTNG Lighting - Continuous	17,952.00	FT	$35.00000	$628,320.00
				Total for Group 0046:	$628,320.00
Group 0047: Other Lighting Costs					
0177	G-OC-LTNG OTHER COSTS, LIGHTING	0.00	LS	$0.00000	$0.00
				Total for Group 0047:	$0.00
Group 0048: Traffic Surveillance					
0178	H-OC-SURV OTHER COSTS, TRAFFIC SURVEILLANCE	1.00	LS	$3,143,783.86000	$3,143,783.86
				Total for Group 0048:	$3,143,783.86
Group 0049: Signs					
0179	J-MC-TRAF MAJOR COST DRIVERS, TRAFFIC CONTROL	1.00	LS	$0.00000	$0.00
0501	J-MC-TRAF Signs	3.40	MILE	$250,000.00000	$850,000.00
				Total for Group 0049:	$850,000.00
Group 0050: Pavement Marking					
0200	J-MC-TRAF MAJOR COST DRIVERS, TRAFFIC CONTROL	1.00	LS	$0.00000	$0.00
0502	644E00100 EDGE LINE	16.60	MILE	$3,000.00000	$49,800.00
0503	644E00200 LANE LINE	12.50	MILE	$2,000.00000	$25,000.00
				Total for Group 0050:	$74,800.00
Group 0051: Other Traffic Control Costs					

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
0208	J-OC-TRAF OTHER COSTS, TRAFFIC CONTROL	1.00	LS	$0.00000	$0.00

Total for Group 0051: $0.00

Group 0052: Signals - Intersections

0212	K-MC-SGNL MAJOR COST DRIVERS, SIGNALS	6.50	EACH	$175,000.00000	$1,137,500.00

Total for Group 0052: $1,137,500.00

Group 0053: Other Traffic Signal Costs

0213	K-OC-SGNL OTHER COSTS, SIGNALS	1.00	LS	$0.00000	$0.00

Total for Group 0053: $0.00

Group 0054: Landscaping

0214	L-MC-LSCP MAJOR COST DRIVERS, LANDSCAPING	1.00	LS	$0.00000	$0.00
0215	L-OC-LSCP OTHER COSTS, LANDSCAPING	1.00	LS	$0.00000	$0.00

Total for Group 0054: $0.00

Group 0055: Retaining Walls $125 + $10/ft for caps, barriers and testing

0216	M-MC-WALL MAJOR COST DRIVERS, RETAINING WALLS	1.00	LS	$0.00000	$0.00
0504	M-MC-WALL Retaining Walls	38,655.00	SF	$135.00000	$5,218,425.00

Total for Group 0055: $5,218,425.00

Group 0056: Other Retaining Wall Costs

0217	M-OC-WALL OTHER COSTS, RETAINING WALLS	1.00	LS	$0.00000	$0.00

Total for Group 0056: $0.00

Group 0057: Building Demolition

0218	N-MC-DEMO MAJOR COST DRIVERS, BUILDING DEMOLITION	1.00	LS	$0.00000	$0.00
0219	N-OC-DEMO OTHER COSTS, BUILDING DEMOLITION	1.00	LS	$0.00000	$0.00
0534	202E98100 REMOVAL MISC.: *Radio Tower*	0.00	EACH	$8,500.00000	$0.00
0535	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Small Residential*	0.00	EACH	$7,500.00000	$0.00
0536	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Small Commercial*	3.00	EACH	$15,000.00000	$45,000.00
0537	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Large Residential*	0.00	EACH	$12,000.00000	$0.00
0538	202E56101	1.00	EACH	$30,000.00000	$30,000.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	BUILDING DEMOLISHED, AS PER PLAN *Large Commercial*				

Total for Group 0057: $75,000.00

Group 0058: Noise Barrier

0220	P-MC-NSBR MAJOR COST DRIVERS, NOISE BARRIER	1.00	LS	$0.00000	$0.00
0505	P-MC-NSBR Noise Barrier	0.00	LS	$25.00000	$0.00

Total for Group 0058: $0.00

Group 0059: Other Noise Barrier Costs

0221	P-OC-NSBR OTHER COSTS, NOISE BARRIER	1.00	LS	$0.00000	$0.00
0368	P-MC-NSBR MAJOR COST DRIVERS, NOISE BARRIER	0.00	LS	$0.00000	$0.00

Total for Group 0059: $0.00

Group 0060: New Structures

0222	R-MC-STRC MAJOR COST DRIVERS, STRUCTURES	1.00	LS	$0.00000	$0.00
0506	R-MC-STRC Tier 1 Structures to 25' Height	13,862.00	SF	$125.00000	$1,732,750.00
0507	R-MC-STRC Removal of Existing Structures non-complex	0.00	SF	$12.00000	$0.00
0508	R-MC-STRC Standard Removal of Existing Structures above average complex	417,592.00	SF	$17.00000	$7,099,064.00
0509	R-MC-STRC Removal of Existing Structures complex to very complex	267,265.00	SF	$30.00000	$8,017,950.00
0513	R-MC-STRC Tier 2 Structures 25' to 50' Height	258,057.00	SF	$150.00000	$38,708,550.00
0516	R-MC-STRC Tier 3 Structures 50' to 75' Height	1,165,330.00	SF	$200.00000	$233,066,000.00

Total for Group 0060: $288,624,314.00

Group 0061: Rehabilitated Structures

0223	R-MC-STRC MAJOR COST DRIVERS, STRUCTURES	0.00	SF	$45.00000	$0.00

Total for Group 0061: $0.00

Group 0062: Other Structure Costs

0224	R-OC-STRC OTHER COSTS, STRUCTURES *Contingency*	0.00	LS	$0.00000	$0.00

Total for Group 0062: $0.00

Group 0063: Temporary Road and Pavement Costs

0225	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
				Total for Group 0063:	$0.00
Group 0064: Portable Concrete Barrier (PCB)					
0226	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
				Total for Group 0064:	$0.00
Group 0065: Impact Attenuators					
0227	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
				Total for Group 0065:	$0.00
Group 0066: Sheeting					
0229	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
				Total for Group 0066:	$0.00
Group 0067: Temporary Signals					
0230	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	0.00	LS	$0.00000	$0.00
				Total for Group 0067:	$0.00
Group 0068: Work Zone Lighting					
0231	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	0.00	LS	$0.00000	$0.00
				Total for Group 0068:	$0.00
Group 0069: Innovative Contracting Incentatives					
0232	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	0.00	LS	$0.00000	$0.00
				Total for Group 0069:	$0.00
Group 0070: Other MOT Costs					
0233	S-OC-MNTC OTHER COSTS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
0512	S-OC-MNTC OTHER COSTS, MAINTENANCE OF TRAFFIC	3.40	MILE	$500,000.00000	$1,700,000.00
				Total for Group 0070:	$1,700,000.00
Group 0071: Wetland Construction					
0234	T-MC-WTLD MAJOR COST DRIVERS, WETLAND CONSTRUCTION	0.00	LS	$0.00000	$0.00
0360	T-MC-WTLD MAJOR COST DRIVERS, WETLAND CONSTRUCTION	0.00	LS	$0.00000	$0.00
				Total for Group 0071:	$0.00
Group 0072: Misc. Costs					

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
0235	U-MC-MISC MAJOR COST DRIVERS, MISCELLANEOUS COSTS	0.00	LS	$0.00000	$0.00
0236	U-OC-MISC OTHER COSTS, MISCELLANEOUS COSTS	0.00	LS	$0.00000	$0.00
0237	100E00300 SPECIAL - PREMIUM ON RAILROADS' PROTECTIVE PUBLIC LIABILITY AND PROPERTY DAMAGE LIABILITY INSURANCE	1.00	LS	$10,000.00000	$10,000.00
0238	623E10000 CONSTRUCTION LAYOUT STAKES *0.5%*	1.00	LS	$1,587,610.85000	$1,587,610.85
0239	614E11000 MAINTAINING TRAFFIC *2%*	1.00	LS	$6,350,443.40000	$6,350,443.40
0240	619E16020 FIELD OFFICE, TYPE C	44.00	MNTH	$2,500.00000	$110,000.00
0242	624E10000 MOBILIZATION	1.00	LS	$2,000,000.00000	$2,000,000.00
0511	103E05000 PREMIUM FOR CONTRACT PERFORMANCE BOND AND FOR PAYMENT BOND *0.5%*	1.00	LS	$1,587,610.85000	$1,587,610.85

Total for Group 0072: $11,645,665.10

Group 0073: Design Contingency Costs

0243	V-MC-CNTG MAJOR COST DRIVERS, CONTINGENCY COSTS	1.00	LS	$0.00000	$0.00
0244	V-OC-CNTG OTHER COSTS, CONTINGENCY COSTS *25%*	1.00	LS	$82,291,958.74000	$82,291,958.74

Total for Group 0073: $82,291,958.74

Group 0074: Inflation Contingency

0266	V-OC-CNTG OTHER COSTS, CONTINGENCY COSTS	0.00	LS	$0.00000	$0.00

Total for Group 0074: $0.00

PID 89068 **County** HAM **Route** 75 **Section** 0.22 **This R/W Acquisition cost estimate is prepared for Alternative** **E**

Macro View

Acquisition	Unit (SF) or (Acreage)	X	Cost/Unit ($$/SF) ($$/Acre)	Subtotal Land Value	+	Structure Values (if Taken)	+	Damages (Loss in Value to the Residue)	Subtotal Structures & Damages	=	Total Non Labor Acquisition Costs
-Residential	0	X	$0.00	$0	+	0	+	N/A	$0.00	=	$0.00
-Commercial	1.65	X	$542,378.85	$894,925	+	6684870	+	N/A	$6,684,870.00	=	$7,579,795.10
-Industrial	5.66	X	$153,756.16	$870,260	+	3740	+	N/A	$3,740.00	=	$873,999.87
-Agricultural	0	X	$0.00	$0	+	0	+	N/A	$0.00	=	$0.00

Attributes

Parcel Count	Total Takes	Partial Takes	No. of Structures Impacted
0	0	0	0
11	3	8	3
15	6	9	1
0	0	0	0

Relocation	Unit (Displacement)	X	*RHP/*RSP	+	Move Cost	+	Reestablishment	=	Total Non Labor RAP Costs
-Residential									
Owner Occupant	0	X	$34,000	+	$6,000			=	$0
Tenant	0	X	$10,000	+	$1,750			=	$0
-Commerical/Farm/NPO									
Owner	3			X	$15,000	+	$10,000	=	$75,000
Tenant	22			X	$15,000	+	$10,000	=	$550,000
-Personal Property	0			X	$1,000			=	$0

Estimate amount of time necessary to relocate all RAP parcels = (months) 24

Estimate number of years until project wide R/W acquisition begins = 2

{[(Total Cost of Acquisition Cost)x0.90]x0.025}+{[(Total of Acquisition Cost)x0.15]x1.20}+{[(Total of Acquisition Cost)x0.10]x1.50} = Contingency

Contingency (Incidentals, Admin. Review & Appropriation)	2979962.726
Total Non Labor R/W Costs	$12,058,757.69

*RHP - Replacement Housing Payment
*RSP - Rent Supplemental Payment
*NPO - Non-Profit Organization

Instruction for Acquisition & Relocation Cost Estimates

Estimate the total number of acres involved in the project and allocate those acres into the four categories shown.

Assign an average unit price for each category. These unit prices are typically taken from the auditors tax card data. Cost Estimates prepared at Step 4 (Step 7 on Major Projects) and thereafter must base unit prices on a project sales data book instead of tax card data.

Add structure values from the auditors tax cards only if the structures are taken.

Damages must be assessed by a pre-qualified expert with experience in Before & After analysis. This usually occurs at Step 4 for Minor projects (Step 6 on Major Projects) and requires some knowledge of the impacts of the project on structures.

Relocation Cost Estimates must consider the complexity of the move process. All move estimates that involve a business or a mulit-tenant residential structure should use the services of a relocation Assistance professionnal to accurately gauge costs.

Macro View

Labor (External)	Unit (Parcels)	X	Unit Price	=	Total Cost
Titles	26	X	$400	=	$10,400
Appraisal					
-Simple	3	X	$750	=	$2,250
-Detailed	23	X	$4,500	=	$103,500
Appraisal Review					
-Simple	3	X	$500	=	$1,500
-Detailed	23	X	$2,000	=	$46,000
Negotiations	26	X	$1,100	=	$28,600
Relocations					
-Personal Property	0	X	$1,500	=	$0
-Residential	0	X	$5,200	=	$0
-Commercial/Farm/*NPO	25	X	$5,600	=	$140,000
Closings	26	X	$400	=	$10,400
Project Management	26	X	$550	=	$14,300
Asbestos Testing & Abatement		X		=	
	Total Labor Costs				$356,950

*NPO = Non-Profit Organization

This R/W Cost Estimate Prepared by	Date
Chris Clemons	8/4/2010

This R/W Cost Estimate was performed at Step 6 of the PDP for MAJOR Projects using

Total Labor Costs	$356,950.00
Total Non Labor R/W Costs	$12,058,757.69
Inflation Adjustments	$1,018,088.03
Total R/W Costs	**$13,433,795.72**

Instructions for Labor Cost Estimates

Labor costs are a function of time, distance, and talent. Labor costs estimates should reflect the complexity of the project and the talent necessary to acquire the right of way in a timely manner. The person making the cost estimate may adjust the figures given for the particular project being estimated to reflect local labor costs. It is critical that the estimate be labeled to reflect the alignment alternative, the step in the PDP process and the person(s) performing the estimate.

Comments

Cost/Unit were generated from auditors tax card data.

P.D.P. R/W Cost Estimator

Estimate Alt I KY cont 2

Estimated Cost: $7,209,761.51

Contingency: 46.50%

Estimated Total: $10,562,300.61

Base Date: 01/01/15

Spec Year: 10

Unit System: E

Work Type: GEN CONST: INVLVS 2 OR MOR MAJ WRK TYPE

Highway Type: 451

Urban/Rural Type: URBAN CLASS

Season: SUMMER

County: HAMILTON

Midpoint of Latitude:

Midpoint of Longitude:

District:

Federal/State Project Number:

Estimate Type: C1

Prepared by Parsons Brinckerhoff on 07/22/10

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
Group 0001: Pavement Removal					
0001	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	0.00	LS	$0.00000	$0.00
0343	202E23000 PAVEMENT REMOVED	2,373.00	SY	$8.00000	$18,984.00
				Total for Group 0001:	$18,984.00
Group 0002: Excavation - Rock					
0003	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1,104.00	CY	$30.00000	$33,120.00
				Total for Group 0002:	$33,120.00
Group 0003: Excavation - Soil					
0004	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0344	203E10000 EXCAVATION	9,936.00	CY	$8.00000	$79,488.00
				Total for Group 0003:	$79,488.00
Group 0004: Excavation - Hazardous					
0006	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
				Total for Group 0004:	$0.00
Group 0005: Fill - Embankment (includes wasting excess excavation)					
0007	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0345	203E20000 EMBANKMENT	11,040.00	CY	$6.00000	$66,240.00
				Total for Group 0005:	$66,240.00
Group 0006: Fill - Lime Modified Soil					
0010	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0346	205E10050 LIME STABILIZED EMBANKMENT	0.00	CY	$7.00000	$0.00
0347	205E10300 LIME	0.00	TON	$5.00000	$0.00
				Total for Group 0006:	$0.00
Group 0007: Fill - Borrow					
0011	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	0.00	CY	$8.00000	$0.00
				Total for Group 0007:	$0.00
Group 0008: Concrete Barrier					
0012	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0465	622E10060	0.00	FT	$110.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	CONCRETE BARRIER, SINGLE SLOPE, TYPE B				

Total for Group 0008: $0.00

Group 0009: Subgrade Treatment - Lime

0014	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0348	206E10000 LIME STABILIZED SUBGRADE	0.00	SY	$1.85000	$0.00
0349	206E10300 LIME	0.00	TON	$10.00000	$0.00
0350	206E11000 CURING COAT	0.00	SY	$1.00000	$0.00
0351	206E20000 TEST ROLLING	0.00	HOUR	$4.00000	$0.00

Total for Group 0009: $0.00

Group 0010: Subgrade Treatment - Cement

0016	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	3,309.00	SY	$2.50000	$8,272.50

Total for Group 0010: $8,272.50

Group 0011: Subgrade Treatment - Undercut & Backfill

0017	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00

Total for Group 0011: $0.00

Group 0012: Other Roadway Costs

0019	A-OC-RDWY OTHER COSTS, ROADWAY *Contingency*	0.00	LS	$0.00000	$0.00
0020	201E11000 CLEARING AND GRUBBING	0.00	LS	$856,500.00000	$0.00
0021	201E21800 TREE REMOVED, 18" SIZE	0.00	EACH	$250.00000	$0.00
0022	201E23000 TREE REMOVED, 30" SIZE	0.00	EACH	$405.00000	$0.00
0023	201E24800 TREE REMOVED, 48" SIZE	0.00	EACH	$772.00000	$0.00
0026	202E11000 STRUCTURE REMOVED	0.00	LS	$9,310.13000	$0.00
0028	202E35200 PIPE REMOVED, OVER 24"	0.00	FT		$0.00
0029	202E38000 GUARDRAIL REMOVED	0.00	FT		$0.00
0030	202E42206 ANCHOR ASSEMBLY REMOVED	0.00	EACH		$0.00
0031	202E58000 MANHOLE REMOVED	0.00	EACH		$0.00
0032	202E58100 CATCH BASIN REMOVED	0.00	EACH		$0.00
0033	202E75000 FENCE REMOVED	0.00	FT		$0.00
0034	204E45000	0.00	HOUR	$126.59000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	PROOF ROLLING				
0035	204E10000 SUBGRADE COMPACTION	0.00	SY	$0.81000	$0.00
0036	451E30000 SPECIAL - PRESSURE RELIEF JOINT, TYPE A	0.00	FT		$0.00
0037	606E13000 GUARDRAIL, TYPE 5	0.00	FT	$14.00000	$0.00
0038	606E22000 ANCHOR ASSEMBLY, TYPE B-98	0.00	EACH		$0.00
0039	606E22010 ANCHOR ASSEMBLY, TYPE E-98	0.00	EACH		$0.00
0040	606E26500 ANCHOR ASSEMBLY, TYPE T	0.00	EACH		$0.00
0041	606E35000 BRIDGE TERMINAL ASSEMBLY, TYPE 1	0.00	EACH		$0.00
0042	606E35100 BRIDGE TERMINAL ASSEMBLY, TYPE 2	0.00	EACH		$0.00
0043	606E60010 IMPACT ATTENUATOR, TYPE 1-98 (BIDIRECTIONAL)	0.00	EACH		$0.00
0044	607E15000 FENCE, TYPE 47 *For Fencing*	0.00	FT		$0.00
0423	304E20000 AGGREGATE BASE *For Fencing*	0.00	CY		$0.00
0424	601E32100 ROCK CHANNEL PROTECTION, TYPE B WITH FILTER *For Fencing*	0.00	CY		$0.00
0425	607E40500 GATE, TYPE 47 *For Fencing*	0.00	EACH		$0.00
0426	625E32000 GROUND ROD *For Fencing*	0.00	EACH		$0.00
0466		0.00		$0.00000	$0.00

Total for Group 0012: $0.00

Group 0014: Seeding & Mulching / Sodding

0045	B-MC-ERCO MAJOR COST DRIVERS, EROSION CONTROL	1.00	LS	$0.00000	$0.00
0467	659E10000 SEEDING AND MULCHING	1,328.00	SY	$1.00000	$1,328.00
0531	660E25000 SODDING STAKED	0.00	SY	$15.00000	$0.00

Total for Group 0014: $1,328.00

Group 0015: Rock Channel Protection

0047	B-MC-ERCO MAJOR COST DRIVERS, EROSION CONTROL	1.00	LS	$0.00000	$0.00
0469	601E32000 ROCK CHANNEL PROTECTION, TYPE A WITH FILTER	24.00	CY	$75.00000	$1,800.00

Total for Group 0015: $1,800.00

Group 0016: Erosion Control - Item 832

0048	B-MC-ERCO	1.00	LS	$0.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	MAJOR COST DRIVERS, EROSION CONTROL				
0470	832E10000 STORM WATER POLLUTION PREVENTION PLAN	1.00	LS	$20,000.00000	$20,000.00
0471	832E20000 EROSION CONTROL	3,000.00	EACH	$1.00000	$3,000.00

Total for Group 0016: $23,000.00

Group 0017: Other Erosion Control Costs

0049	670E00700 DITCH EROSION PROTECTION	0.00	SY		$0.00
0050	B-OC-ERCO OTHER COSTS, EROSION CONTROL	1.00	LS	$0.00000	$0.00
0051	659E00100 SOIL ANALYSIS TEST	0.00	EACH	$0.00000	$0.00
0052	659E00300 TOPSOIL	0.00	CY		$0.00
0053	659E14000 REPAIR SEEDING AND MULCHING	0.00	SY		$0.00
0054	659E15000 INTER-SEEDING	0.00	SY	$0.71000	$0.00
0055	659E20000 COMMERCIAL FERTILIZER	0.00	TON		$0.00
0056	659E31000 LIME	0.00	ACRE	$0.00000	$0.00
0057	659E35000 WATER	0.00	MGAL	$5.00000	$0.00
0058	659E40000 MOWING	0.00	MSF	$0.00000	$0.00

Total for Group 0017: $0.00

Group 0018: Underdrains

0059	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0062	605E05100 4" SHALLOW PIPE UNDERDRAINS	1,223.00	FT	$8.00000	$9,784.00

Total for Group 0018: $9,784.00

Group 0019: Culverts - Type A: < 5'

0474	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	0.00	LS	$0.00000	$0.00
0480	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Pipe Structures - Reinforced Concrete Pipe up to 60"*	0.00	FT	$350.00000	$0.00
0481	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Concrete Masonry*	0.00	EACH	$1,500.00000	$0.00

Total for Group 0019: $0.00

Group 0021: Culverts, Type A: 5' - 10'

0067	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0476	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	0.00	FT	$550.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	Pipe Structures - Reinforced Concrete 5'-10' 66" to 78"				
0477	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Concrete - Headwalls/wingwalls*	0.00	EACH	$2,000.00000	$0.00

Total for Group 0021: $0.00

Group 0022: Culverts, Type A: 10' - 20'

0486	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0487	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Pipe Structures - Reinforced Concrete Pipe 10'-20'*	0.00	FT	$1,400.00000	$0.00
0488	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Concrete Masonry*	0.00	EACH	$1,500.00000	$0.00

Total for Group 0022: $0.00

Group 0024: BMP's

0076	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00

Total for Group 0024: $0.00

Group 0025: Closed Storm System

0077	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0489	603E13400 30" CONDUIT, TYPE B (Average size)	190.00	FT	$75.00000	$14,250.00
0523	604E00800 CATCH BASIN, NO. 3A	4.00	EACH	$1,500.00000	$6,000.00
0524	604E31500 MANHOLE, NO. 3	0.00	EACH	$3,000.00000	$0.00
0525	604E36601 PRECAST REINFORCED CONCRETE OUTLET, AS PER PLAN	2.00	EACH	$1,250.00000	$2,500.00
0526	Special Pump Station (Storm)	0.00	LS	$6,400,000.00000	$0.00
0527	Special Stormceptors	0.00	EACH	$5,750.00000	$0.00
0529	Special Retention basin improvements	0.00	LS	$109,000.00000	$0.00

Total for Group 0025: $22,750.00

Group 0026: Other Drainage Costs

0078	C-OC-DRNG OTHER COSTS, DRAINAGE	1.00	LS	$0.00000	$0.00

Total for Group 0026: $0.00

Group 0027: Mainline - Travel Lanes

0095	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0494	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg Base and Subgrade Compaction*	0.00	SY	$68.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension

Total for Group 0027: $0.00

Group 0028: Mainline - Outside Shoulder

0100	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0495	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg base and Subgrade Compaction*	0.00	SY	$68.00000	$0.00

Total for Group 0028: $0.00

Group 0030: Mainline - Inside Shoulder

0115	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0496	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg base and Subgrade Compaction*	0.00	SY	$68.00000	$0.00

Total for Group 0030: $0.00

Group 0031: Ramps (including shoulders)

0122	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0497	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg base and Subgrade Compaction*	0.00	SY	$68.00000	$0.00

Total for Group 0031: $0.00

Group 0032: Non - Mainline Lanes

0132	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0498	D-MC-PVMT Asphalt *Includes 3" 448, 9" 301, 6" Agg base and Subgrade Compaction*	3,309.00	SY	$41.00000	$135,669.00

Total for Group 0032: $135,669.00

Group 0041: Other Pavement Costs

0163	D-OC-PVMT OTHER COSTS, PAVEMENT	1.00	LS	$0.00000	$0.00

Total for Group 0041: $0.00

Group 0042: Water Works

0164	E-MC-WATR MAJOR COST DRIVERS, WATER LINE	0.00	LS	$0.00000	$0.00
0165	E-OC-WATR OTHER COSTS, WATER LINE	0.00	LS	$0.00000	$0.00

Total for Group 0042: $0.00

Group 0043: Sanitary Line

0170	F-MC-SANI MAJOR COST DRIVERS, SANITARY SEWER	0.00	LS	$0.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
				Total for Group 0043:	$0.00
Group 0044: Lighting - Full Interchange					
0173	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	1.00	LS	$0.00000	$0.00
0499	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	0.00	EACH	$469,000.00000	$0.00
				Total for Group 0044:	$0.00
Group 0045: Lighting - Partial Interchange					
0288	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	0.00	LS	$0.00000	$0.00
				Total for Group 0045:	$0.00
Group 0046: Lighting - Continuous Roadway					
0176	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	1.00	LS	$0.00000	$0.00
0500	G-MC-LTNG Lighting - Continuous	1,510.00	FT	$35.00000	$52,850.00
				Total for Group 0046:	$52,850.00
Group 0047: Other Lighting Costs					
0177	G-OC-LTNG OTHER COSTS, LIGHTING	0.00	LS	$0.00000	$0.00
				Total for Group 0047:	$0.00
Group 0048: Traffic Surveillance					
0178	H-OC-SURV OTHER COSTS, TRAFFIC SURVEILLANCE	0.00	LS	$0.00000	$0.00
				Total for Group 0048:	$0.00
Group 0049: Signs					
0179	J-MC-TRAF MAJOR COST DRIVERS, TRAFFIC CONTROL	1.00	LS	$0.00000	$0.00
0501	J-MC-TRAF Signs	0.29	MILE	$250,000.00000	$72,500.00
				Total for Group 0049:	$72,500.00
Group 0050: Pavement Marking					
0200	J-MC-TRAF MAJOR COST DRIVERS, TRAFFIC CONTROL	1.00	LS	$0.00000	$0.00
0502	644E00100 EDGE LINE	0.11	MILE	$3,000.00000	$330.00
0503	644E00200 LANE LINE	0.16	MILE	$2,000.00000	$320.00
				Total for Group 0050:	$650.00
Group 0051: Other Traffic Control Costs					

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
0208	J-OC-TRAF OTHER COSTS, TRAFFIC CONTROL	1.00	LS	$0.00000	$0.00

Total for Group 0051: $0.00

Group 0052: Signals - Intersections

0212	K-MC-SGNL MAJOR COST DRIVERS, SIGNALS	2.00	EACH	$175,000.00000	$350,000.00

Total for Group 0052: $350,000.00

Group 0053: Other Traffic Signal Costs

0213	K-OC-SGNL OTHER COSTS, SIGNALS	1.00	LS	$0.00000	$0.00

Total for Group 0053: $0.00

Group 0054: Landscaping

0214	L-MC-LSCP MAJOR COST DRIVERS, LANDSCAPING	1.00	LS	$0.00000	$0.00
0215	L-OC-LSCP OTHER COSTS, LANDSCAPING	1.00	LS	$0.00000	$0.00

Total for Group 0054: $0.00

Group 0055: Retaining Walls $125 + $10/ft for caps, barriers and testing

0216	M-MC-WALL MAJOR COST DRIVERS, RETAINING WALLS	1.00	LS	$0.00000	$0.00
0504	M-MC-WALL Retaining Walls	0.00	SF	$135.00000	$0.00

Total for Group 0055: $0.00

Group 0056: Other Retaining Wall Costs

0217	M-OC-WALL OTHER COSTS, RETAINING WALLS	1.00	LS	$0.00000	$0.00

Total for Group 0056: $0.00

Group 0057: Building Demolition

0218	N-MC-DEMO MAJOR COST DRIVERS, BUILDING DEMOLITION	1.00	LS	$0.00000	$0.00
0219	N-OC-DEMO OTHER COSTS, BUILDING DEMOLITION	1.00	LS	$0.00000	$0.00
0533	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Large Commercial*	0.00	EACH	$30,000.00000	$0.00
0534	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Small Commercial*	0.00	EACH	$15,000.00000	$0.00
0535	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Large Residential*	0.00	EACH	$12,000.00000	$0.00
0536	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Small Residential*	0.00	EACH	$7,500.00000	$0.00
0537	202E98100	0.00	EACH	$8,500.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	REMOVAL MISC.: *Radio Tower*				

Total for Group 0057: $0.00

Group 0058: Noise Barrier

0220	P-MC-NSBR MAJOR COST DRIVERS, NOISE BARRIER	1.00	LS	$0.00000	$0.00
0505	P-MC-NSBR Noise Barrier	0.00	LS	$400.00000	$0.00

Total for Group 0058: $0.00

Group 0059: Other Noise Barrier Costs

0221	P-OC-NSBR OTHER COSTS, NOISE BARRIER	1.00	LS	$0.00000	$0.00
0368	P-MC-NSBR MAJOR COST DRIVERS, NOISE BARRIER	0.00	LS	$0.00000	$0.00

Total for Group 0059: $0.00

Group 0060: New Structures

0222	R-MC-STRC MAJOR COST DRIVERS, STRUCTURES	1.00	LS	$0.00000	$0.00
0506	R-MC-STRC Tier 1 Structures to 25' Height	31,313.00	SF	$125.00000	$3,914,125.00
0507	R-MC-STRC Removal of Existing Structures non-complex	0.00	SF	$12.00000	$0.00
0508	R-MC-STRC Standard Removal of Existing Structures above average complex	24,939.00	SF	$17.00000	$423,963.00
0509	R-MC-STRC Removal of Existing Structures complex to very complex	0.00	SF	$30.00000	$0.00
0513	R-MC-STRC Tier 2 Structures 25' to 50' Height	0.00	SF	$150.00000	$0.00
0516	R-MC-STRC Tier 3 Structures 50' to 75' Height	0.00	SF	$200.00000	$0.00

Total for Group 0060: $4,338,088.00

Group 0061: Rehabilitated Structures

0223	R-MC-STRC MAJOR COST DRIVERS, STRUCTURES	0.00	SF	$45.00000	$0.00

Total for Group 0061: $0.00

Group 0062: Other Structure Costs

0224	R-OC-STRC OTHER COSTS, STRUCTURES *Contingency*	0.00	LS	$0.00000	$0.00

Total for Group 0062: $0.00

Group 0063: Temporary Road and Pavement Costs

0225	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
				Total for Group 0063:	$0.00
Group 0064: Portable Concrete Barrier (PCB)					
0226	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
				Total for Group 0064:	$0.00
Group 0065: Impact Attenuators					
0227	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
				Total for Group 0065:	$0.00
Group 0066: Sheeting					
0229	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
				Total for Group 0066:	$0.00
Group 0067: Temporary Signals					
0230	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	0.00	LS	$0.00000	$0.00
				Total for Group 0067:	$0.00
Group 0068: Work Zone Lighting					
0231	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	0.00	LS	$0.00000	$0.00
				Total for Group 0068:	$0.00
Group 0069: Innovative Contracting Incentatives					
0232	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	0.00	LS	$0.00000	$0.00
				Total for Group 0069:	$0.00
Group 0070: Other MOT Costs					
0233	S-OC-MNTC OTHER COSTS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
0512	S-OC-MNTC OTHER COSTS, MAINTENANCE OF TRAFFIC	0.29	MILE	$500,000.00000	$145,000.00
				Total for Group 0070:	$145,000.00
Group 0071: Wetland Construction					
0234	T-MC-WTLD MAJOR COST DRIVERS, WETLAND CONSTRUCTION	0.00	LS	$0.00000	$0.00
0360	T-MC-WTLD MAJOR COST DRIVERS, WETLAND CONSTRUCTION	0.00	LS	$0.00000	$0.00
				Total for Group 0071:	$0.00
Group 0072: Misc. Costs					

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
0235	U-MC-MISC MAJOR COST DRIVERS, MISCELLANEOUS COSTS	0.00	LS	$0.00000	$0.00
0236	U-OC-MISC OTHER COSTS, MISCELLANEOUS COSTS	0.00	LS	$0.00000	$0.00
0237	100E00300 SPECIAL - PREMIUM ON RAILROADS' PROTECTIVE PUBLIC LIABILITY AND PROPERTY DAMAGE LIABILITY INSURANCE	0.00	LS	$10,000.00000	$0.00
0238	623E10000 CONSTRUCTION LAYOUT STAKES *0.5%*	1.00	LS	$26,797.62000	$26,797.62
0239	614E11000 MAINTAINING TRAFFIC *2%*	1.00	LS	$107,190.47000	$107,190.47
0240	619E16020 FIELD OFFICE, TYPE C	19.00	MNTH	$2,500.00000	$47,500.00
0242	624E10000 MOBILIZATION	1.00	LS	$200,000.00000	$200,000.00
0511	103E05000 PREMIUM FOR CONTRACT PERFORMANCE BOND AND FOR PAYMENT BOND *0.5%*	1.00	LS	$26,797.62000	$26,797.62
0518		0.00		$0.00000	$0.00
0519		0.00		$0.00000	$0.00
0520		0.00		$0.00000	$0.00
0521		0.00		$0.00000	$0.00
0532		0.00		$0.00000	$0.00

Total for Group 0072: $408,285.71

Group 0073: Design Contingency Costs

0243	V-MC-CNTG MAJOR COST DRIVERS, CONTINGENCY COSTS	1.00	LS	$0.00000	$0.00
0244	V-OC-CNTG OTHER COSTS, CONTINGENCY COSTS *25%*	1.00	LS	$1,441,952.30000	$1,441,952.30

Total for Group 0073: $1,441,952.30

Group 0074: Inflation Contingency

0266	V-OC-CNTG OTHER COSTS, CONTINGENCY COSTS	0.00	LS	$0.00000	$0.00

Total for Group 0074: $0.00

Estimate Alt I KY cont 3

Estimated Cost: $7,818,842.99

Contingency: 29.70%

Estimated Total: $10,141,039.36

Base Date: 01/01/15

Spec Year: 10

Unit System: E

Work Type: GEN CONST: INVLVS 2 OR MOR MAJ WRK TYPE

Highway Type: 451

Urban/Rural Type: URBAN CLASS

Season: SUMMER

County: HAMILTON

Midpoint of Latitude:

Midpoint of Longitude:

District:

Federal/State Project Number:

Estimate Type: C1

Prepared by Parsons Brinckerhoff on 07/22/10

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
Group 0001: Pavement Removal					
0001	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	0.00	LS	$0.00000	$0.00
0343	202E23000 PAVEMENT REMOVED	2,006.00	SY	$8.00000	$16,048.00
				Total for Group 0001:	$16,048.00
Group 0002: Excavation - Rock					
0003	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1,960.00	CY	$30.00000	$58,800.00
				Total for Group 0002:	$58,800.00
Group 0003: Excavation - Soil					
0004	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0344	203E10000 EXCAVATION	17,640.00	CY	$8.00000	$141,120.00
				Total for Group 0003:	$141,120.00
Group 0004: Excavation - Hazardous					
0006	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
				Total for Group 0004:	$0.00
Group 0005: Fill - Embankment (includes wasting excess excavation)					
0007	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0345	203E20000 EMBANKMENT	19,600.00	CY	$6.00000	$117,600.00
				Total for Group 0005:	$117,600.00
Group 0006: Fill - Lime Modified Soil					
0010	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0346	205E10050 LIME STABILIZED EMBANKMENT	0.00	CY	$7.00000	$0.00
0347	205E10300 LIME	0.00	TON	$5.00000	$0.00
				Total for Group 0006:	$0.00
Group 0007: Fill - Borrow					
0011	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	0.00	CY	$8.00000	$0.00
				Total for Group 0007:	$0.00
Group 0008: Concrete Barrier					
0012	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0465	622E10060	0.00	FT	$110.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	CONCRETE BARRIER, SINGLE SLOPE, TYPE B				

Total for Group 0008: $0.00

Group 0009: Subgrade Treatment - Lime

0014	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0348	206E10000 LIME STABILIZED SUBGRADE	0.00	SY	$1.85000	$0.00
0349	206E10300 LIME	0.00	TON	$10.00000	$0.00
0350	206E11000 CURING COAT	0.00	SY	$1.00000	$0.00
0351	206E20000 TEST ROLLING	0.00	HOUR	$4.00000	$0.00

Total for Group 0009: $0.00

Group 0010: Subgrade Treatment - Cement

0016	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	533.00	SY	$2.50000	$1,332.50

Total for Group 0010: $1,332.50

Group 0011: Subgrade Treatment - Undercut & Backfill

0017	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00

Total for Group 0011: $0.00

Group 0012: Other Roadway Costs

0019	A-OC-RDWY OTHER COSTS, ROADWAY *Contingency*	0.00	LS	$0.00000	$0.00
0020	201E11000 CLEARING AND GRUBBING	0.00	LS	$856,500.00000	$0.00
0021	201E21800 TREE REMOVED, 18" SIZE	0.00	EACH	$250.00000	$0.00
0022	201E23000 TREE REMOVED, 30" SIZE	0.00	EACH	$405.00000	$0.00
0023	201E24800 TREE REMOVED, 48" SIZE	0.00	EACH	$772.00000	$0.00
0026	202E11000 STRUCTURE REMOVED	0.00	LS	$9,310.13000	$0.00
0028	202E35200 PIPE REMOVED, OVER 24"	0.00	FT		$0.00
0029	202E38000 GUARDRAIL REMOVED	0.00	FT		$0.00
0030	202E42206 ANCHOR ASSEMBLY REMOVED	0.00	EACH		$0.00
0031	202E58000 MANHOLE REMOVED	0.00	EACH		$0.00
0032	202E58100 CATCH BASIN REMOVED	0.00	EACH		$0.00
0033	202E75000 FENCE REMOVED	0.00	FT		$0.00
0034	204E45000	0.00	HOUR	$126.59000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	PROOF ROLLING				
0035	204E10000 SUBGRADE COMPACTION	0.00	SY	$0.81000	$0.00
0036	451E30000 SPECIAL - PRESSURE RELIEF JOINT, TYPE A	0.00	FT		$0.00
0037	606E13000 GUARDRAIL, TYPE 5	0.00	FT	$14.00000	$0.00
0038	606E22000 ANCHOR ASSEMBLY, TYPE B-98	0.00	EACH		$0.00
0039	606E22010 ANCHOR ASSEMBLY, TYPE E-98	0.00	EACH		$0.00
0040	606E26500 ANCHOR ASSEMBLY, TYPE T	0.00	EACH		$0.00
0041	606E35000 BRIDGE TERMINAL ASSEMBLY, TYPE 1	0.00	EACH		$0.00
0042	606E35100 BRIDGE TERMINAL ASSEMBLY, TYPE 2	0.00	EACH		$0.00
0043	606E60010 IMPACT ATTENUATOR, TYPE 1-98 (BIDIRECTIONAL)	0.00	EACH		$0.00
0044	607E15000 FENCE, TYPE 47 *For Fencing*	0.00	FT		$0.00
0423	304E20000 AGGREGATE BASE *For Fencing*	0.00	CY		$0.00
0424	601E32100 ROCK CHANNEL PROTECTION, TYPE B WITH FILTER *For Fencing*	0.00	CY		$0.00
0425	607E40500 GATE, TYPE 47 *For Fencing*	0.00	EACH		$0.00
0426	625E32000 GROUND ROD *For Fencing*	0.00	EACH		$0.00
0466		0.00		$0.00000	$0.00

Total for Group 0012: $0.00

Group 0014: Seeding & Mulching / Sodding

0045	B-MC-ERCO MAJOR COST DRIVERS, EROSION CONTROL	1.00	LS	$0.00000	$0.00
0467	659E10000 SEEDING AND MULCHING	0.00	SY	$1.00000	$0.00
0531	660E25000 SODDING STAKED	0.00	SY	$15.00000	$0.00

Total for Group 0014: $0.00

Group 0015: Rock Channel Protection

0047	B-MC-ERCO MAJOR COST DRIVERS, EROSION CONTROL	1.00	LS	$0.00000	$0.00
0469	601E32000 ROCK CHANNEL PROTECTION, TYPE A WITH FILTER	0.00	CY	$75.00000	$0.00

Total for Group 0015: $0.00

Group 0016: Erosion Control - Item 832

0048	B-MC-ERCO	1.00	LS	$0.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	MAJOR COST DRIVERS, EROSION CONTROL				
0470	832E10000 STORM WATER POLLUTION PREVENTION PLAN	1.00	LS	$20,000.00000	$20,000.00
0471	832E20000 EROSION CONTROL	10,000.00	EACH	$1.00000	$10,000.00

Total for Group 0016: $30,000.00

Group 0017: Other Erosion Control Costs

0049	670E00700 DITCH EROSION PROTECTION	0.00	SY		$0.00
0050	B-OC-ERCO OTHER COSTS, EROSION CONTROL	1.00	LS	$0.00000	$0.00
0051	659E00100 SOIL ANALYSIS TEST	0.00	EACH	$0.00000	$0.00
0052	659E00300 TOPSOIL	0.00	CY		$0.00
0053	659E14000 REPAIR SEEDING AND MULCHING	0.00	SY		$0.00
0054	659E15000 INTER-SEEDING	0.00	SY	$0.71000	$0.00
0055	659E20000 COMMERCIAL FERTILIZER	0.00	TON		$0.00
0056	659E31000 LIME	0.00	ACRE	$0.00000	$0.00
0057	659E35000 WATER	0.00	MGAL	$5.00000	$0.00
0058	659E40000 MOWING	0.00	MSF	$0.00000	$0.00

Total for Group 0017: $0.00

Group 0018: Underdrains

0059	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0062	605E05100 4" SHALLOW PIPE UNDERDRAINS	0.00	FT	$8.00000	$0.00

Total for Group 0018: $0.00

Group 0019: Culverts - Type A: < 5'

0474	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	0.00	LS	$0.00000	$0.00
0480	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Pipe Structures - Reinforced Concrete Pipe up to 60"*	0.00	FT	$350.00000	$0.00
0481	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Concrete Masonry*	0.00	EACH	$1,500.00000	$0.00

Total for Group 0019: $0.00

Group 0021: Culverts, Type A: 5' - 10'

0067	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0476	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	0.00	FT	$550.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	Pipe Structures - Reinforced Concrete 5'-10' 66" to 78"				
0477	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Concrete - Headwalls/wingwalls*	0.00	EACH	$2,000.00000	$0.00

Total for Group 0021: $0.00

Group 0022: Culverts, Type A: 10' - 20'

0486	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0487	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Pipe Structures - Reinforced Concrete Pipe 10'-20'*	0.00	FT	$1,400.00000	$0.00
0488	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Concrete Masonry*	0.00	EACH	$1,500.00000	$0.00

Total for Group 0022: $0.00

Group 0024: BMP's

0076	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00

Total for Group 0024: $0.00

Group 0025: Closed Storm System

0077	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0489	603E13400 30" CONDUIT, TYPE B (Average size)	0.00	FT	$75.00000	$0.00
0523	604E00800 CATCH BASIN, NO. 3A	0.00	EACH	$1,500.00000	$0.00
0524	604E31500 MANHOLE, NO. 3	0.00	EACH	$3,000.00000	$0.00
0525		0.00		$0.00000	$0.00
0526	Special Pump Station (Storm)	0.00	LS	$6,400,000.00000	$0.00
0527	Special Stormceptors	0.00	EACH	$5,750.00000	$0.00
0529	Special Retention basin improvements	0.00	LS	$109,000.00000	$0.00

Total for Group 0025: $0.00

Group 0026: Other Drainage Costs

0078	C-OC-DRNG OTHER COSTS, DRAINAGE	1.00	LS	$0.00000	$0.00

Total for Group 0026: $0.00

Group 0027: Mainline - Travel Lanes

0095	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0494	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg Base and Subgrade Compaction*	0.00	SY	$68.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension

Total for Group 0027: $0.00

Group 0028: Mainline - Outside Shoulder

0100	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0495	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg base and Subgrade Compaction*	0.00	SY	$68.00000	$0.00

Total for Group 0028: $0.00

Group 0030: Mainline - Inside Shoulder

0115	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0496	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg base and Subgrade Compaction*	0.00	SY	$68.00000	$0.00

Total for Group 0030: $0.00

Group 0031: Ramps (including shoulders)

0122	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0497	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg base and Subgrade Compaction*	0.00	SY	$68.00000	$0.00

Total for Group 0031: $0.00

Group 0032: Non - Mainline Lanes

0132	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0498	D-MC-PVMT Asphalt *Includes 3" 448, 9" 301, 6" Agg base and Subgrade Compaction*	533.00	SY	$41.00000	$21,853.00

Total for Group 0032: $21,853.00

Group 0041: Other Pavement Costs

0163	D-OC-PVMT OTHER COSTS, PAVEMENT	1.00	LS	$0.00000	$0.00

Total for Group 0041: $0.00

Group 0042: Water Works

0164	E-MC-WATR MAJOR COST DRIVERS, WATER LINE	0.00	LS	$0.00000	$0.00
0165	E-OC-WATR OTHER COSTS, WATER LINE	0.00	LS	$0.00000	$0.00

Total for Group 0042: $0.00

Group 0043: Sanitary Line

0170	F-MC-SANI MAJOR COST DRIVERS, SANITARY SEWER	0.00	LS	$0.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
				Total for Group 0043:	$0.00
Group 0044: Lighting - Full Interchange					
0173	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	1.00	LS	$0.00000	$0.00
0499	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	0.00	EACH	$469,000.00000	$0.00
				Total for Group 0044:	$0.00
Group 0045: Lighting - Partial Interchange					
0288	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	0.00	LS	$0.00000	$0.00
				Total for Group 0045:	$0.00
Group 0046: Lighting - Continuous Roadway					
0176	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	1.00	LS	$0.00000	$0.00
0500	G-MC-LTNG Lighting - Continuous	840.00	FT	$35.00000	$29,400.00
				Total for Group 0046:	$29,400.00
Group 0047: Other Lighting Costs					
0177	G-OC-LTNG OTHER COSTS, LIGHTING	0.00	LS	$0.00000	$0.00
				Total for Group 0047:	$0.00
Group 0048: Traffic Surveillance					
0178	H-OC-SURV OTHER COSTS, TRAFFIC SURVEILLANCE	0.00	LS	$0.00000	$0.00
				Total for Group 0048:	$0.00
Group 0049: Signs					
0179	J-MC-TRAF MAJOR COST DRIVERS, TRAFFIC CONTROL	1.00	LS	$0.00000	$0.00
0501	J-MC-TRAF Signs	0.16	MILE	$250,000.00000	$40,000.00
				Total for Group 0049:	$40,000.00
Group 0050: Pavement Marking					
0200	J-MC-TRAF MAJOR COST DRIVERS, TRAFFIC CONTROL	1.00	LS	$0.00000	$0.00
0502	644E00100 EDGE LINE	0.18	MILE	$3,000.00000	$540.00
0503	644E00200 LANE LINE	0.13	MILE	$2,000.00000	$260.00
				Total for Group 0050:	$800.00
Group 0051: Other Traffic Control Costs					

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
0208	J-OC-TRAF OTHER COSTS, TRAFFIC CONTROL	1.00	LS	$0.00000	$0.00

Total for Group 0051: $0.00

Group 0052: Signals - Intersections

0212	K-MC-SGNL MAJOR COST DRIVERS, SIGNALS	2.00	EACH	$175,000.00000	$350,000.00

Total for Group 0052: $350,000.00

Group 0053: Other Traffic Signal Costs

0213	K-OC-SGNL OTHER COSTS, SIGNALS	1.00	LS	$0.00000	$0.00

Total for Group 0053: $0.00

Group 0054: Landscaping

0214	L-MC-LSCP MAJOR COST DRIVERS, LANDSCAPING	1.00	LS	$0.00000	$0.00
0215	L-OC-LSCP OTHER COSTS, LANDSCAPING	1.00	LS	$0.00000	$0.00

Total for Group 0054: $0.00

Group 0055: Retaining Walls $125 + $10/ft for caps, barriers and testing

0216	M-MC-WALL MAJOR COST DRIVERS, RETAINING WALLS	1.00	LS	$0.00000	$0.00
0504	M-MC-WALL Retaining Walls	0.00	SF	$135.00000	$0.00

Total for Group 0055: $0.00

Group 0056: Other Retaining Wall Costs

0217	M-OC-WALL OTHER COSTS, RETAINING WALLS	1.00	LS	$0.00000	$0.00

Total for Group 0056: $0.00

Group 0057: Building Demolition

0218	N-MC-DEMO MAJOR COST DRIVERS, BUILDING DEMOLITION	1.00	LS	$0.00000	$0.00
0219	N-OC-DEMO OTHER COSTS, BUILDING DEMOLITION	1.00	LS	$0.00000	$0.00
0532	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Large Commercial*	0.00	EACH	$30,000.00000	$0.00
0533	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Small Commercial*	0.00	EACH	$15,000.00000	$0.00
0534	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Large Residential*	0.00	EACH	$12,000.00000	$0.00
0535	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Small Residential*	0.00	EACH	$7,500.00000	$0.00
0536	202E98100	0.00	EACH	$8,500.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	REMOVAL MISC.: *Radio Tower*				

Total for Group 0057: $0.00

Group 0058: Noise Barrier

0220	P-MC-NSBR MAJOR COST DRIVERS, NOISE BARRIER	1.00	LS	$0.00000	$0.00
0505	P-MC-NSBR Noise Barrier	0.00	LS	$400.00000	$0.00

Total for Group 0058: $0.00

Group 0059: Other Noise Barrier Costs

0221	P-OC-NSBR OTHER COSTS, NOISE BARRIER	1.00	LS	$0.00000	$0.00
0368	P-MC-NSBR MAJOR COST DRIVERS, NOISE BARRIER	0.00	LS	$0.00000	$0.00

Total for Group 0059: $0.00

Group 0060: New Structures

0222	R-MC-STRC MAJOR COST DRIVERS, STRUCTURES	1.00	LS	$0.00000	$0.00
0506	R-MC-STRC Tier 1 Structures to 25' Height	0.00	SF	$125.00000	$0.00
0507	R-MC-STRC Removal of Existing Structures non-complex	0.00	SF	$12.00000	$0.00
0508	R-MC-STRC Standard Removal of Existing Structures above average complex	17,629.00	SF	$17.00000	$299,693.00
0509	R-MC-STRC Removal of Existing Structures complex to very complex	0.00	SF	$30.00000	$0.00
0513	R-MC-STRC Tier 2 Structures 25' to 50' Height	30,973.00	SF	$150.00000	$4,645,950.00
0516	R-MC-STRC Tier 3 Structures 50' to 75' Height	0.00	SF	$200.00000	$0.00

Total for Group 0060: $4,945,643.00

Group 0061: Rehabilitated Structures

0223	R-MC-STRC MAJOR COST DRIVERS, STRUCTURES	0.00	SF	$45.00000	$0.00

Total for Group 0061: $0.00

Group 0062: Other Structure Costs

0224	R-OC-STRC OTHER COSTS, STRUCTURES *Contingency*	0.00	LS	$0.00000	$0.00

Total for Group 0062: $0.00

Group 0063: Temporary Road and Pavement Costs

0225	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
				Total for Group 0063:	$0.00
Group 0064: Portable Concrete Barrier (PCB)					
0226	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
				Total for Group 0064:	$0.00
Group 0065: Impact Attenuators					
0227	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
				Total for Group 0065:	$0.00
Group 0066: Sheeting					
0229	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
				Total for Group 0066:	$0.00
Group 0067: Temporary Signals					
0230	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	0.00	LS	$0.00000	$0.00
				Total for Group 0067:	$0.00
Group 0068: Work Zone Lighting					
0231	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	0.00	LS	$0.00000	$0.00
				Total for Group 0068:	$0.00
Group 0069: Innovative Contracting Incentatives					
0232	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	0.00	LS	$0.00000	$0.00
				Total for Group 0069:	$0.00
Group 0070: Other MOT Costs					
0233	S-OC-MNTC OTHER COSTS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
0512	S-OC-MNTC OTHER COSTS, MAINTENANCE OF TRAFFIC	0.16	MILE	$500,000.00000	$80,000.00
				Total for Group 0070:	$80,000.00
Group 0071: Wetland Construction					
0234	T-MC-WTLD MAJOR COST DRIVERS, WETLAND CONSTRUCTION	0.00	LS	$0.00000	$0.00
0360	T-MC-WTLD MAJOR COST DRIVERS, WETLAND CONSTRUCTION	0.00	LS	$0.00000	$0.00
				Total for Group 0071:	$0.00
Group 0072: Misc. Costs					

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
0235	U-MC-MISC MAJOR COST DRIVERS, MISCELLANEOUS COSTS	0.00	LS	$0.00000	$0.00
0236	U-OC-MISC OTHER COSTS, MISCELLANEOUS COSTS	0.00	LS	$0.00000	$0.00
0237	100E00300 SPECIAL - PREMIUM ON RAILROADS' PROTECTIVE PUBLIC LIABILITY AND PROPERTY DAMAGE LIABILITY INSURANCE	0.00	LS	$10,000.00000	$0.00
0238	623E10000 CONSTRUCTION LAYOUT STAKES *0.5%*	1.00	LS	$29,162.98000	$29,162.98
0239	614E11000 MAINTAINING TRAFFIC *2%*	1.00	LS	$116,651.93000	$116,651.93
0240	619E16020 FIELD OFFICE, TYPE C	19.00	MNTH	$2,500.00000	$47,500.00
0242	624E10000 MOBILIZATION	1.00	LS	$200,000.00000	$200,000.00
0511	103E05000 PREMIUM FOR CONTRACT PERFORMANCE BOND AND FOR PAYMENT BOND *0.5%*	1.00	LS	$29,162.98000	$29,162.98
0518		0.00		$0.00000	$0.00
0519		0.00		$0.00000	$0.00
0520		0.00		$0.00000	$0.00
0521		0.00		$0.00000	$0.00

Total for Group 0072: $422,477.89

Group 0073: Design Contingency Costs

0243	V-MC-CNTG MAJOR COST DRIVERS, CONTINGENCY COSTS	1.00	LS	$0.00000	$0.00
0244	V-OC-CNTG OTHER COSTS, CONTINGENCY COSTS *25%*	1.00	LS	$1,563,768.60000	$1,563,768.60

Total for Group 0073: $1,563,768.60

Group 0074: Inflation Contingency

0266	V-OC-CNTG OTHER COSTS, CONTINGENCY COSTS	0.00	LS	$0.00000	$0.00

Total for Group 0074: $0.00

Estimate Alt I KY cont 5

Estimated Cost: $71,530,905.30

Contingency: 57.60%

Estimated Total: $112,732,706.75

Base Date: 01/01/15

Spec Year: 10

Unit System: E

Work Type: GEN CONST: INVLVS 2 OR MOR MAJ WRK TYPE

Highway Type: 451

Urban/Rural Type: URBAN CLASS

Season: SUMMER

County: HAMILTON

Midpoint of Latitude:

Midpoint of Longitude:

District:

Federal/State Project Number:

Estimate Type: C1

Prepared by Parsons Brinckerhoff on 07/22/10

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
Group 0001: Pavement Removal					
0001	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	0.00	LS	$0.00000	$0.00
0343	202E23000 PAVEMENT REMOVED	212,051.00	SY	$8.00000	$1,696,408.00
				Total for Group 0001:	$1,696,408.00
Group 0002: Excavation - Rock					
0003	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	146,868.00	CY	$30.00000	$4,406,040.00
				Total for Group 0002:	$4,406,040.00
Group 0003: Excavation - Soil					
0004	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0344	203E10000 EXCAVATION	342,692.00	CY	$8.00000	$2,741,536.00
				Total for Group 0003:	$2,741,536.00
Group 0004: Excavation - Hazardous					
0006	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
				Total for Group 0004:	$0.00
Group 0005: Fill - Embankment (includes wasting excess excavation)					
0007	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0345	203E20000 EMBANKMENT	489,560.00	CY	$6.00000	$2,937,360.00
				Total for Group 0005:	$2,937,360.00
Group 0006: Fill - Lime Modified Soil					
0010	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0346	205E10050 LIME STABILIZED EMBANKMENT	0.00	CY	$7.00000	$0.00
0347	205E10300 LIME	0.00	TON	$5.00000	$0.00
				Total for Group 0006:	$0.00
Group 0007: Fill - Borrow					
0011	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	0.00	CY	$8.00000	$0.00
				Total for Group 0007:	$0.00
Group 0008: Concrete Barrier					
0012	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0465	622E10060	20,800.00	FT	$110.00000	$2,288,000.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	CONCRETE BARRIER, SINGLE SLOPE, TYPE B				

Total for Group 0008: $2,288,000.00

Group 0009: Subgrade Treatment - Lime

0014	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0348	206E10000 LIME STABILIZED SUBGRADE	0.00	SY	$1.85000	$0.00
0349	206E10300 LIME	0.00	TON	$10.00000	$0.00
0350	206E11000 CURING COAT	0.00	SY	$1.00000	$0.00
0351	206E20000 TEST ROLLING	0.00	HOUR	$4.00000	$0.00

Total for Group 0009: $0.00

Group 0010: Subgrade Treatment - Cement

0016	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	298,491.00	SY	$2.50000	$746,227.50

Total for Group 0010: $746,227.50

Group 0011: Subgrade Treatment - Undercut & Backfill

0017	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00

Total for Group 0011: $0.00

Group 0012: Other Roadway Costs

0019	A-OC-RDWY OTHER COSTS, ROADWAY *Contingency*	0.00	LS	$0.00000	$0.00
0020	201E11000 CLEARING AND GRUBBING	0.00	LS	$856,500.00000	$0.00
0021	201E21800 TREE REMOVED, 18" SIZE	0.00	EACH	$250.00000	$0.00
0022	201E23000 TREE REMOVED, 30" SIZE	0.00	EACH	$405.00000	$0.00
0023	201E24800 TREE REMOVED, 48" SIZE	0.00	EACH	$772.00000	$0.00
0026	202E11000 STRUCTURE REMOVED	0.00	LS	$9,310.13000	$0.00
0028	202E35200 PIPE REMOVED, OVER 24"	0.00	FT		$0.00
0029	202E38000 GUARDRAIL REMOVED	0.00	FT		$0.00
0030	202E42206 ANCHOR ASSEMBLY REMOVED	0.00	EACH		$0.00
0031	202E58000 MANHOLE REMOVED	0.00	EACH		$0.00
0032	202E58100 CATCH BASIN REMOVED	0.00	EACH		$0.00
0033	202E75000 FENCE REMOVED	0.00	FT		$0.00
0034	204E45000	0.00	HOUR	$126.59000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	PROOF ROLLING				
0035	204E10000 SUBGRADE COMPACTION	0.00	SY	$0.81000	$0.00
0036	451E30000 SPECIAL - PRESSURE RELIEF JOINT, TYPE A	0.00	FT		$0.00
0037	606E13000 GUARDRAIL, TYPE 5	5,300.00	FT	$14.00000	$74,200.00
0038	606E22000 ANCHOR ASSEMBLY, TYPE B-98	0.00	EACH		$0.00
0039	606E22010 ANCHOR ASSEMBLY, TYPE E-98	0.00	EACH		$0.00
0040	606E26500 ANCHOR ASSEMBLY, TYPE T	0.00	EACH		$0.00
0041	606E35000 BRIDGE TERMINAL ASSEMBLY, TYPE 1	0.00	EACH		$0.00
0042	606E35100 BRIDGE TERMINAL ASSEMBLY, TYPE 2	0.00	EACH		$0.00
0043	606E60010 IMPACT ATTENUATOR, TYPE 1-98 (BIDIRECTIONAL)	0.00	EACH		$0.00
0044	607E15000 FENCE, TYPE 47 *For Fencing*	0.00	FT		$0.00
0423	304E20000 AGGREGATE BASE *For Fencing*	0.00	CY		$0.00
0424	601E32100 ROCK CHANNEL PROTECTION, TYPE B WITH FILTER *For Fencing*	0.00	CY		$0.00
0425	607E40500 GATE, TYPE 47 *For Fencing*	0.00	EACH		$0.00
0426	625E32000 GROUND ROD *For Fencing*	0.00	EACH		$0.00
0466		0.00		$0.00000	$0.00

Total for Group 0012: $74,200.00

Group 0014: Seeding & Mulching / Sodding

0045	B-MC-ERCO MAJOR COST DRIVERS, EROSION CONTROL	1.00	LS	$0.00000	$0.00
0467	659E10000 SEEDING AND MULCHING	133,774.00	SY	$1.00000	$133,774.00
0531	660E25000 SODDING STAKED	0.00	SY	$15.00000	$0.00

Total for Group 0014: $133,774.00

Group 0015: Rock Channel Protection

0047	B-MC-ERCO MAJOR COST DRIVERS, EROSION CONTROL	1.00	LS	$0.00000	$0.00
0469	601E32000 ROCK CHANNEL PROTECTION, TYPE A WITH FILTER	192.00	CY	$75.00000	$14,400.00

Total for Group 0015: $14,400.00

Group 0016: Erosion Control - Item 832

0048	B-MC-ERCO	1.00	LS	$0.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	MAJOR COST DRIVERS, EROSION CONTROL				
0470	832E10000 STORM WATER POLLUTION PREVENTION PLAN	1.00	LS	$50,000.00000	$50,000.00
0471	832E20000 EROSION CONTROL	300,000.00	EACH	$1.00000	$300,000.00

Total for Group 0016: $350,000.00

Group 0017: Other Erosion Control Costs

0049	670E00700 DITCH EROSION PROTECTION	0.00	SY		$0.00
0050	B-OC-ERCO OTHER COSTS, EROSION CONTROL	1.00	LS	$0.00000	$0.00
0051	659E00100 SOIL ANALYSIS TEST	0.00	EACH	$0.00000	$0.00
0052	659E00300 TOPSOIL	0.00	CY		$0.00
0053	659E14000 REPAIR SEEDING AND MULCHING	0.00	SY		$0.00
0054	659E15000 INTER-SEEDING	0.00	SY	$0.71000	$0.00
0055	659E20000 COMMERCIAL FERTILIZER	0.00	TON		$0.00
0056	659E31000 LIME	0.00	ACRE	$0.00000	$0.00
0057	659E35000 WATER	0.00	MGAL	$5.00000	$0.00
0058	659E40000 MOWING	0.00	MSF	$0.00000	$0.00

Total for Group 0017: $0.00

Group 0018: Underdrains

0059	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0062	605E05100 4" SHALLOW PIPE UNDERDRAINS	29,635.00	FT	$8.00000	$237,080.00

Total for Group 0018: $237,080.00

Group 0019: Culverts - Type A: < 5'

0474	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	0.00	LS	$0.00000	$0.00
0480	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Pipe Structures - Reinforced Concrete Pipe up to 60"*	86.00	FT	$350.00000	$30,100.00
0481	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Concrete Masonry*	2.00	EACH	$1,500.00000	$3,000.00

Total for Group 0019: $33,100.00

Group 0021: Culverts, Type A: 5' - 10'

0067	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0476	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	36.00	FT	$550.00000	$19,800.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	Pipe Structures - Reinforced Concrete 5'-10' 66" to 78"				
0477	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Concrete - Headwalls/wingwalls*	1.00	EACH	$2,000.00000	$2,000.00

Total for Group 0021: $21,800.00

Group 0022: Culverts, Type A: 10' - 20'

0486	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0487	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Pipe Structures - Reinforced Concrete Pipe 10'-20'*	0.00	FT	$1,400.00000	$0.00
0488	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Concrete Masonry*	0.00	EACH	$1,500.00000	$0.00

Total for Group 0022: $0.00

Group 0024: BMP's

0076	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00

Total for Group 0024: $0.00

Group 0025: Closed Storm System

0077	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0489	603E13400 30" CONDUIT, TYPE B (Average size)	11,994.00	FT	$75.00000	$899,550.00
0523	604E00800 CATCH BASIN, NO. 3A	84.00	EACH	$1,500.00000	$126,000.00
0524	604E31500 MANHOLE, NO. 3	20.00	EACH	$3,000.00000	$60,000.00
0525	604E36601 PRECAST REINFORCED CONCRETE OUTLET, AS PER PLAN	13.00	EACH	$1,250.00000	$16,250.00
0526	Special Pump Station (Storm)	0.00	LS	$6,400,000.00000	$0.00
0527	Special Stormceptors	0.00	EACH	$5,750.00000	$0.00
0529	Special Retention basin improvements	0.00	LS	$109,000.00000	$0.00

Total for Group 0025: $1,101,800.00

Group 0026: Other Drainage Costs

0078	C-OC-DRNG OTHER COSTS, DRAINAGE	1.00	LS	$0.00000	$0.00

Total for Group 0026: $0.00

Group 0027: Mainline - Travel Lanes

0095	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0494	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg Base and Subgrade Compaction*	171,479.00	SY	$68.00000	$11,660,572.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension

Total for Group 0027: $11,660,572.00

Group 0028: Mainline - Outside Shoulder

0100	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0495	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg base and Subgrade Compaction*	38,883.00	SY	$68.00000	$2,644,044.00

Total for Group 0028: $2,644,044.00

Group 0030: Mainline - Inside Shoulder

0115	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0496	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg base and Subgrade Compaction*	38,377.00	SY	$68.00000	$2,609,636.00

Total for Group 0030: $2,609,636.00

Group 0031: Non - Mainline Lanes

0532	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0533	D-MC-PVMT Asphalt *Includes 3" 448, 9" 301, 6" Agg base and Subgrade Compaction*	3,441.00	SY	$41.00000	$141,081.00

Total for Group 0031: $141,081.00

Group 0036: Ramps (including shoulders)

0122	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0497	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg base and Subgrade Compaction*	46,310.00	SY	$68.00000	$3,149,080.00

Total for Group 0036: $3,149,080.00

Group 0041: Other Pavement Costs

0163	D-OC-PVMT OTHER COSTS, PAVEMENT	1.00	LS	$0.00000	$0.00

Total for Group 0041: $0.00

Group 0042: Water Works

0164	E-MC-WATR MAJOR COST DRIVERS, WATER LINE	0.00	LS	$0.00000	$0.00
0165	E-OC-WATR OTHER COSTS, WATER LINE	0.00	LS	$0.00000	$0.00

Total for Group 0042: $0.00

Group 0043: Sanitary Line

0170	F-MC-SANI MAJOR COST DRIVERS, SANITARY SEWER	0.00	LS	$0.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
				Total for Group 0043:	$0.00
Group 0044: Lighting - Full Interchange					
0173	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	1.00	LS	$0.00000	$0.00
0499	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	2.00	EACH	$469,000.00000	$938,000.00
				Total for Group 0044:	$938,000.00
Group 0045: Lighting - Partial Interchange					
0288	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	0.00	LS	$0.00000	$0.00
				Total for Group 0045:	$0.00
Group 0046: Lighting - Continuous Roadway					
0176	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	1.00	LS	$0.00000	$0.00
0500	G-MC-LTNG Lighting - Continuous	13,415.00	FT	$35.00000	$469,525.00
				Total for Group 0046:	$469,525.00
Group 0047: Other Lighting Costs					
0177	G-OC-LTNG OTHER COSTS, LIGHTING	0.00	LS	$0.00000	$0.00
				Total for Group 0047:	$0.00
Group 0048: Traffic Surveillance					
0178	H-OC-SURV OTHER COSTS, TRAFFIC SURVEILLANCE	1.00	LS	$537,486.54000	$537,486.54
				Total for Group 0048:	$537,486.54
Group 0049: Signs					
0179	J-MC-TRAF MAJOR COST DRIVERS, TRAFFIC CONTROL	1.00	LS	$0.00000	$0.00
0501	J-MC-TRAF Signs	2.54	MILE	$250,000.00000	$635,000.00
				Total for Group 0049:	$635,000.00
Group 0050: Pavement Marking					
0200	J-MC-TRAF MAJOR COST DRIVERS, TRAFFIC CONTROL	1.00	LS	$0.00000	$0.00
0502	644E00100 EDGE LINE	18.30	MILE	$3,000.00000	$54,900.00
0503	644E00200 LANE LINE	17.93	MILE	$2,000.00000	$35,860.00
				Total for Group 0050:	$90,760.00
Group 0051: Other Traffic Control Costs					

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
0208	J-OC-TRAF OTHER COSTS, TRAFFIC CONTROL	1.00	LS	$0.00000	$0.00

Total for Group 0051: $0.00

Group 0052: Signals - Intersections

0212	K-MC-SGNL MAJOR COST DRIVERS, SIGNALS	1.00	LS	$0.00000	$0.00

Total for Group 0052: $0.00

Group 0053: Other Traffic Signal Costs

0213	K-OC-SGNL OTHER COSTS, SIGNALS	1.00	LS	$0.00000	$0.00

Total for Group 0053: $0.00

Group 0054: Landscaping

0214	L-MC-LSCP MAJOR COST DRIVERS, LANDSCAPING	1.00	LS	$0.00000	$0.00
0215	L-OC-LSCP OTHER COSTS, LANDSCAPING	1.00	LS	$0.00000	$0.00

Total for Group 0054: $0.00

Group 0055: Retaining Walls $125 + $10/ft for caps, barriers and testing

0216	M-MC-WALL MAJOR COST DRIVERS, RETAINING WALLS	1.00	LS	$0.00000	$0.00
0504	M-MC-WALL Retaining Walls	8,870.00	SF	$135.00000	$1,197,450.00

Total for Group 0055: $1,197,450.00

Group 0056: Other Retaining Wall Costs

0217	M-OC-WALL OTHER COSTS, RETAINING WALLS	1.00	LS	$0.00000	$0.00

Total for Group 0056: $0.00

Group 0057: Building Demolition

0218	N-MC-DEMO MAJOR COST DRIVERS, BUILDING DEMOLITION	1.00	LS	$0.00000	$0.00
0219	N-OC-DEMO OTHER COSTS, BUILDING DEMOLITION	1.00	LS	$0.00000	$0.00
0534	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Small Residential*	3.00	EACH	$7,500.00000	$22,500.00
0535	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Large Residential*	2.00	EACH	$12,000.00000	$24,000.00
0536	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Small Commercial*	0.00	EACH	$15,000.00000	$0.00
0537	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Large Commercial*	1.00	EACH	$30,000.00000	$30,000.00
0538	202E98100	0.00	EACH	$8,500.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	REMOVAL MISC.: *Radio Tower*				

Total for Group 0057: $76,500.00

Group 0058: Noise Barrier

0220	P-MC-NSBR MAJOR COST DRIVERS, NOISE BARRIER	1.00	LS	$0.00000	$0.00
0505	P-MC-NSBR Noise Barrier	58,304.00	SF	$25.00000	$1,457,600.00

Total for Group 0058: $1,457,600.00

Group 0059: Other Noise Barrier Costs

0221	P-OC-NSBR OTHER COSTS, NOISE BARRIER	1.00	LS	$0.00000	$0.00
0368	P-MC-NSBR MAJOR COST DRIVERS, NOISE BARRIER	0.00	LS	$0.00000	$0.00

Total for Group 0059: $0.00

Group 0060: New Structures

0222	R-MC-STRC MAJOR COST DRIVERS, STRUCTURES	1.00	LS	$0.00000	$0.00
0506	R-MC-STRC Tier 1 Structures to 25' Height	77,961.00	SF	$125.00000	$9,745,125.00
0507	R-MC-STRC Removal of Existing Structures non-complex	0.00	SF	$12.00000	$0.00
0508	R-MC-STRC Standard Removal of Existing Structures above average complex	51,915.00	SF	$17.00000	$882,555.00
0509	R-MC-STRC Removal of Existing Structures complex to very complex	0.00	SF	$30.00000	$0.00
0513	R-MC-STRC Tier 2 Structures 25' to 50' Height	0.00	SF	$150.00000	$0.00
0516	R-MC-STRC Tier 3 Structures 50' to 75' Height	0.00	SF	$200.00000	$0.00

Total for Group 0060: $10,627,680.00

Group 0061: Rehabilitated Structures

0223	R-MC-STRC MAJOR COST DRIVERS, STRUCTURES	0.00	SF	$45.00000	$0.00

Total for Group 0061: $0.00

Group 0062: Other Structure Costs

0224	R-OC-STRC OTHER COSTS, STRUCTURES *Contingency*	0.00	LS	$0.00000	$0.00

Total for Group 0062: $0.00

Group 0063: Temporary Road and Pavement Costs

0225	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
				Total for Group 0063:	$0.00
Group 0064: Portable Concrete Barrier (PCB)					
0226	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
				Total for Group 0064:	$0.00
Group 0065: Impact Attenuators					
0227	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
				Total for Group 0065:	$0.00
Group 0066: Sheeting					
0229	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
				Total for Group 0066:	$0.00
Group 0067: Temporary Signals					
0230	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	0.00	LS	$0.00000	$0.00
				Total for Group 0067:	$0.00
Group 0068: Work Zone Lighting					
0231	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	0.00	LS	$0.00000	$0.00
				Total for Group 0068:	$0.00
Group 0069: Innovative Contracting Incentatives					
0232	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	0.00	LS	$0.00000	$0.00
				Total for Group 0069:	$0.00
Group 0070: Other MOT Costs					
0233	S-OC-MNTC OTHER COSTS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
0512	S-OC-MNTC OTHER COSTS, MAINTENANCE OF TRAFFIC	2.54	MILE	$500,000.00000	$1,270,000.00
				Total for Group 0070:	$1,270,000.00
Group 0071: Wetland Construction					
0234	T-MC-WTLD MAJOR COST DRIVERS, WETLAND CONSTRUCTION	0.00	LS	$0.00000	$0.00
0360	T-MC-WTLD MAJOR COST DRIVERS, WETLAND CONSTRUCTION	0.00	LS	$0.00000	$0.00
				Total for Group 0071:	$0.00
Group 0072: Misc. Costs					

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
0235	U-MC-MISC MAJOR COST DRIVERS, MISCELLANEOUS COSTS	0.00	LS	$0.00000	$0.00
0236	U-OC-MISC OTHER COSTS, MISCELLANEOUS COSTS	0.00	LS	$0.00000	$0.00
0237	100E00300 SPECIAL - PREMIUM ON RAILROADS' PROTECTIVE PUBLIC LIABILITY AND PROPERTY DAMAGE LIABILITY INSURANCE	0.00	LS	$10,000.00000	$0.00
0238	623E10000 CONSTRUCTION LAYOUT STAKES *0.5%*	1.00	LS	$271,430.70000	$271,430.70
0239	614E11000 MAINTAINING TRAFFIC *2%*	1.00	LS	$1,085,722.80000	$1,085,722.80
0240	619E16020 FIELD OFFICE, TYPE C	44.00	MNTH	$2,500.00000	$110,000.00
0242	624E10000 MOBILIZATION	1.00	LS	$1,200,000.00000	$1,200,000.00
0511	103E05000 PREMIUM FOR CONTRACT PERFORMANCE BOND AND FOR PAYMENT BOND *0.5%*	1.00	LS	$271,430.70000	$271,430.70
0518		0.00		$0.00000	$0.00
0519		0.00		$0.00000	$0.00
0520		0.00		$0.00000	$0.00
0521		0.00		$0.00000	$0.00

Total for Group 0072: $2,938,584.20

Group 0073: Design Contingency Costs

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
0243	V-MC-CNTG MAJOR COST DRIVERS, CONTINGENCY COSTS	1.00	LS	$0.00000	$0.00
0244	V-OC-CNTG OTHER COSTS, CONTINGENCY COSTS *25%*	1.00	LS	$14,306,181.06000	$14,306,181.06

Total for Group 0073: $14,306,181.06

Group 0074: Inflation Contingency

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
0266	V-OC-CNTG OTHER COSTS, CONTINGENCY COSTS	0.00	LS	$0.00000	$0.00

Total for Group 0074: $0.00

PID KY-5 **County** Kenton **Route** 75 **Section** _____ **This R/W Acquisition cost estimate is prepared for Alternative** I

Macro View

Acquisition	Unit (SF) or (Acreage)	X	Cost/Unit ($$/SF) ($$/Acre)	Subtotal Land Value	+	Structure Values (if Taken)	+	Damages (Loss in Value to the Residue)	Subtotal Structures & Damages	=	Total Non Labor Acquisition Costs
-Residential	3.31	X	$82,451.65	$272,750	+	855500	+	N/A	$855,500.00	=	$1,128,250.05
-Commercial	6.68	X	$147,451.64	$985,065	+	1135000	+	N/A	$1,135,000.00	=	$2,120,065.42
-Industrial	0	X	$0.00	$0	+	0	+	N/A	$0.00	=	$0.00
-Agricultural	0	X	$0.00	$0	+	0	+	N/A	$0.00	=	$0.00

Attributes

Parcel Count	Total Takes	Partial Takes	No. of Structures Impacted
17	6	11	5
19	1	18	1
0	0	0	0
0	0	0	0

Relocation	Unit (Displacement)	X	*RHP/*RSP	+	Move Cost	+	Reestablishment	=	Total Non Labor RAP Costs
-Residential									
Owner Occupant	3	X	$34,000	+	$6,000			=	$120,000
Tenant	14	X	$10,000	+	$1,750			=	$164,500
-Commerical/Farm/NPO									
Owner	1			X	$15,000	+	$10,000	=	$25,000
Tenant	1			X	$15,000	+	$10,000	=	$25,000
-Personal Property	0			X	$1,000			=	$0

Estimate amount of time necessary to relocate all RAP parcels = (months) 24

Estimate number of years until project wide R/W acquisition begins = 3.5

{[(Total Cost of Acquisition Cost)x0.90]x0.025}+{[(Total of Acquisition Cost)x0.15]x1.20}+{[(Total of Acquisition Cost)x0.10]x1.50} = Contingency

Contingency (Incidentals, Admin. Review & Appropriation)	1145031.203
Total Non Labor R/W Costs	$4,727,846.67

*RHP - Replacement Housing Payment
*RSP - Rent Supplemental Payment
*NPO - Non-Profit Organization

Instruction for Acquisition & Relocation Cost Estimates

Estimate the total number of acres involved in the project and allocate those acres into the four categories shown.

Assign an average unit price for each category. These unit prices are typically taken from the auditors tax card data. Cost Estimates prepared at Step 4 (Step 7 on Major Projects) and thereafter must base unit prices on a project sales data book instead of tax card data.

Add structure values from the auditors tax cards only if the structures are taken.

Damages must be assessed by a pre-qualified expert with experience in Before & After analysis. This usually occurs at Step 4 for Minor projects (Step 6 on Major Projects) and requires some knowledge of the impacts of the project on structures.

Relocation Cost Estimates must consider the complexity of the move process. All move estimates that involve a business or a mulit-tenant residential structure should use the services of a relocation Assistance professionnal to accurately gauge costs.

Macro View

Labor (External)	Unit (Parcels)	X	Unit Price	=	Total Cost
Titles	36	X	$400	=	$14,400
Appraisal					
-Simple	12	X	$750	=	$9,000
-Detailed	24	X	$4,500	=	$108,000
Appraisal Review					
-Simple	12	X	$500	=	$6,000
-Detailed	24	X	$2,000	=	$48,000
Negotiations	36	X	$1,100	=	$39,600
Relocations					
-Personal Property	0	X	$1,500	=	$0
-Residential	17	X	$5,200	=	$88,400
-Commercial/Farm/*NPO	1	X	$5,600	=	$5,600
Closings	36	X	$400	=	$14,400
Project Management	36	X	$550	=	$19,800
Asbestos Testing & Abatement		X		=	
	Total Labor Costs				$353,200

*NPO = Non-Profit Organization

This R/W Cost Estimate Prepared by	Date
Joseph Kuehnle	2/15/2011

This R/W Cost Estimate was performed at Step 6 of the PDP for MAJOR Projects using _____

Total Labor Costs	$353,200.00
Total Non Labor R/W Costs	$4,727,846.67
Inflation Adjustments	$416,645.83
Total R/W Costs	**$5,497,692.50**

Instructions for Labor Cost Estimates

Labor costs are a function of time, distance, and talent. Labor costs estimates should reflect the complexity of the project and the talent necessary to acquire the right of way in a timely manner. The person making the cost estimate may adjust the figures given for the particular project being estimated to reflect local labor costs. It is critical that the estimate be labeled to reflect the alignment alternative, the step in the PDP process and the person(s) performing the estimate.

Comments

Cost/Unit were generated from auditors tax card data.

P.D.P. R/W Cost Estimator

Estimate Alt I KY cont 6

Estimated Cost: $33,202,743.20

Contingency: 53.80%

Estimated Total: $51,065,819.04

Base Date: 01/01/15

Spec Year: 10

Unit System: E

Work Type: GEN CONST: INVLVS 2 OR MOR MAJ WRK TYPE

Highway Type: 451

Urban/Rural Type: URBAN CLASS

Season: SUMMER

County: HAMILTON

Midpoint of Latitude:

Midpoint of Longitude:

District:

Federal/State Project Number:

Estimate Type: C1

Prepared by Parsons Brinckerhoff on 07/22/10

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
Group 0001: Pavement Removal					
0001	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	0.00	LS	$0.00000	$0.00
0343	202E23000 PAVEMENT REMOVED	52,245.00	SY	$8.00000	$417,960.00
				Total for Group 0001:	$417,960.00
Group 0002: Excavation - Rock					
0003	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	331,350.00	CY	$30.00000	$9,940,500.00
				Total for Group 0002:	$9,940,500.00
Group 0003: Excavation - Soil					
0004	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0344	203E10000 EXCAVATION	331,350.00	CY	$8.00000	$2,650,800.00
				Total for Group 0003:	$2,650,800.00
Group 0004: Excavation - Hazardous					
0006	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
				Total for Group 0004:	$0.00
Group 0005: Fill - Embankment (includes wasting excess excavation)					
0007	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0345	203E20000 EMBANKMENT	662,700.00	CY	$6.00000	$3,976,200.00
				Total for Group 0005:	$3,976,200.00
Group 0006: Fill - Lime Modified Soil					
0010	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0346	205E10050 LIME STABILIZED EMBANKMENT	0.00	CY	$7.00000	$0.00
0347	205E10300 LIME	0.00	TON	$5.00000	$0.00
				Total for Group 0006:	$0.00
Group 0007: Fill - Borrow					
0011	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	0.00	CY	$8.00000	$0.00
				Total for Group 0007:	$0.00
Group 0008: Concrete Barrier					
0012	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0465	622E10060	3,600.00	FT	$110.00000	$396,000.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	CONCRETE BARRIER, SINGLE SLOPE, TYPE B				

Total for Group 0008: $396,000.00

Group 0009: Subgrade Treatment - Lime

0014	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0348	206E10000 LIME STABILIZED SUBGRADE	0.00	SY	$1.85000	$0.00
0349	206E10300 LIME	0.00	TON	$10.00000	$0.00
0350	206E11000 CURING COAT	0.00	SY	$1.00000	$0.00
0351	206E20000 TEST ROLLING	0.00	HOUR	$4.00000	$0.00

Total for Group 0009: $0.00

Group 0010: Subgrade Treatment - Cement

0016	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	81,883.00	SY	$2.50000	$204,707.50

Total for Group 0010: $204,707.50

Group 0011: Subgrade Treatment - Undercut & Backfill

0017	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00

Total for Group 0011: $0.00

Group 0012: Other Roadway Costs

0019	A-OC-RDWY OTHER COSTS, ROADWAY *Contingency*	0.00	LS	$0.00000	$0.00
0020	201E11000 CLEARING AND GRUBBING	0.00	LS	$856,500.00000	$0.00
0021	201E21800 TREE REMOVED, 18" SIZE	0.00	EACH	$250.00000	$0.00
0022	201E23000 TREE REMOVED, 30" SIZE	0.00	EACH	$405.00000	$0.00
0023	201E24800 TREE REMOVED, 48" SIZE	0.00	EACH	$772.00000	$0.00
0026	202E11000 STRUCTURE REMOVED	0.00	LS	$9,310.13000	$0.00
0028	202E35200 PIPE REMOVED, OVER 24"	0.00	FT		$0.00
0029	202E38000 GUARDRAIL REMOVED	0.00	FT		$0.00
0030	202E42206 ANCHOR ASSEMBLY REMOVED	0.00	EACH		$0.00
0031	202E58000 MANHOLE REMOVED	0.00	EACH		$0.00
0032	202E58100 CATCH BASIN REMOVED	0.00	EACH		$0.00
0033	202E75000 FENCE REMOVED	0.00	FT		$0.00
0034	204E45000	0.00	HOUR	$126.59000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	PROOF ROLLING				
0035	204E10000 SUBGRADE COMPACTION	0.00	SY	$0.81000	$0.00
0036	451E30000 SPECIAL - PRESSURE RELIEF JOINT, TYPE A	0.00	FT		$0.00
0037	606E13000 GUARDRAIL, TYPE 5	1,250.00	FT	$14.00000	$17,500.00
0038	606E22000 ANCHOR ASSEMBLY, TYPE B-98	0.00	EACH		$0.00
0039	606E22010 ANCHOR ASSEMBLY, TYPE E-98	0.00	EACH		$0.00
0040	606E26500 ANCHOR ASSEMBLY, TYPE T	0.00	EACH		$0.00
0041	606E35000 BRIDGE TERMINAL ASSEMBLY, TYPE 1	0.00	EACH		$0.00
0042	606E35100 BRIDGE TERMINAL ASSEMBLY, TYPE 2	0.00	EACH		$0.00
0043	606E60010 IMPACT ATTENUATOR, TYPE 1-98 (BIDIRECTIONAL)	0.00	EACH		$0.00
0044	607E15000 FENCE, TYPE 47 *For Fencing*	0.00	FT		$0.00
0423	304E20000 AGGREGATE BASE *For Fencing*	0.00	CY		$0.00
0424	601E32100 ROCK CHANNEL PROTECTION, TYPE B WITH FILTER *For Fencing*	0.00	CY		$0.00
0425	607E40500 GATE, TYPE 47 *For Fencing*	0.00	EACH		$0.00
0426	625E32000 GROUND ROD *For Fencing*	0.00	EACH		$0.00
0466		0.00		$0.00000	$0.00

Total for Group 0012: $17,500.00

Group 0014: Seeding & Mulching / Sodding

0045	B-MC-ERCO MAJOR COST DRIVERS, EROSION CONTROL	1.00	LS	$0.00000	$0.00
0467	659E10000 SEEDING AND MULCHING	67,695.00	SY	$1.00000	$67,695.00
0531	660E25000 SODDING STAKED	0.00	SY	$15.00000	$0.00

Total for Group 0014: $67,695.00

Group 0015: Rock Channel Protection

0047	B-MC-ERCO MAJOR COST DRIVERS, EROSION CONTROL	1.00	LS	$0.00000	$0.00
0469	601E32000 ROCK CHANNEL PROTECTION, TYPE A WITH FILTER	12.00	CY	$75.00000	$900.00

Total for Group 0015: $900.00

Group 0016: Erosion Control - Item 832

0048	B-MC-ERCO	1.00	LS	$0.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	MAJOR COST DRIVERS, EROSION CONTROL				
0470	832E10000 STORM WATER POLLUTION PREVENTION PLAN	1.00	LS	$50,000.00000	$50,000.00
0471	832E20000 EROSION CONTROL	300,000.00	EACH	$1.00000	$300,000.00

Total for Group 0016: $350,000.00

Group 0017: Other Erosion Control Costs

0049	670E00700 DITCH EROSION PROTECTION	0.00	SY		$0.00
0050	B-OC-ERCO OTHER COSTS, EROSION CONTROL	1.00	LS	$0.00000	$0.00
0051	659E00100 SOIL ANALYSIS TEST	0.00	EACH	$0.00000	$0.00
0052	659E00300 TOPSOIL	0.00	CY		$0.00
0053	659E14000 REPAIR SEEDING AND MULCHING	0.00	SY		$0.00
0054	659E15000 INTER-SEEDING	0.00	SY	$0.71000	$0.00
0055	659E20000 COMMERCIAL FERTILIZER	0.00	TON		$0.00
0056	659E31000 LIME	0.00	ACRE	$0.00000	$0.00
0057	659E35000 WATER	0.00	MGAL	$5.00000	$0.00
0058	659E40000 MOWING	0.00	MSF	$0.00000	$0.00

Total for Group 0017: $0.00

Group 0018: Underdrains

0059	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0062	605E05100 4" SHALLOW PIPE UNDERDRAINS	10,850.00	FT	$8.00000	$86,800.00

Total for Group 0018: $86,800.00

Group 0019: Culverts - Type A: < 5'

0474	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	0.00	LS	$0.00000	$0.00
0480	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Pipe Structures - Reinforced Concrete Pipe up to 60"*	37.00	FT	$350.00000	$12,950.00
0481	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Concrete Masonry*	1.00	EACH	$1,500.00000	$1,500.00

Total for Group 0019: $14,450.00

Group 0021: Culverts, Type A: 5' - 10'

0067	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0476	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	0.00	FT	$550.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	Pipe Structures - Reinforced Concrete 5'-10' 66" to 78"				
0477	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Concrete - Headwalls/wingwalls*	0.00	EACH	$2,000.00000	$0.00

Total for Group 0021: $0.00

Group 0022: Culverts, Type A: 10' - 20'

0486	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0487	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Pipe Structures - Reinforced Concrete Pipe 10'-20'*	0.00	FT	$1,400.00000	$0.00
0488	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Concrete Masonry*	0.00	EACH	$1,500.00000	$0.00

Total for Group 0022: $0.00

Group 0024: BMP's

0076	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00

Total for Group 0024: $0.00

Group 0025: Closed Storm System

0077	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0489	603E13400 30" CONDUIT, TYPE B (Average size)	3,608.00	FT	$75.00000	$270,600.00
0523	604E00800 CATCH BASIN, NO. 3A	14.00	EACH	$1,500.00000	$21,000.00
0524	604E31500 MANHOLE, NO. 3	1.00	EACH	$3,000.00000	$3,000.00
0525	604E36601 PRECAST REINFORCED CONCRETE OUTLET, AS PER PLAN	0.00	EACH	$1,250.00000	$0.00
0526	Special Pump Station (Storm)	0.00	LS	$6,400,000.00000	$0.00
0527	Special Stormceptors	0.00	EACH	$5,750.00000	$0.00
0529	Special Retention basin improvements	0.00	LS	$109,000.00000	$0.00

Total for Group 0025: $294,600.00

Group 0026: Other Drainage Costs

0078	C-OC-DRNG OTHER COSTS, DRAINAGE	1.00	LS	$0.00000	$0.00

Total for Group 0026: $0.00

Group 0027: Mainline - Travel Lanes

0095	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0494	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg Base and Subgrade Compaction*	59,563.00	SY	$68.00000	$4,050,284.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension

Total for Group 0027: $4,050,284.00

Group 0028: Mainline - Outside Shoulder

0100	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0495	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg base and Subgrade Compaction*	8,534.00	SY	$68.00000	$580,312.00

Total for Group 0028: $580,312.00

Group 0030: Mainline - Inside Shoulder

0115	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0496	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg base and Subgrade Compaction*	11,410.00	SY	$68.00000	$775,880.00

Total for Group 0030: $775,880.00

Group 0031: Ramps (including shoulders)

0122	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0497	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg base and Subgrade Compaction*	2,376.00	SY	$68.00000	$161,568.00

Total for Group 0031: $161,568.00

Group 0032: Non - Mainline Lanes

0132	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0498	D-MC-PVMT Asphalt *Includes 3" 448, 9" 301, 6" Agg base and Subgrade Compaction*	0.00	SY	$41.00000	$0.00

Total for Group 0032: $0.00

Group 0041: Other Pavement Costs

0163	D-OC-PVMT OTHER COSTS, PAVEMENT	1.00	LS	$0.00000	$0.00

Total for Group 0041: $0.00

Group 0042: Water Works

0164	E-MC-WATR MAJOR COST DRIVERS, WATER LINE	0.00	LS	$0.00000	$0.00
0165	E-OC-WATR OTHER COSTS, WATER LINE	0.00	LS	$0.00000	$0.00

Total for Group 0042: $0.00

Group 0043: Sanitary Line

0170	F-MC-SANI MAJOR COST DRIVERS, SANITARY SEWER	0.00	LS	$0.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
				Total for Group 0043:	$0.00
Group 0044: Lighting - Full Interchange					
0173	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	1.00	LS	$0.00000	$0.00
0499	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	0.00	EACH	$469,000.00000	$0.00
				Total for Group 0044:	$0.00
Group 0045: Lighting - Partial Interchange					
0288	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	0.00	LS	$0.00000	$0.00
				Total for Group 0045:	$0.00
Group 0046: Lighting - Continuous Roadway					
0176	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	1.00	LS	$0.00000	$0.00
0500	G-MC-LTNG Lighting - Continuous	3,600.00	FT	$35.00000	$126,000.00
				Total for Group 0046:	$126,000.00
Group 0047: Other Lighting Costs					
0177	G-OC-LTNG OTHER COSTS, LIGHTING	0.00	LS	$0.00000	$0.00
				Total for Group 0047:	$0.00
Group 0048: Traffic Surveillance					
0178	H-OC-SURV OTHER COSTS, TRAFFIC SURVEILLANCE	1.00	LS	$246,872.97000	$246,872.97
				Total for Group 0048:	$246,872.97
Group 0049: Signs					
0179	J-MC-TRAF MAJOR COST DRIVERS, TRAFFIC CONTROL	1.00	LS	$0.00000	$0.00
0501	J-MC-TRAF Signs	0.68	MILE	$250,000.00000	$170,000.00
				Total for Group 0049:	$170,000.00
Group 0050: Pavement Marking					
0200	J-MC-TRAF MAJOR COST DRIVERS, TRAFFIC CONTROL	1.00	LS	$0.00000	$0.00
0502	644E00100 EDGE LINE	2.92	MILE	$3,000.00000	$8,760.00
0503	644E00200 LANE LINE	7.19	MILE	$2,000.00000	$14,380.00
				Total for Group 0050:	$23,140.00
Group 0051: Other Traffic Control Costs					

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
0208	J-OC-TRAF OTHER COSTS, TRAFFIC CONTROL	1.00	LS	$0.00000	$0.00

Total for Group 0051: $0.00

Group 0052: Signals - Intersections

0212	K-MC-SGNL MAJOR COST DRIVERS, SIGNALS	0.00	LS	$175.00000	$0.00

Total for Group 0052: $0.00

Group 0053: Other Traffic Signal Costs

0213	K-OC-SGNL OTHER COSTS, SIGNALS	1.00	LS	$0.00000	$0.00

Total for Group 0053: $0.00

Group 0054: Landscaping

0214	L-MC-LSCP MAJOR COST DRIVERS, LANDSCAPING	1.00	LS	$0.00000	$0.00
0215	L-OC-LSCP OTHER COSTS, LANDSCAPING	1.00	LS	$0.00000	$0.00

Total for Group 0054: $0.00

Group 0055: Retaining Walls $125 + $10/ft for caps, barriers and testing

0216	M-MC-WALL MAJOR COST DRIVERS, RETAINING WALLS	1.00	LS	$0.00000	$0.00
0504	M-MC-WALL Retaining Walls	0.00	SF	$135.00000	$0.00

Total for Group 0055: $0.00

Group 0056: Other Retaining Wall Costs

0217	M-OC-WALL OTHER COSTS, RETAINING WALLS	1.00	LS	$0.00000	$0.00

Total for Group 0056: $0.00

Group 0057: Building Demolition

0218	N-MC-DEMO MAJOR COST DRIVERS, BUILDING DEMOLITION	1.00	LS	$0.00000	$0.00
0219	N-OC-DEMO OTHER COSTS, BUILDING DEMOLITION	1.00	LS	$0.00000	$0.00
0532	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Large Commercial*	0.00	EACH	$30,000.00000	$0.00
0533	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Small Commercial*	0.00	EACH	$15,000.00000	$0.00
0534	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Large Residential*	1.00	EACH	$12,000.00000	$12,000.00
0535	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Small Residential*	4.00	EACH	$7,500.00000	$30,000.00
0536	202E98100	0.00	EACH	$8,500.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	REMOVAL MISC.: *Radio Tower*				

Total for Group 0057: $42,000.00

Group 0058: Noise Barrier

0220	P-MC-NSBR MAJOR COST DRIVERS, NOISE BARRIER	1.00	LS	$0.00000	$0.00
0505	P-MC-NSBR Noise Barrier	0.00	LS	$400.00000	$0.00

Total for Group 0058: $0.00

Group 0059: Other Noise Barrier Costs

0221	P-OC-NSBR OTHER COSTS, NOISE BARRIER	1.00	LS	$0.00000	$0.00
0368	P-MC-NSBR MAJOR COST DRIVERS, NOISE BARRIER	0.00	LS	$0.00000	$0.00

Total for Group 0059: $0.00

Group 0060: New Structures

0222	R-MC-STRC MAJOR COST DRIVERS, STRUCTURES	1.00	LS	$0.00000	$0.00
0506	R-MC-STRC Tier 1 Structures to 25' Height	0.00	SF	$125.00000	$0.00
0507	R-MC-STRC Removal of Existing Structures non-complex	0.00	SF	$12.00000	$0.00
0508	R-MC-STRC Standard Removal of Existing Structures above average complex	0.00	SF	$17.00000	$0.00
0509	R-MC-STRC Removal of Existing Structures complex to very complex	0.00	SF	$30.00000	$0.00
0513	R-MC-STRC Tier 2 Structures 25' to 50' Height	0.00	SF	$150.00000	$0.00
0516	R-MC-STRC Tier 3 Structures 50' to 75' Height	0.00	SF	$200.00000	$0.00

Total for Group 0060: $0.00

Group 0061: Rehabilitated Structures

0223	R-MC-STRC MAJOR COST DRIVERS, STRUCTURES	0.00	SF	$45.00000	$0.00

Total for Group 0061: $0.00

Group 0062: Other Structure Costs

0224	R-OC-STRC OTHER COSTS, STRUCTURES *Contingency*	0.00	LS	$0.00000	$0.00

Total for Group 0062: $0.00

Group 0063: Temporary Road and Pavement Costs

0225	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
				Total for Group 0063:	$0.00
Group 0064: Portable Concrete Barrier (PCB)					
0226	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
				Total for Group 0064:	$0.00
Group 0065: Impact Attenuators					
0227	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
				Total for Group 0065:	$0.00
Group 0066: Sheeting					
0229	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
				Total for Group 0066:	$0.00
Group 0067: Temporary Signals					
0230	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	0.00	LS	$0.00000	$0.00
				Total for Group 0067:	$0.00
Group 0068: Work Zone Lighting					
0231	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	0.00	LS	$0.00000	$0.00
				Total for Group 0068:	$0.00
Group 0069: Innovative Contracting Incentatives					
0232	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	0.00	LS	$0.00000	$0.00
				Total for Group 0069:	$0.00
Group 0070: Other MOT Costs					
0233	S-OC-MNTC OTHER COSTS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
0512	S-OC-MNTC OTHER COSTS, MAINTENANCE OF TRAFFIC	0.68	MILE	$500,000.00000	$340,000.00
				Total for Group 0070:	$340,000.00
Group 0071: Wetland Construction					
0234	T-MC-WTLD MAJOR COST DRIVERS, WETLAND CONSTRUCTION	0.00	LS	$0.00000	$0.00
0360	T-MC-WTLD MAJOR COST DRIVERS, WETLAND CONSTRUCTION	0.00	LS	$0.00000	$0.00
				Total for Group 0071:	$0.00
Group 0072: Misc. Costs					

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
0235	U-MC-MISC MAJOR COST DRIVERS, MISCELLANEOUS COSTS	0.00	LS	$0.00000	$0.00
0236	U-OC-MISC OTHER COSTS, MISCELLANEOUS COSTS	0.00	LS	$0.00000	$0.00
0237	100E00300 SPECIAL - PREMIUM ON RAILROADS' PROTECTIVE PUBLIC LIABILITY AND PROPERTY DAMAGE LIABILITY INSURANCE	0.00	LS	$10,000.00000	$0.00
0238	623E10000 CONSTRUCTION LAYOUT STAKES *0.5%*	1.00	LS	$124,670.85000	$124,670.85
0239	614E11000 MAINTAINING TRAFFIC *2%*	1.00	LS	$498,683.39000	$498,683.39
0240	619E16020 FIELD OFFICE, TYPE C	32.00	MNTH	$2,500.00000	$80,000.00
0242	624E10000 MOBILIZATION	1.00	LS	$800,000.00000	$800,000.00
0511	103E05000 PREMIUM FOR CONTRACT PERFORMANCE BOND AND FOR PAYMENT BOND *0.5%*	1.00	LS	$124,670.85000	$124,670.85
0518		0.00		$0.00000	$0.00
0519		0.00		$0.00000	$0.00
0520		0.00		$0.00000	$0.00
0521		0.00		$0.00000	$0.00

Total for Group 0072: $1,628,025.09

Group 0073: Design Contingency Costs

0243	V-MC-CNTG MAJOR COST DRIVERS, CONTINGENCY COSTS	1.00	LS	$0.00000	$0.00
0244	V-OC-CNTG OTHER COSTS, CONTINGENCY COSTS *25%*	1.00	LS	$6,640,548.64000	$6,640,548.64

Total for Group 0073: $6,640,548.64

Group 0074: Inflation Contingency

0266	V-OC-CNTG OTHER COSTS, CONTINGENCY COSTS	0.00	LS	$0.00000	$0.00

Total for Group 0074: $0.00

PID KY-6 **County** Kenton **Route** 75 **Section** _____ **This R/W Acquisition cost estimate is prepared for Alternative** I

Macro View

Acquisition	Unit (SF) or (Acreage)	X	Cost/Unit ($$/SF) ($$/Acre)	Subtotal Land Value	+	Structure Values (if Taken)	+	Damages (Loss in Value to the Residue)	Subtotal Structures & Damages	=	Total Non Labor Acquisition Costs
-Residential	3.37	X	$96,480.75	$325,140	+	2085000	+	N/A	$2,085,000.00	=	$2,410,140.13
-Commercial	0.41	X	$4,950.50	$2,030	+	0	+	N/A	$0.00	=	$2,029.71
-Industrial	0	X	$0.00	$0	+	0	+	N/A	$0.00	=	$0.00
-Agricultural	0	X	$0.00	$0	+	0	+	N/A	$0.00	=	$0.00

Attributes

Parcel Count	Total Takes	Partial Takes	No. of Structures Impacted
8	4	4	5
1	0	1	0
0	0	0	0
0	0	0	0

Relocation	Unit (Displacement)	X	*RHP/*RSP	+	Move Cost	+	Reestablishment	=	Total Non Labor RAP Costs
-Residential									
Owner Occupant	5	X	$34,000	+	$6,000			=	$200,000
Tenant	18	X	$10,000	+	$1,750			=	$211,500
-Commerical/Farm/NPO									
Owner	0			X	$15,000	+	$10,000	=	$0
Tenant	0			X	$15,000	+	$10,000	=	$0
-Personal Property	0			X	$1,000			=	$0

Estimate amount of time necessary to relocate all RAP parcels = (months) 24

Estimate number of years until project wide R/W acquisition begins = 3.5

{[(Total Cost of Acquisition Cost)x0.90]x0.025}+{[(Total of Acquisition Cost)x0.15]x1.20}+{[(Total of Acquisition Cost)x0.10]x1.50} = Contingency

Contingency (Incidentals, Admin. Review & Appropriation)	850289.866
Total Non Labor R/W Costs	$3,673,959.70

*RHP - Replacement Housing Payment
*RSP - Rent Supplemental Payment
*NPO - Non-Profit Organization

Instruction for Acquisition & Relocation Cost Estimates

Estimate the total number of acres involved in the project and allocate those acres into the four categories shown.

Assign an average unit price for each category. These unit prices are typically taken from the auditors tax card data. Cost Estimates prepared at Step 4 (Step 7 on Major Projects) and thereafter must base unit prices on a project sales data book instead of tax card data.

Add structure values from the auditors tax cards only if the structures are taken.

Damages must be assessed by a pre-qualified expert with experience in Before & After analysis. This usually occurs at Step 4 for Minor projects (Step 6 on Major Projects) and requires some knowledge of the impacts of the project on structures.

Relocation Cost Estimates must consider the complexity of the move process. All move estimates that involve a business or a mulit-tenant residential structure should use the services of a relocation Assistance professionnal to accurately gauge costs.

Macro View

Labor (External)	Unit (Parcels)	X	Unit Price	=	Total Cost
Titles	9	X	$400	=	$3,600
Appraisal					
-Simple	4	X	$750	=	$3,000
-Detailed	5	X	$4,500	=	$22,500
Appraisal Review					
-Simple	4	X	$500	=	$2,000
-Detailed	5	X	$2,000	=	$10,000
Negotiations	9	X	$1,100	=	$9,900
Relocations					
-Personal Property	0	X	$1,500	=	$0
-Residential	23	X	$5,200	=	$119,600
-Commercial/Farm/*NPO	0	X	$5,600	=	$0
Closings	23	X	$400	=	$9,200
Project Management	23	X	$550	=	$12,650
Asbestos Testing & Abatement		X		=	
	Total Labor Costs				$192,450

*NPO = Non-Profit Organization

This R/W Cost Estimate Prepared by	Date
Chris Clemons	8/4/2010

This R/W Cost Estimate was performed at Step 6 of the PDP for MAJOR Projects using _____

Total Labor Costs	$192,450.00
Total Non Labor R/W Costs	$3,673,959.70
Inflation Adjustments	$317,045.60
Total R/W Costs	**$4,183,455.30**

Instructions for Labor Cost Estimates

Labor costs are a function of time, distance, and talent. Labor costs estimates should reflect the complexity of the project and the talent necessary to acquire the right of way in a timely manner. The person making the cost estimate may adjust the figures given for the particular project being estimated to reflect local labor costs. It is critical that the estimate be labeled to reflect the alignment alternative, the step in the PDP process and the person(s) performing the estimate.

Comments

Cost/Unit were generated from auditors tax card data.

P.D.P. R/W Cost Estimator

Estimate Alt I KY cont 7

Estimated Cost: $242,532,360.08

Contingency: 57.60%

Estimated Total: $382,230,999.49

Base Date: 01/01/15

Spec Year: 10

Unit System: E

Work Type: GEN CONST: INVLVS 2 OR MOR MAJ WRK TYPE

Highway Type: 451

Urban/Rural Type: URBAN CLASS

Season: SUMMER

County: HAMILTON

Midpoint of Latitude:

Midpoint of Longitude:

District:

Federal/State Project Number:

Estimate Type: C1

Prepared by Parsons Brinckerhoff on 07/22/10

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
Group 0001: Pavement Removal					
0001	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	0.00	LS	$0.00000	$0.00
0343	202E23000 PAVEMENT REMOVED	130,262.00	SY	$8.00000	$1,042,096.00
				Total for Group 0001:	$1,042,096.00
Group 0002: Excavation - Rock					
0003	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	113,800.00	CY	$30.00000	$3,414,000.00
				Total for Group 0002:	$3,414,000.00
Group 0003: Excavation - Soil					
0004	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0344	203E10000 EXCAVATION	170,700.00	CY	$8.00000	$1,365,600.00
				Total for Group 0003:	$1,365,600.00
Group 0004: Excavation - Hazardous					
0006	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
				Total for Group 0004:	$0.00
Group 0005: Fill - Embankment (includes wasting excess excavation)					
0007	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0345	203E20000 EMBANKMENT	284,500.00	CY	$6.00000	$1,707,000.00
				Total for Group 0005:	$1,707,000.00
Group 0006: Fill - Lime Modified Soil					
0010	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0346	205E10050 LIME STABILIZED EMBANKMENT	0.00	CY	$7.00000	$0.00
0347	205E10300 LIME	0.00	TON	$5.00000	$0.00
				Total for Group 0006:	$0.00
Group 0007: Fill - Borrow					
0011	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	0.00	CY	$8.00000	$0.00
				Total for Group 0007:	$0.00
Group 0008: Concrete Barrier					
0012	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0465	622E10060	8,000.00	FT	$110.00000	$880,000.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	CONCRETE BARRIER, SINGLE SLOPE, TYPE B				

Total for Group 0008: $880,000.00

Group 0009: Subgrade Treatment - Lime

0014	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0348	206E10000 LIME STABILIZED SUBGRADE	0.00	SY	$1.85000	$0.00
0349	206E10300 LIME	0.00	TON	$10.00000	$0.00
0350	206E11000 CURING COAT	0.00	SY	$1.00000	$0.00
0351	206E20000 TEST ROLLING	0.00	HOUR	$4.00000	$0.00

Total for Group 0009: $0.00

Group 0010: Subgrade Treatment - Cement

0016	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	158,488.00	SY	$2.50000	$396,220.00

Total for Group 0010: $396,220.00

Group 0011: Subgrade Treatment - Undercut & Backfill

0017	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00

Total for Group 0011: $0.00

Group 0012: Other Roadway Costs

0019	A-OC-RDWY OTHER COSTS, ROADWAY *Contingency*	0.00	LS	$0.00000	$0.00
0020	201E11000 CLEARING AND GRUBBING	0.00	LS	$856,500.00000	$0.00
0021	201E21800 TREE REMOVED, 18" SIZE	0.00	EACH	$250.00000	$0.00
0022	201E23000 TREE REMOVED, 30" SIZE	0.00	EACH	$405.00000	$0.00
0023	201E24800 TREE REMOVED, 48" SIZE	0.00	EACH	$772.00000	$0.00
0026	202E11000 STRUCTURE REMOVED	0.00	LS	$9,310.13000	$0.00
0028	202E35200 PIPE REMOVED, OVER 24"	0.00	FT		$0.00
0029	202E38000 GUARDRAIL REMOVED	0.00	FT		$0.00
0030	202E42206 ANCHOR ASSEMBLY REMOVED	0.00	EACH		$0.00
0031	202E58000 MANHOLE REMOVED	0.00	EACH		$0.00
0032	202E58100 CATCH BASIN REMOVED	0.00	EACH		$0.00
0033	202E75000 FENCE REMOVED	0.00	FT		$0.00
0034	204E45000	0.00	HOUR	$126.59000	$0.00

Line #	Item Number	Quantity	Units	Unit Price	Extension
	Description				
	Supplemental Description				
	PROOF ROLLING				
0035	204E10000	0.00	SY	$0.81000	$0.00
	SUBGRADE COMPACTION				
0036	451E30000	0.00	FT		$0.00
	SPECIAL - PRESSURE RELIEF JOINT, TYPE A				
0037	606E13000	1,750.00	FT	$14.00000	$24,500.00
	GUARDRAIL, TYPE 5				
0038	606E22000	0.00	EACH		$0.00
	ANCHOR ASSEMBLY, TYPE B-98				
0039	606E22010	0.00	EACH		$0.00
	ANCHOR ASSEMBLY, TYPE E-98				
0040	606E26500	0.00	EACH		$0.00
	ANCHOR ASSEMBLY, TYPE T				
0041	606E35000	0.00	EACH		$0.00
	BRIDGE TERMINAL ASSEMBLY, TYPE 1				
0042	606E35100	0.00	EACH		$0.00
	BRIDGE TERMINAL ASSEMBLY, TYPE 2				
0043	606E60010	0.00	EACH		$0.00
	IMPACT ATTENUATOR, TYPE 1-98 (BIDIRECTIONAL)				
0044	607E15000	0.00	FT		$0.00
	FENCE, TYPE 47				
	For Fencing				
0423	304E20000	0.00	CY		$0.00
	AGGREGATE BASE				
	For Fencing				
0424	601E32100	0.00	CY		$0.00
	ROCK CHANNEL PROTECTION, TYPE B WITH FILTER				
	For Fencing				
0425	607E40500	0.00	EACH		$0.00
	GATE, TYPE 47				
	For Fencing				
0426	625E32000	0.00	EACH		$0.00
	GROUND ROD				
	For Fencing				
0466		0.00		$0.00000	$0.00

Total for Group 0012: $24,500.00

Group 0014: Seeding & Mulching / Sodding

0045	B-MC-ERCO	1.00	LS	$0.00000	$0.00
	MAJOR COST DRIVERS, EROSION CONTROL				
0467	659E10000	47,213.00	SY	$1.00000	$47,213.00
	SEEDING AND MULCHING				
0531	660E25000	0.00	SY	$15.00000	$0.00
	SODDING STAKED				

Total for Group 0014: $47,213.00

Group 0015: Rock Channel Protection

0047	B-MC-ERCO	1.00	LS	$0.00000	$0.00
	MAJOR COST DRIVERS, EROSION CONTROL				
0469	601E32000	12.00	CY	$75.00000	$900.00
	ROCK CHANNEL PROTECTION, TYPE A WITH FILTER				

Total for Group 0015: $900.00

Group 0016: Erosion Control - Item 832

0048	B-MC-ERCO	1.00	LS	$0.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	MAJOR COST DRIVERS, EROSION CONTROL				
0470	832E10000 STORM WATER POLLUTION PREVENTION PLAN	1.00	LS	$50,000.00000	$50,000.00
0471	832E20000 EROSION CONTROL	170,000.00	EACH	$1.00000	$170,000.00

Total for Group 0016: $220,000.00

Group 0017: Other Erosion Control Costs

0049	670E00700 DITCH EROSION PROTECTION	0.00	SY		$0.00
0050	B-OC-ERCO OTHER COSTS, EROSION CONTROL	1.00	LS	$0.00000	$0.00
0051	659E00100 SOIL ANALYSIS TEST	0.00	EACH	$0.00000	$0.00
0052	659E00300 TOPSOIL	0.00	CY		$0.00
0053	659E14000 REPAIR SEEDING AND MULCHING	0.00	SY		$0.00
0054	659E15000 INTER-SEEDING	0.00	SY	$0.71000	$0.00
0055	659E20000 COMMERCIAL FERTILIZER	0.00	TON		$0.00
0056	659E31000 LIME	0.00	ACRE	$0.00000	$0.00
0057	659E35000 WATER	0.00	MGAL	$5.00000	$0.00
0058	659E40000 MOWING	0.00	MSF	$0.00000	$0.00

Total for Group 0017: $0.00

Group 0018: Underdrains

0059	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0062	605E05100 4" SHALLOW PIPE UNDERDRAINS	11,925.00	FT	$8.00000	$95,400.00

Total for Group 0018: $95,400.00

Group 0019: Culverts - Type A: < 5'

0474	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	0.00	LS	$0.00000	$0.00
0480	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Pipe Structures - Reinforced Concrete Pipe up to 60"*	0.00	FT	$350.00000	$0.00
0481	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Concrete Masonry*	0.00	EACH	$1,500.00000	$0.00

Total for Group 0019: $0.00

Group 0021: Culverts, Type A: 5' - 10'

0067	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0476	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	0.00	FT	$550.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	Pipe Structures - Reinforced Concrete 5'-10' 66" to 78"				
0477	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Concrete - Headwalls/wingwalls*	0.00	EACH	$2,000.00000	$0.00

Total for Group 0021: $0.00

Group 0022: Culverts, Type A: 10' - 20'

0486	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0487	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Pipe Structures - Reinforced Concrete Pipe 10'-20'*	0.00	FT	$1,400.00000	$0.00
0488	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Concrete Masonry*	0.00	EACH	$1,500.00000	$0.00

Total for Group 0022: $0.00

Group 0024: BMP's

0076	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00

Total for Group 0024: $0.00

Group 0025: Closed Storm System

0077	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0489	603E13400 30" CONDUIT, TYPE B (Average size)	21,838.00	FT	$75.00000	$1,637,850.00
0523	604E00800 CATCH BASIN, NO. 3A	98.00	EACH	$1,500.00000	$147,000.00
0524	604E31500 MANHOLE, NO. 3	31.00	EACH	$3,000.00000	$93,000.00
0525	604E36601 PRECAST REINFORCED CONCRETE OUTLET, AS PER PLAN	1.00	EACH	$1,250.00000	$1,250.00
0526	Special Pump Station (Storm)	1.00	LS	$6,400,000.00000	$6,400,000.00
0527	Special Stormceptors	6.00	EACH	$5,750.00000	$34,500.00
0529	Special Retention basin improvements	1.00	LS	$109,000.00000	$109,000.00

Total for Group 0025: $8,422,600.00

Group 0026: Other Drainage Costs

0078	C-OC-DRNG OTHER COSTS, DRAINAGE	1.00	LS	$0.00000	$0.00

Total for Group 0026: $0.00

Group 0027: Mainline - Travel Lanes

0095	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0494	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg Base and Subgrade Compaction*	61,360.00	SY	$68.00000	$4,172,480.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension

Total for Group 0027: $4,172,480.00

Group 0028: Mainline - Outside Shoulder

0100	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0495	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg base and Subgrade Compaction*	17,902.00	SY	$68.00000	$1,217,336.00

Total for Group 0028: $1,217,336.00

Group 0030: Mainline - Inside Shoulder

0115	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0496	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg base and Subgrade Compaction*	12,396.00	SY	$68.00000	$842,928.00

Total for Group 0030: $842,928.00

Group 0031: Ramps (including shoulders)

0122	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0497	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg base and Subgrade Compaction*	15,551.00	SY	$68.00000	$1,057,468.00

Total for Group 0031: $1,057,468.00

Group 0032: Non - Mainline Lanes

0132	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0498	D-MC-PVMT Asphalt *Includes 3" 448, 9" 301, 6" Agg base and Subgrade Compaction*	51,279.00	SY	$41.00000	$2,102,439.00

Total for Group 0032: $2,102,439.00

Group 0041: Other Pavement Costs

0163	D-OC-PVMT OTHER COSTS, PAVEMENT	1.00	LS	$0.00000	$0.00

Total for Group 0041: $0.00

Group 0042: Water Works

0164	E-MC-WATR MAJOR COST DRIVERS, WATER LINE	0.00	LS	$0.00000	$0.00
0165	E-OC-WATR OTHER COSTS, WATER LINE	0.00	LS	$0.00000	$0.00

Total for Group 0042: $0.00

Group 0043: Sanitary Line

0170	F-MC-SANI MAJOR COST DRIVERS, SANITARY SEWER	0.00	LS	$0.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
				Total for Group 0043:	$0.00
Group 0044: Lighting - Full Interchange					
0173	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	1.00	LS	$0.00000	$0.00
0499	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	2.00	EACH	$469,000.00000	$938,000.00
				Total for Group 0044:	$938,000.00
Group 0045: Lighting - Partial Interchange					
0288	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	0.00	LS	$0.00000	$0.00
				Total for Group 0045:	$0.00
Group 0046: Lighting - Continuous Roadway					
0176	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	1.00	LS	$0.00000	$0.00
0500	G-MC-LTNG Lighting - Continuous	6,195.00	FT	$35.00000	$216,825.00
				Total for Group 0046:	$216,825.00
Group 0047: Other Lighting Costs					
0177	G-OC-LTNG OTHER COSTS, LIGHTING	0.00	LS	$0.00000	$0.00
				Total for Group 0047:	$0.00
Group 0048: Traffic Surveillance					
0178	H-OC-SURV OTHER COSTS, TRAFFIC SURVEILLANCE	1.00	LS	$1,844,812.92000	$1,844,812.92
				Total for Group 0048:	$1,844,812.92
Group 0049: Signs					
0179	J-MC-TRAF MAJOR COST DRIVERS, TRAFFIC CONTROL	1.00	LS	$0.00000	$0.00
0501	J-MC-TRAF Signs	1.17	MILE	$250,000.00000	$292,500.00
				Total for Group 0049:	$292,500.00
Group 0050: Pavement Marking					
0200	J-MC-TRAF MAJOR COST DRIVERS, TRAFFIC CONTROL	1.00	LS	$0.00000	$0.00
0502	644E00100 EDGE LINE	18.92	MILE	$3,000.00000	$56,760.00
0503	644E00200 LANE LINE	13.77	MILE	$2,000.00000	$27,540.00
				Total for Group 0050:	$84,300.00
Group 0051: Other Traffic Control Costs					

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
0208	J-OC-TRAF OTHER COSTS, TRAFFIC CONTROL	1.00	LS	$0.00000	$0.00

Total for Group 0051: $0.00

Group 0052: Signals - Intersections

0212	K-MC-SGNL MAJOR COST DRIVERS, SIGNALS	7.00	LS	$175,000.00000	$1,225,000.00

Total for Group 0052: $1,225,000.00

Group 0053: Other Traffic Signal Costs

0213	K-OC-SGNL OTHER COSTS, SIGNALS	1.00	LS	$0.00000	$0.00

Total for Group 0053: $0.00

Group 0054: Landscaping

0214	L-MC-LSCP MAJOR COST DRIVERS, LANDSCAPING	1.00	LS	$0.00000	$0.00
0215	L-OC-LSCP OTHER COSTS, LANDSCAPING	1.00	LS	$0.00000	$0.00

Total for Group 0054: $0.00

Group 0055: Retaining Walls $125 + $10/ft for caps, barriers and testing

0216	M-MC-WALL MAJOR COST DRIVERS, RETAINING WALLS	1.00	LS	$0.00000	$0.00
0504	M-MC-WALL Retaining Walls	118,825.00	SF	$135.00000	$16,041,375.00

Total for Group 0055: $16,041,375.00

Group 0056: Other Retaining Wall Costs

0217	M-OC-WALL OTHER COSTS, RETAINING WALLS	1.00	LS	$0.00000	$0.00

Total for Group 0056: $0.00

Group 0057: Building Demolition

0218	N-MC-DEMO MAJOR COST DRIVERS, BUILDING DEMOLITION	1.00	LS	$0.00000	$0.00
0219	N-OC-DEMO OTHER COSTS, BUILDING DEMOLITION	1.00	LS	$0.00000	$0.00
0532	202E98100 REMOVAL MISC.: *Radio Tower*	1.00	EACH	$8,500.00000	$8,500.00
0533	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Large Commercial*	0.00	EACH	$30,000.00000	$0.00
0534	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Small Commercial*	7.00	EACH	$15,000.00000	$105,000.00
0535	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Large Residential*	0.00	EACH	$12,000.00000	$0.00
0536	202E56101	33.00	EACH	$7,500.00000	$247,500.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	BUILDING DEMOLISHED, AS PER PLAN *Small Residential*				

Total for Group 0057: $361,000.00

Group 0058: Noise Barrier

0220	P-MC-NSBR MAJOR COST DRIVERS, NOISE BARRIER	1.00	LS	$0.00000	$0.00
0505	P-MC-NSBR Noise Barrier	47,772.00	SF	$25.00000	$1,194,300.00

Total for Group 0058: $1,194,300.00

Group 0059: Other Noise Barrier Costs

0221	P-OC-NSBR OTHER COSTS, NOISE BARRIER	1.00	LS	$0.00000	$0.00
0368	P-MC-NSBR MAJOR COST DRIVERS, NOISE BARRIER	0.00	LS	$0.00000	$0.00

Total for Group 0059: $0.00

Group 0060: New Structures

0222	R-MC-STRC MAJOR COST DRIVERS, STRUCTURES	1.00	LS	$0.00000	$0.00
0506	R-MC-STRC Tier 1 Structures to 25' Height	315,174.00	SF	$125.00000	$39,396,750.00
0507	R-MC-STRC Removal of Existing Structures non-complex	4,744.00	SF	$12.00000	$56,928.00
0508	R-MC-STRC Standard Removal of Existing Structures above average complex	175,222.00	SF	$17.00000	$2,978,774.00
0509	R-MC-STRC Removal of Existing Structures complex to very complex	113,347.00	SF	$30.00000	$3,400,410.00
0513	R-MC-STRC Tier 2 Structures 25' to 50' Height	372,133.00	SF	$150.00000	$55,819,950.00
0516	R-MC-STRC Tier 3 Structures 50' to 75' Height	174,410.00	SF	$200.00000	$34,882,000.00

Total for Group 0060: $136,534,812.00

Group 0061: Rehabilitated Structures

0223	R-MC-STRC MAJOR COST DRIVERS, STRUCTURES	0.00	SF	$45.00000	$0.00

Total for Group 0061: $0.00

Group 0062: Other Structure Costs

0224	R-OC-STRC OTHER COSTS, STRUCTURES *Contingency*	0.00	LS	$0.00000	$0.00

Total for Group 0062: $0.00

Group 0063: Temporary Road and Pavement Costs

0225	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
				Total for Group 0063:	$0.00
Group 0064: Portable Concrete Barrier (PCB)					
0226	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
				Total for Group 0064:	$0.00
Group 0065: Impact Attenuators					
0227	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
				Total for Group 0065:	$0.00
Group 0066: Sheeting					
0229	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
				Total for Group 0066:	$0.00
Group 0067: Temporary Signals					
0230	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	0.00	LS	$0.00000	$0.00
				Total for Group 0067:	$0.00
Group 0068: Work Zone Lighting					
0231	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	0.00	LS	$0.00000	$0.00
				Total for Group 0068:	$0.00
Group 0069: Innovative Contracting Incentatives					
0232	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	0.00	LS	$0.00000	$0.00
				Total for Group 0069:	$0.00
Group 0070: Other MOT Costs					
0233	S-OC-MNTC OTHER COSTS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
0512	S-OC-MNTC OTHER COSTS, MAINTENANCE OF TRAFFIC	1.17	MILE	$500,000.00000	$585,000.00
				Total for Group 0070:	$585,000.00
Group 0071: Wetland Construction					
0234	T-MC-WTLD MAJOR COST DRIVERS, WETLAND CONSTRUCTION	0.00	LS	$0.00000	$0.00
0360	T-MC-WTLD MAJOR COST DRIVERS, WETLAND CONSTRUCTION	0.00	LS	$0.00000	$0.00
				Total for Group 0071:	$0.00
Group 0072: Misc. Costs					

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
0235	U-MC-MISC MAJOR COST DRIVERS, MISCELLANEOUS COSTS	0.00	LS	$0.00000	$0.00
0236	U-OC-MISC OTHER COSTS, MISCELLANEOUS COSTS	0.00	LS	$0.00000	$0.00
0237	100E00300 SPECIAL - PREMIUM ON RAILROADS' PROTECTIVE PUBLIC LIABILITY AND PROPERTY DAMAGE LIABILITY INSURANCE	0.00	LS	$10,000.00000	$0.00
0238	623E10000 CONSTRUCTION LAYOUT STAKES *0.5%*	1.00	LS	$931,630.52000	$931,630.52
0239	614E11000 MAINTAINING TRAFFIC *2%*	1.00	LS	$3,726,522.10000	$3,726,522.10
0240	619E16020 FIELD OFFICE, TYPE C	44.00	MNTH	$2,500.00000	$110,000.00
0242	624E10000 MOBILIZATION	1.00	LS	$2,000,000.00000	$2,000,000.00
0511	103E05000 PREMIUM FOR CONTRACT PERFORMANCE BOND AND FOR PAYMENT BOND *0.5%*	1.00	LS	$931,630.52000	$931,630.52
0518		0.00		$0.00000	$0.00
0519		0.00		$0.00000	$0.00
0520		0.00		$0.00000	$0.00
0521		0.00		$0.00000	$0.00

Total for Group 0072: $7,699,783.14

Group 0073: Design Contingency Costs

0243	V-MC-CNTG MAJOR COST DRIVERS, CONTINGENCY COSTS	1.00	LS	$0.00000	$0.00
0244	V-OC-CNTG OTHER COSTS, CONTINGENCY COSTS *25%*	1.00	LS	$48,506,472.02000	$48,506,472.02

Total for Group 0073: $48,506,472.02

Group 0074: Inflation Contingency

0266	V-OC-CNTG OTHER COSTS, CONTINGENCY COSTS	0.00	LS	$0.00000	$0.00

Total for Group 0074: $0.00

PID KY-7 **County** Kenton **Route** 75 **Section** _____ **This R/W Acquisition cost estimate is prepared for Alternative** I

Macro View

Acquisition	Unit (SF) or (Acreage)	X	Cost/Unit ($$/SF) ($$/Acre)	Subtotal Land Value	+	Structure Values (if Taken)	+	Damages (Loss in Value to the Residue)	Subtotal Structures & Damages	=	Total Non Labor Acquisition Costs
-Residential	5.94	X	$59,492.13	$353,383	+	1102500	+	N/A	$1,102,500.00	=	$1,455,883.25
-Commercial	5.19	X	$643,180.38	$3,338,106	+	654000	+	N/A	$654,000.00	=	$3,992,106.17
-Industrial	0	X	$0.00	$0	+	0	+	N/A	$0.00	=	$0.00
-Other	0.34	X	$0.00	$0	+	0	+	N/A	$0.00	=	$0.00

Attributes

Parcel Count	Total Takes	Partial Takes	No. of Structures Impacted
44	36	8	30
24	8	16	5
0	0	0	0
1	1	0	1

Relocation	Unit (Displacement)	X	*RHP/*RSP	+	Move Cost	+	Reestablishment	=	Total Non Labor RAP Costs
-Residential									
Owner Occupant	24	X	$34,000	+	$6,000			=	$960,000
Tenant	30	X	$10,000	+	$1,750			=	$352,500
-Commerical/Farm/NPO									
Owner	2			X	$15,000	+	$10,000	=	$50,000
Tenant	4			X	$15,000	+	$10,000	=	$100,000
-Personal Property	0			X	$1,000			=	$0

Estimate amount of time necessary to relocate all RAP parcels = (months) 24

Estimate number of years until project wide R/W acquisition begins = 3.5

{[(Total Cost of Acquisition Cost)x0.90]x0.025}+{[(Total of Acquisition Cost)x0.15]x1.20}+{[(Total of Acquisition Cost)x0.10]x1.50} = Contingency

Contingency (Incidentals, Admin. Review & Appropriation)	1920416.272
Total Non Labor R/W Costs	$8,830,905.70

*RHP - Replacement Housing Payment
*RSP - Rent Supplemental Payment
*NPO - Non-Profit Organization

Instruction for Acquisition & Relocation Cost Estimates

Estimate the total number of acres involved in the project and allocate those acres into the four categories shown.

Assign an average unit price for each category. These unit prices are typically taken from the auditors tax card data. Cost Estimates prepared at Step 4 (Step 7 on Major Projects) and thereafter must base unit prices on a project sales data book instead of tax card data.

Add structure values from the auditors tax cards only if the structures are taken.

Damages must be assessed by a pre-qualified expert with experience in Before & After analysis. This usually occurs at Step 4 for Minor projects (Step 6 on Major Projects) and requires some knowledge of the impacts of the project on structures.

Relocation Cost Estimates must consider the complexity of the move process. All move estimates that involve a business or a mulit-tenant residential structure should use the services of a relocation Assistance professionnal to accurately gauge costs.

Macro View

Labor (External)	Unit (Parcels)	X	Unit Price	=	Total Cost
Titles	69	X	$400	=	$27,600
Appraisal					
-Simple	5	X	$750	=	$3,750
-Detailed	64	X	$4,500	=	$288,000
Appraisal Review					
-Simple	5	X	$500	=	$2,500
-Detailed	64	X	$2,000	=	$128,000
Negotiations	69	X	$1,100	=	$75,900
Relocations					
-Personal Property	0	X	$1,500	=	$0
-Residential	54	X	$5,200	=	$280,800
-Commercial/Farm/*NPO	4	X	$5,600	=	$22,400
Closings	69	X	$400	=	$27,600
Project Management	69	X	$550	=	$37,950
Asbestos Testing & Abatement		X		=	
	Total Labor Costs				$894,500

*NPO = Non-Profit Organization

This R/W Cost Estimate Prepared by	Date
Joseph Kuehnle	2/23/2011

This R/W Cost Estimate was performed at Step 6 of the PDP for MAJOR Projects using

Total Labor Costs	$894,500.00
Total Non Labor R/W Costs	$8,830,905.70
Inflation Adjustments	$797,483.27
Total R/W Costs	**$10,522,888.97**

Instructions for Labor Cost Estimates

Labor costs are a function of time, distance, and talent. Labor costs estimates should reflect the complexity of the project and the talent necessary to acquire the right of way in a timely manner. The person making the cost estimate may adjust the figures given for the particular project being estimated to reflect local labor costs. It is critical that the estimate be labeled to reflect the alignment alternative, the step in the PDP process and the person(s) performing the estimate.

Comments

Cost/Unit were generated from auditors tax card data. Changed "Agriculture" category to "Other" to include Goebel Park and other properties that do not fit the main categories.

P.D.P. R/W Cost Estimator

Estimate Alt I KY cont 8

Estimated Cost: $40,553,981.01

Contingency: 65.50%

Estimated Total: $67,116,838.57

Base Date: 01/01/15

Spec Year: 10

Unit System: E

Work Type: GEN CONST: INVLVS 2 OR MOR MAJ WRK TYPE

Highway Type: 451

Urban/Rural Type: URBAN CLASS

Season: SUMMER

County: HAMILTON

Midpoint of Latitude:

Midpoint of Longitude:

District:

Federal/State Project Number:

Estimate Type: C1

Prepared by Parsons Brinckerhoff on 07/22/10

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
Group 0001: Pavement Removal					
0001	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	0.00	LS	$0.00000	$0.00
0343	202E23000 PAVEMENT REMOVED	0.00	SY	$8.00000	$0.00
				Total for Group 0001:	$0.00
Group 0002: Excavation - Rock					
0003	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	0.00	CY	$30.00000	$0.00
				Total for Group 0002:	$0.00
Group 0003: Excavation - Soil					
0004	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0344	203E10000 EXCAVATION	0.00	CY	$8.00000	$0.00
				Total for Group 0003:	$0.00
Group 0004: Excavation - Hazardous					
0006	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
				Total for Group 0004:	$0.00
Group 0005: Fill - Embankment (includes wasting excess excavation)					
0007	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0345	203E20000 EMBANKMENT	0.00	CY	$6.00000	$0.00
				Total for Group 0005:	$0.00
Group 0006: Fill - Lime Modified Soil					
0010	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0346	205E10050 LIME STABILIZED EMBANKMENT	0.00	CY	$7.00000	$0.00
0347	205E10300 LIME	0.00	TON	$5.00000	$0.00
				Total for Group 0006:	$0.00
Group 0007: Fill - Borrow					
0011	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	0.00	CY	$8.00000	$0.00
				Total for Group 0007:	$0.00
Group 0008: Concrete Barrier					
0012	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0465	622E10060	0.00	FT	$110.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	CONCRETE BARRIER, SINGLE SLOPE, TYPE B				

Total for Group 0008: $0.00

Group 0009: Subgrade Treatment - Lime

0014	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0348	206E10000 LIME STABILIZED SUBGRADE	0.00	SY	$1.85000	$0.00
0349	206E10300 LIME	0.00	TON	$10.00000	$0.00
0350	206E11000 CURING COAT	0.00	SY	$1.00000	$0.00
0351	206E20000 TEST ROLLING	0.00	HOUR	$4.00000	$0.00

Total for Group 0009: $0.00

Group 0010: Subgrade Treatment - Cement

0016	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	0.00	SY	$2.50000	$0.00

Total for Group 0010: $0.00

Group 0011: Subgrade Treatment - Undercut & Backfill

0017	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00

Total for Group 0011: $0.00

Group 0012: Other Roadway Costs

0019	A-OC-RDWY OTHER COSTS, ROADWAY *Contingency*	0.00	LS	$0.00000	$0.00
0020	201E11000 CLEARING AND GRUBBING	0.00	LS	$856,500.00000	$0.00
0021	201E21800 TREE REMOVED, 18" SIZE	0.00	EACH	$250.00000	$0.00
0022	201E23000 TREE REMOVED, 30" SIZE	0.00	EACH	$405.00000	$0.00
0023	201E24800 TREE REMOVED, 48" SIZE	0.00	EACH	$772.00000	$0.00
0026	202E11000 STRUCTURE REMOVED	0.00	LS	$9,310.13000	$0.00
0034	204E45000 PROOF ROLLING	0.00	HOUR	$126.59000	$0.00
0035	204E10000 SUBGRADE COMPACTION	0.00	SY	$0.81000	$0.00
0037	606E13000 GUARDRAIL, TYPE 5	0.00	FT	$14.00000	$0.00
0466		0.00		$0.00000	$0.00

Total for Group 0012: $0.00

Group 0014: Seeding & Mulching / Sodding

0045	B-MC-ERCO MAJOR COST DRIVERS, EROSION CONTROL	1.00	LS	$0.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
0467	659E10000 SEEDING AND MULCHING	0.00	SY	$1.00000	$0.00
0531	660E25000 SODDING STAKED	0.00	SY	$15.00000	$0.00

Total for Group 0014: $0.00

Group 0015: Rock Channel Protection

0047	B-MC-ERCO MAJOR COST DRIVERS, EROSION CONTROL	1.00	LS	$0.00000	$0.00
0469	601E32000 ROCK CHANNEL PROTECTION, TYPE A WITH FILTER	0.00	CY	$75.00000	$0.00

Total for Group 0015: $0.00

Group 0016: Erosion Control - Item 832

0048	B-MC-ERCO MAJOR COST DRIVERS, EROSION CONTROL	1.00	LS	$0.00000	$0.00
0470	832E10000 STORM WATER POLLUTION PREVENTION PLAN	1.00	LS	$20,000.00000	$20,000.00
0471	832E20000 EROSION CONTROL	2,000.00	EACH	$1.00000	$2,000.00

Total for Group 0016: $22,000.00

Group 0018: Underdrains

0059	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0062	605E05100 4" SHALLOW PIPE UNDERDRAINS	0.00	FT	$8.00000	$0.00

Total for Group 0018: $0.00

Group 0019: Culverts - Type A: < 5'

0474	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	0.00	LS	$0.00000	$0.00
0480	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Pipe Structures - Reinforced Concrete Pipe up to 60"*	0.00	FT	$350.00000	$0.00
0481	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Concrete Masonry*	0.00	EACH	$1,500.00000	$0.00

Total for Group 0019: $0.00

Group 0021: Culverts, Type A: 5' - 10'

0067	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0476	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Pipe Structures - Reinforced Concrete 5'-10' 66" to 78"*	0.00	FT	$550.00000	$0.00
0477	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Concrete - Headwalls/wingwalls*	0.00	EACH	$1,500.00000	$0.00

Total for Group 0021: $0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension

Group 0022: Culverts, Type A: 10' - 20'

0486	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0487	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Pipe Structures - Reinforced Concrete Pipe 10'-20'*	0.00	FT	$1,400.00000	$0.00
0488	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Concrete Masonry*	0.00	EACH	$1,500.00000	$0.00

Total for Group 0022: $0.00

Group 0024: BMP's

0076	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00

Total for Group 0024: $0.00

Group 0025: Closed Storm System

0077	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0489	603E13400 30" CONDUIT, TYPE B (Average size)	0.00	FT	$75.00000	$0.00
0523	604E00800 CATCH BASIN, NO. 3A	0.00	EACH	$1,500.00000	$0.00
0524	604E31500 MANHOLE, NO. 3	0.00	EACH	$3,000.00000	$0.00
0525	604E36601 PRECAST REINFORCED CONCRETE OUTLET, AS PER PLAN	0.00	EACH	$0.00000	$0.00
0526	Special Pump Station (Storm)	0.00	LS	$6,400,000.00000	$0.00
0527	Special Stormceptors	0.00	EACH	$5,750.00000	$0.00
0529	Special Retention basin improvements	0.00	LS	$10,900.00000	$0.00

Total for Group 0025: $0.00

Group 0026: Other Drainage Costs

0078	C-OC-DRNG OTHER COSTS, DRAINAGE	1.00	LS	$0.00000	$0.00

Total for Group 0026: $0.00

Group 0027: Mainline - Travel Lanes

0095	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0494	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg Base and Subgrade Compaction*	0.00	SY	$68.00000	$0.00

Total for Group 0027: $0.00

Group 0028: Mainline - Outside Shoulder

0100	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
0495	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg base and Subgrade Compaction*	0.00	SY	$59.00000	$0.00

Total for Group 0028: $0.00

Group 0030: Mainline - Inside Shoulder

0115	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0496	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg base and Subgrade Compaction*	0.00	SY	$59.00000	$0.00

Total for Group 0030: $0.00

Group 0031: Ramps (including shoulders)

0122	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0497	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg base and Subgrade Compaction*	0.00	SY	$68.00000	$0.00

Total for Group 0031: $0.00

Group 0032: Non - Mainline Lanes

0132	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0498	D-MC-PVMT Asphalt *Includes 3" 448, 9" 301, 6" Agg base and Subgrade Compaction*	0.00	SY	$40.00000	$0.00

Total for Group 0032: $0.00

Group 0041: Other Pavement Costs

0163	D-OC-PVMT OTHER COSTS, PAVEMENT	1.00	LS	$0.00000	$0.00

Total for Group 0041: $0.00

Group 0042: Water Works

0164	E-MC-WATR MAJOR COST DRIVERS, WATER LINE	0.00	LS	$0.00000	$0.00
0165	E-OC-WATR OTHER COSTS, WATER LINE	0.00	LS	$0.00000	$0.00

Total for Group 0042: $0.00

Group 0043: Sanitary Line

0170	F-MC-SANI MAJOR COST DRIVERS, SANITARY SEWER	0.00	LS	$0.00000	$0.00

Total for Group 0043: $0.00

Group 0044: Lighting - Full Interchange

0173	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	1.00	LS	$0.00000	$0.00
0499	G-MC-LTNG	0.00	EACH	$469,000.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	MAJOR COST DRIVERS, LIGHTING				

Total for Group 0044: $0.00

Group 0045: Lighting - Partial Interchange

0288	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	0.00	LS	$0.00000	$0.00

Total for Group 0045: $0.00

Group 0046: Lighting - Continuous Roadway

0176	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	1.00	LS	$0.00000	$0.00
0500	G-MC-LTNG Lighting - Continuous	3,492.00	FT	$35.00000	$122,220.00

Total for Group 0046: $122,220.00

Group 0047: Other Lighting Costs

0177	G-OC-LTNG OTHER COSTS, LIGHTING	0.00	LS	$0.00000	$0.00

Total for Group 0047: $0.00

Group 0048: Traffic Surveillance

0178	H-OC-SURV OTHER COSTS, TRAFFIC SURVEILLANCE	1.00	LS	$309,731.25000	$309,731.25

Total for Group 0048: $309,731.25

Group 0049: Signs

0179	J-MC-TRAF MAJOR COST DRIVERS, TRAFFIC CONTROL	1.00	LS	$0.00000	$0.00
0501	J-MC-TRAF Signs	0.66	MILE	$250,000.00000	$165,000.00

Total for Group 0049: $165,000.00

Group 0050: Pavement Marking

0200	J-MC-TRAF MAJOR COST DRIVERS, TRAFFIC CONTROL	1.00	LS	$0.00000	$0.00
0502	644E00100 EDGE LINE	1.32	MILE	$3,000.00000	$3,960.00
0503	644E00200 LANE LINE	0.99	MILE	$2,000.00000	$1,980.00

Total for Group 0050: $5,940.00

Group 0051: Other Traffic Control Costs

0208	J-OC-TRAF OTHER COSTS, TRAFFIC CONTROL	1.00	LS	$0.00000	$0.00

Total for Group 0051: $0.00

Group 0052: Signals - Intersections

0212	K-MC-SGNL	1.00	LS	$0.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	MAJOR COST DRIVERS, SIGNALS				

Total for Group 0052: $0.00

Group 0053: Other Traffic Signal Costs

0213	K-OC-SGNL OTHER COSTS, SIGNALS	1.00	LS	$0.00000	$0.00

Total for Group 0053: $0.00

Group 0054: Landscaping

0214	L-MC-LSCP MAJOR COST DRIVERS, LANDSCAPING	1.00	LS	$0.00000	$0.00
0215	L-OC-LSCP OTHER COSTS, LANDSCAPING	1.00	LS	$0.00000	$0.00

Total for Group 0054: $0.00

Group 0055: Retaining Walls $125 + $10/ft for caps, barriers and testing

0216	M-MC-WALL MAJOR COST DRIVERS, RETAINING WALLS	1.00	LS	$0.00000	$0.00
0504	M-MC-WALL Retaining Walls	0.00	SF	$135.00000	$0.00

Total for Group 0055: $0.00

Group 0056: Other Retaining Wall Costs

0217	M-OC-WALL OTHER COSTS, RETAINING WALLS	1.00	LS	$0.00000	$0.00

Total for Group 0056: $0.00

Group 0057: Building Demolition

0218	N-MC-DEMO MAJOR COST DRIVERS, BUILDING DEMOLITION	1.00	LS	$0.00000	$0.00
0219	N-OC-DEMO OTHER COSTS, BUILDING DEMOLITION	1.00	LS	$0.00000	$0.00
0538	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Large Commercial*	0.00	EACH	$30,000.00000	$0.00
0539	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Small Commercial*	0.00	EACH	$15,000.00000	$0.00
0540	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Large Residential*	0.00	EACH	$12,000.00000	$0.00
0541	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Small Residential*	0.00	EACH	$7,500.00000	$0.00
0542	202E98100 REMOVAL MISC.: *Radio Tower*	0.00	EACH	$8,500.00000	$0.00

Total for Group 0057: $0.00

Group 0058: Noise Barrier

0220	P-MC-NSBR	1.00	LS	$0.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	MAJOR COST DRIVERS, NOISE BARRIER				
0505	P-MC-NSBR Noise Barrier	0.00	LS	$400.00000	$0.00

Total for Group 0058: $0.00

Group 0059: Other Noise Barrier Costs

0221	P-OC-NSBR OTHER COSTS, NOISE BARRIER	1.00	LS	$0.00000	$0.00
0368	P-MC-NSBR MAJOR COST DRIVERS, NOISE BARRIER	0.00	LS	$0.00000	$0.00

Total for Group 0059: $0.00

Group 0060: New Structures

0222	R-MC-STRC MAJOR COST DRIVERS, STRUCTURES	1.00	LS	$0.00000	$0.00
0506	R-MC-STRC Tier 1 Structures to 25' Height	0.00	SF	$125.00000	$0.00
0507	R-MC-STRC Removal of Existing Structures non-complex	0.00	SF	$12.00000	$0.00
0508	R-MC-STRC Standard Removal of Existing Structures above average complex	0.00	SF	$17.00000	$0.00
0509	R-MC-STRC Removal of Existing Structures complex to very complex	0.00	SF	$30.00000	$0.00
0513	R-MC-STRC Tier 2 Structures 25' to 50' Height	0.00	SF	$150.00000	$0.00
0516	R-MC-STRC Tier 3 Structures 50' to 75' Height	0.00	SF	$200.00000	$0.00

Total for Group 0060: $0.00

Group 0061: Rehabilitated Structures

0223	R-MC-STRC MAJOR COST DRIVERS, STRUCTURES	1.00	LS	$0.00000	$0.00
0533	511E34434 CLASS S CONCRETE, BRIDGE DECK *new bridge deck on existing beams*	170,177.00	SF	$35.00000	$5,956,195.00
0535	514E99000 SPECIAL - BRIDGE PAINTING	1.00	LS	$22,000,000.00000	$22,000,000.00
0536	 Structural repair/rehabilitation	1.00	LS	$1,000,000.00000	$1,000,000.00
0537	202E11301 PORTIONS OF STRUCTURE REMOVED, AS PER PLAN *Briodge deck removal*	170,177.00	SF	$10.00000	$1,701,770.00

Total for Group 0061: $30,657,965.00

Group 0062: Other Structure Costs

0224	R-OC-STRC OTHER COSTS, STRUCTURES *Contingency*	0.00	LS	$0.00000	$0.00
0534		0.00		$0.00000	$0.00

Total for Group 0062: $0.00

Group 0063: Temporary Road and Pavement Costs

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
0225	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00

Total for Group 0063: $0.00

Group 0064: Portable Concrete Barrier (PCB)

0226	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00

Total for Group 0064: $0.00

Group 0065: Impact Attenuators

0227	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00

Total for Group 0065: $0.00

Group 0066: Sheeting

0229	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00

Total for Group 0066: $0.00

Group 0067: Temporary Signals

0230	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	0.00	LS	$0.00000	$0.00

Total for Group 0067: $0.00

Group 0068: Work Zone Lighting

0231	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	0.00	LS	$0.00000	$0.00

Total for Group 0068: $0.00

Group 0069: Innovative Contracting Incentatives

0232	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	0.00	LS	$0.00000	$0.00

Total for Group 0069: $0.00

Group 0070: Other MOT Costs

0233	S-OC-MNTC OTHER COSTS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
0512	S-OC-MNTC OTHER COSTS, MAINTENANCE OF TRAFFIC	0.00	MILE	$5,000,000.00000	$0.00

Total for Group 0070: $0.00

Group 0071: Wetland Construction

0234	T-MC-WTLD MAJOR COST DRIVERS, WETLAND CONSTRUCTION	0.00	LS	$0.00000	$0.00
0360	T-MC-WTLD MAJOR COST DRIVERS, WETLAND CONSTRUCTION	0.00	LS	$0.00000	$0.00

Total for Group 0071: $0.00

Line #	Item Number	Quantity	Units	Unit Price	Extension
	Description				
	Supplemental Description				

Group 0072: Misc. Costs

0235	U-MC-MISC	0.00	LS	$0.00000	$0.00
	MAJOR COST DRIVERS, MISCELLANEOUS COSTS				
0236	U-OC-MISC	0.00	LS	$0.00000	$0.00
	OTHER COSTS, MISCELLANEOUS COSTS				
0237	100E00300	0.00	LS	$10,000.00000	$0.00
	SPECIAL - PREMIUM ON RAILROADS' PROTECTIVE PUBLIC LIABILITY AND PROPERTY DAMAGE LIABILITY INSURANCE				
0238	623E10000	1.00	LS	$156,414.28000	$156,414.28
	CONSTRUCTION LAYOUT STAKES				
	0.5%				
0239	614E11000	0.00	LS	$0.00000	$0.00
	MAINTAINING TRAFFIC				
	2%				
0240	619E16020	19.00	MNTH	$2,500.00000	$47,500.00
	FIELD OFFICE, TYPE C				
0242	624E10000	1.00	LS	$800,000.00000	$800,000.00
	MOBILIZATION				
0511	103E05000	1.00	LS	$156,414.28000	$156,414.28
	PREMIUM FOR CONTRACT PERFORMANCE BOND AND FOR PAYMENT BOND				
	0.5%				

Total for Group 0072: $1,160,328.56

Group 0073: Design Contingency Costs

0243	V-MC-CNTG	1.00	LS	$0.00000	$0.00
	MAJOR COST DRIVERS, CONTINGENCY COSTS				
0244	V-OC-CNTG	1.00	LS	$8,110,796.20000	$8,110,796.20
	OTHER COSTS, CONTINGENCY COSTS				
	25%				

Total for Group 0073: $8,110,796.20

Group 0074: Inflation Contingency

0266	V-OC-CNTG	0.00	LS	$0.00000	$0.00
	OTHER COSTS, CONTINGENCY COSTS				

Total for Group 0074: $0.00

Estimate Alt I OH cont 2

Estimated Cost: $10,727,667.45

Contingency: 29.20%

Estimated Total: $13,860,146.35

Linn St

Base Date: 07/22/10

Spec Year: 10

Unit System: E

Work Type: GEN CONST: INVLVS 2 OR MOR MAJ WRK TYPE

Highway Type: 451

Urban/Rural Type: URBAN CLASS

Season: SUMMER

County: HAMILTON

Midpoint of Latitude:

Midpoint of Longitude:

District: 8

Federal/State Project Number:

Estimate Type: C1

Prepared by Parsons Brinckerhoff on 07/22/10

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
Group 0001: Pavement Removal					
0001	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	0.00	LS	$0.00000	$0.00
0343	202E23000 PAVEMENT REMOVED	17,258.00	SY	$8.00000	$138,064.00
				Total for Group 0001:	$138,064.00
Group 0002: Excavation - Rock					
0003	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	0.00	CY	$30.00000	$0.00
				Total for Group 0002:	$0.00
Group 0003: Excavation - Soil					
0004	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0344	203E10000 EXCAVATION	12,592.00	CY	$8.00000	$100,736.00
				Total for Group 0003:	$100,736.00
Group 0004: Excavation - Hazardous					
0006	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
				Total for Group 0004:	$0.00
Group 0005: Fill - Embankment (includes wasting excess excavation)					
0007	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0345	203E20000 EMBANKMENT	12,592.00	CY	$6.00000	$75,552.00
				Total for Group 0005:	$75,552.00
Group 0006: Fill - Lime Modified Soil					
0010	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0346	205E10050 LIME STABILIZED EMBANKMENT	0.00	CY	$7.00000	$0.00
0347	205E10300 LIME	0.00	TON	$5.00000	$0.00
				Total for Group 0006:	$0.00
Group 0007: Fill - Borrow					
0011	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	0.00	CY	$8.00000	$0.00
				Total for Group 0007:	$0.00
Group 0008: Concrete Barrier					
0012	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0465	622E10060	0.00	FT	$110.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	CONCRETE BARRIER, SINGLE SLOPE, TYPE B				

Total for Group 0008: $0.00

Group 0009: Subgrade Treatment - Lime

0014	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0348	206E10000 LIME STABILIZED SUBGRADE	0.00	SY	$1.85000	$0.00
0349	206E10300 LIME	0.00	TON	$10.00000	$0.00
0350	206E11000 CURING COAT	0.00	SY	$1.00000	$0.00
0351	206E20000 TEST ROLLING	0.00	HOUR	$4.00000	$0.00

Total for Group 0009: $0.00

Group 0010: Subgrade Treatment - Cement

0016	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	12,534.00	SY	$2.50000	$31,335.00

Total for Group 0010: $31,335.00

Group 0011: Subgrade Treatment - Undercut & Backfill

0017	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00

Total for Group 0011: $0.00

Group 0012: Other Roadway Costs

0019	A-OC-RDWY OTHER COSTS, ROADWAY *Contingency*	0.00	LS	$0.00000	$0.00
0020	201E11000 CLEARING AND GRUBBING	0.00	LS	$856,500.00000	$0.00
0021	201E21800 TREE REMOVED, 18" SIZE	0.00	EACH	$250.00000	$0.00
0022	201E23000 TREE REMOVED, 30" SIZE	0.00	EACH	$405.00000	$0.00
0023	201E24800 TREE REMOVED, 48" SIZE	0.00	EACH	$772.00000	$0.00
0026	202E11000 STRUCTURE REMOVED	0.00	LS	$9,310.13000	$0.00
0028	202E35200 PIPE REMOVED, OVER 24"	0.00	FT	$0.00000	$0.00
0029	202E38000 GUARDRAIL REMOVED	0.00	FT	$0.00000	$0.00
0030	202E42206 ANCHOR ASSEMBLY REMOVED	0.00	EACH	$0.00000	$0.00
0031	202E58000 MANHOLE REMOVED	0.00	EACH	$0.00000	$0.00
0032	202E58100 CATCH BASIN REMOVED	0.00	EACH	$0.00000	$0.00
0033	202E75000 FENCE REMOVED	0.00	FT	$0.00000	$0.00
0034	204E45000	0.00	HOUR	$126.59000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	PROOF ROLLING				
0035	204E10000 SUBGRADE COMPACTION	0.00	SY	$0.81000	$0.00
0036	451E30000 SPECIAL - PRESSURE RELIEF JOINT, TYPE A	0.00	FT	$0.00000	$0.00
0037	606E13000 GUARDRAIL, TYPE 5	0.00	FT	$14.00000	$0.00
0038	606E22000 ANCHOR ASSEMBLY, TYPE B-98	0.00	EACH	$1,411.29597	$0.00
0039	606E22010 ANCHOR ASSEMBLY, TYPE E-98	0.00	EACH	$1,712.52574	$0.00
0040	606E26500 ANCHOR ASSEMBLY, TYPE T	0.00	EACH	$487.23435	$0.00
0041	606E35000 BRIDGE TERMINAL ASSEMBLY, TYPE 1	0.00	EACH	$969.12750	$0.00
0042	606E35100 BRIDGE TERMINAL ASSEMBLY, TYPE 2	0.00	EACH	$338.36354	$0.00
0043	606E60010 IMPACT ATTENUATOR, TYPE 1-98 (BIDIRECTIONAL)	0.00	EACH	$3,439.05897	$0.00
0044	607E15000 FENCE, TYPE 47 *For Fencing*	0.00	FT	$0.00000	$0.00
0423	304E20000 AGGREGATE BASE *For Fencing*	0.00	CY	$0.00000	$0.00
0424	601E32100 ROCK CHANNEL PROTECTION, TYPE B WITH FILTER *For Fencing*	0.00	CY	$0.00000	$0.00
0425	607E40500 GATE, TYPE 47 *For Fencing*	0.00	EACH	$731.31641	$0.00
0426	625E32000 GROUND ROD *For Fencing*	0.00	EACH	$0.00000	$0.00
0466		0.00		$0.00000	$0.00

Total for Group 0012: $0.00

Group 0014: Seeding & Mulching / Sodding

0045	B-MC-ERCO MAJOR COST DRIVERS, EROSION CONTROL	1.00	LS	$0.00000	$0.00
0467	659E10000 SEEDING AND MULCHING	0.00	SY	$1.00000	$0.00
0531	660E25000 SODDING STAKED	0.00	SY	$15.00000	$0.00

Total for Group 0014: $0.00

Group 0015: Rock Channel Protection

0047	B-MC-ERCO MAJOR COST DRIVERS, EROSION CONTROL	1.00	LS	$0.00000	$0.00
0469	601E32000 ROCK CHANNEL PROTECTION, TYPE A WITH FILTER	0.00	CY	$75.00000	$0.00

Total for Group 0015: $0.00

Group 0016: Erosion Control - Item 832

0048	B-MC-ERCO	1.00	LS	$0.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	MAJOR COST DRIVERS, EROSION CONTROL				
0470	832E10000 STORM WATER POLLUTION PREVENTION PLAN	1.00	LS	$20,000.00000	$20,000.00
0471	832E20000 EROSION CONTROL	6,000.00	EACH	$1.00000	$6,000.00

Total for Group 0016: $26,000.00

Group 0017: Other Erosion Control Costs

0049	670E00700 DITCH EROSION PROTECTION	0.00	SY	$0.00000	$0.00
0050	B-OC-ERCO OTHER COSTS, EROSION CONTROL	1.00	LS	$0.00000	$0.00
0051	659E00100 SOIL ANALYSIS TEST	0.00	EACH	$0.00000	$0.00
0052	659E00300 TOPSOIL	0.00	CY	$0.00000	$0.00
0053	659E14000 REPAIR SEEDING AND MULCHING	0.00	SY	$0.00000	$0.00
0054	659E15000 INTER-SEEDING	0.00	SY	$0.71000	$0.00
0055	659E20000 COMMERCIAL FERTILIZER	0.00	TON	$410.06813	$0.00
0056	659E31000 LIME	0.00	ACRE	$0.00000	$0.00
0057	659E35000 WATER	0.00	MGAL	$5.00000	$0.00
0058	659E40000 MOWING	0.00	MSF	$0.00000	$0.00

Total for Group 0017: $0.00

Group 0018: Underdrains

0059	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0062	605E05100 4" SHALLOW PIPE UNDERDRAINS	4,524.00	FT	$8.00000	$36,192.00

Total for Group 0018: $36,192.00

Group 0019: Culverts - Type A: < 5'

0474	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	0.00	LS	$0.00000	$0.00
0480	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Pipe Structures - Reinforced Concrete Pipe up to 60"*	0.00	FT	$350.00000	$0.00
0481	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Concrete Masonry*	0.00	EACH	$1,500.00000	$0.00

Total for Group 0019: $0.00

Group 0021: Culverts, Type A: 5' - 10'

0067	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0476	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	0.00	FT	$550.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	Pipe Structures - Reinforced Concrete 5'-10' 66" to 78"				
0477	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Concrete - Headwalls/wingwalls*	0.00	EACH	$1,500.00000	$0.00

Total for Group 0021: $0.00

Group 0022: Culverts, Type A: 10' - 20'

0486	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0487	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Pipe Structures - Reinforced Concrete Pipe 10'-20'*	0.00	FT	$1,400.00000	$0.00
0488	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Concrete Masonry*	0.00	EACH	$1,500.00000	$0.00

Total for Group 0022: $0.00

Group 0024: BMP's

0076	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00

Total for Group 0024: $0.00

Group 0025: Closed Storm System

0077	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0489	603E13400 30" CONDUIT, TYPE B (Average size)	1,694.00	FT	$75.00000	$127,050.00
0523	604E00800 CATCH BASIN, NO. 3A	16.00	EACH	$1,500.00000	$24,000.00
0524	604E31500 MANHOLE, NO. 3	4.00	EACH	$3,000.00000	$12,000.00
0525	604E36601 PRECAST REINFORCED CONCRETE OUTLET, AS PER PLAN	0.00	EACH	$1,250.00000	$0.00
0526	Special Pump Station (Storm)	0.00	LS	$6,400,000.00000	$0.00
0527	Special Stormceptors	0.00	EACH	$5,750.00000	$0.00
0529	Special Retention basin improvements	0.00	LS	$109,000.00000	$0.00

Total for Group 0025: $163,050.00

Group 0026: Other Drainage Costs

0078	C-OC-DRNG OTHER COSTS, DRAINAGE	1.00	LS	$0.00000	$0.00

Total for Group 0026: $0.00

Group 0027: Mainline - Travel Lanes

0095	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0494	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg Base and Subgrade Compaction*	0.00	SY	$68.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
				Total for Group 0027:	$0.00

Group 0028: Mainline - Outside Shoulder

0100	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0495	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg base and Subgrade Compaction*	0.00	SY	$68.00000	$0.00
				Total for Group 0028:	$0.00

Group 0030: Mainline - Inside Shoulder

0115	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0496	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg base and Subgrade Compaction*	0.00	SY	$68.00000	$0.00
				Total for Group 0030:	$0.00

Group 0031: Ramps (including shoulders)

0122	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0497	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg base and Subgrade Compaction*	0.00	SY	$68.00000	$0.00
				Total for Group 0031:	$0.00

Group 0032: Non - Mainline Lanes

0132	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0498	D-MC-PVMT Asphalt *Includes 3" 448, 9" 301, 6" Agg base and Subgrade Compaction*	12,534.00	SY	$41.00000	$513,894.00
				Total for Group 0032:	$513,894.00

Group 0041: Other Pavement Costs

0163	D-OC-PVMT OTHER COSTS, PAVEMENT	1.00	LS	$0.00000	$0.00
				Total for Group 0041:	$0.00

Group 0042: Water Works

0164	E-MC-WATR MAJOR COST DRIVERS, WATER LINE	0.00	LS	$0.00000	$0.00
0165	E-OC-WATR OTHER COSTS, WATER LINE	0.00	LS	$0.00000	$0.00
				Total for Group 0042:	$0.00

Group 0043: Sanitary Line

0170	F-MC-SANI MAJOR COST DRIVERS, SANITARY SEWER	0.00	LS	$0.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
				Total for Group 0043:	$0.00
Group 0044: Lighting - Full Interchange					
0173	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	1.00	LS	$0.00000	$0.00
0499	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	0.00	EACH	$469,000.00000	$0.00
				Total for Group 0044:	$0.00
Group 0045: Lighting - Partial Interchange					
0288	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	0.00	LS	$0.00000	$0.00
				Total for Group 0045:	$0.00
Group 0046: Lighting - Continuous Roadway					
0176	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	1.00	LS	$0.00000	$0.00
0500	G-MC-LTNG Lighting - Continuous	2,665.00	FT	$35.00000	$93,275.00
				Total for Group 0046:	$93,275.00
Group 0047: Other Lighting Costs					
0177	G-OC-LTNG OTHER COSTS, LIGHTING	0.00	LS	$0.00000	$0.00
				Total for Group 0047:	$0.00
Group 0048: Traffic Surveillance					
0178	H-OC-SURV OTHER COSTS, TRAFFIC SURVEILLANCE	0.00	LS	$0.00000	$0.00
				Total for Group 0048:	$0.00
Group 0049: Signs					
0179	J-MC-TRAF MAJOR COST DRIVERS, TRAFFIC CONTROL	1.00	LS	$0.00000	$0.00
0501	J-MC-TRAF Signs	0.50	MILE	$250,000.00000	$125,000.00
				Total for Group 0049:	$125,000.00
Group 0050: Pavement Marking					
0200	J-MC-TRAF MAJOR COST DRIVERS, TRAFFIC CONTROL	1.00	LS	$0.00000	$0.00
0502	644E00100 EDGE LINE	1.02	MILE	$3,000.00000	$3,060.00
0503	644E00200 LANE LINE	0.41	MILE	$2,000.00000	$820.00
				Total for Group 0050:	$3,880.00
Group 0051: Other Traffic Control Costs					

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
0208	J-OC-TRAF OTHER COSTS, TRAFFIC CONTROL	1.00	LS	$0.00000	$0.00

Total for Group 0051: $0.00

Group 0052: Signals - Intersections

0212	K-MC-SGNL MAJOR COST DRIVERS, SIGNALS	1.00	LS	$175,000.00000	$175,000.00

Total for Group 0052: $175,000.00

Group 0053: Other Traffic Signal Costs

0213	K-OC-SGNL OTHER COSTS, SIGNALS	1.00	LS	$0.00000	$0.00

Total for Group 0053: $0.00

Group 0054: Landscaping

0214	L-MC-LSCP MAJOR COST DRIVERS, LANDSCAPING	1.00	LS	$0.00000	$0.00
0215	L-OC-LSCP OTHER COSTS, LANDSCAPING	1.00	LS	$0.00000	$0.00

Total for Group 0054: $0.00

Group 0055: Retaining Walls $125 + $10/ft for caps, barriers and testing

0216	M-MC-WALL MAJOR COST DRIVERS, RETAINING WALLS	1.00	LS	$0.00000	$0.00
0504	M-MC-WALL Retaining Walls	8,400.00	SF	$135.00000	$1,134,000.00

Total for Group 0055: $1,134,000.00

Group 0056: Other Retaining Wall Costs

0217	M-OC-WALL OTHER COSTS, RETAINING WALLS	1.00	LS	$0.00000	$0.00

Total for Group 0056: $0.00

Group 0057: Building Demolition

0218	N-MC-DEMO MAJOR COST DRIVERS, BUILDING DEMOLITION	1.00	LS	$0.00000	$0.00
0219	N-OC-DEMO OTHER COSTS, BUILDING DEMOLITION	1.00	LS	$0.00000	$0.00
0532	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Large Commercial*	0.00	EACH	$30,000.00000	$0.00
0533	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Small Commercial*	0.00	EACH	$15,000.00000	$0.00
0534	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Large Residential*	0.00	EACH	$12,000.00000	$0.00
0535	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Small Residential*	0.00	EACH	$7,500.00000	$0.00
0536	202E98100	0.00	EACH	$8,500.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	REMOVAL MISC.: *Radio Tower*				

Total for Group 0057: $0.00

Group 0058: Noise Barrier

0220	P-MC-NSBR MAJOR COST DRIVERS, NOISE BARRIER	1.00	LS	$0.00000	$0.00
0505	P-MC-NSBR Noise Barrier	0.00	LS	$400.00000	$0.00

Total for Group 0058: $0.00

Group 0059: Other Noise Barrier Costs

0221	P-OC-NSBR OTHER COSTS, NOISE BARRIER	1.00	LS	$0.00000	$0.00
0368	P-MC-NSBR MAJOR COST DRIVERS, NOISE BARRIER	0.00	LS	$0.00000	$0.00

Total for Group 0059: $0.00

Group 0060: New Structures

0222	R-MC-STRC MAJOR COST DRIVERS, STRUCTURES	1.00	LS	$0.00000	$0.00
0506	R-MC-STRC Tier 1 Structures to 25' Height	35,636.00	SF	$125.00000	$4,454,500.00
0507	R-MC-STRC Removal of Existing Structures non-complex	0.00	SF	$12.00000	$0.00
0508	R-MC-STRC Standard Removal of Existing Structures above average complex	45,662.00	SF	$17.00000	$776,254.00
0509	R-MC-STRC Removal of Existing Structures complex to very complex	0.00	SF	$30.00000	$0.00
0513	R-MC-STRC Tier 2 Structures 25' to 50' Height	0.00	SF	$150.00000	$0.00
0516	R-MC-STRC Tier 3 Structures 50' to 75' Height	0.00	SF	$200.00000	$0.00

Total for Group 0060: $5,230,754.00

Group 0061: Rehabilitated Structures

0223	R-MC-STRC MAJOR COST DRIVERS, STRUCTURES	0.00	SF	$45.00000	$0.00

Total for Group 0061: $0.00

Group 0062: Other Structure Costs

0224	R-OC-STRC OTHER COSTS, STRUCTURES *Contingency*	0.00	LS	$0.00000	$0.00

Total for Group 0062: $0.00

Group 0063: Temporary Road and Pavement Costs

0225	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
				Total for Group 0063:	$0.00
Group 0064: Portable Concrete Barrier (PCB)					
0226	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
				Total for Group 0064:	$0.00
Group 0065: Impact Attenuators					
0227	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
				Total for Group 0065:	$0.00
Group 0066: Sheeting					
0229	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
				Total for Group 0066:	$0.00
Group 0067: Temporary Signals					
0230	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	0.00	LS	$0.00000	$0.00
				Total for Group 0067:	$0.00
Group 0068: Work Zone Lighting					
0231	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	0.00	LS	$0.00000	$0.00
				Total for Group 0068:	$0.00
Group 0069: Innovative Contracting Incentatives					
0232	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	0.00	LS	$0.00000	$0.00
				Total for Group 0069:	$0.00
Group 0070: Other MOT Costs					
0233	S-OC-MNTC OTHER COSTS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
0512	S-OC-MNTC OTHER COSTS, MAINTENANCE OF TRAFFIC	0.50	MILE	$500,000.00000	$250,000.00
				Total for Group 0070:	$250,000.00
Group 0071: Wetland Construction					
0234	T-MC-WTLD MAJOR COST DRIVERS, WETLAND CONSTRUCTION	0.00	LS	$0.00000	$0.00
0360	T-MC-WTLD MAJOR COST DRIVERS, WETLAND CONSTRUCTION	0.00	LS	$0.00000	$0.00
				Total for Group 0071:	$0.00
Group 0072: Misc. Costs					

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
0235	U-MC-MISC MAJOR COST DRIVERS, MISCELLANEOUS COSTS	0.00	LS	$0.00000	$0.00
0236	U-OC-MISC OTHER COSTS, MISCELLANEOUS COSTS	0.00	LS	$0.00000	$0.00
0237	100E00300 SPECIAL - PREMIUM ON RAILROADS' PROTECTIVE PUBLIC LIABILITY AND PROPERTY DAMAGE LIABILITY INSURANCE	0.00	LS	$10,000.00000	$0.00
0238	623E10000 CONSTRUCTION LAYOUT STAKES *0.5%*	1.00	LS	$40,483.66000	$40,483.66
0239	614E11000 MAINTAINING TRAFFIC *5%*	1.00	LS	$161,934.64000	$161,934.64
0240	619E16020 FIELD OFFICE, TYPE C	17.00	MNTH	$2,500.00000	$42,500.00
0242	624E10000 MOBILIZATION	1.00	LS	$200,000.00000	$200,000.00
0511	103E05000 PREMIUM FOR CONTRACT PERFORMANCE BOND AND FOR PAYMENT BOND *0.5%*	1.00	LS	$40,483.66000	$40,483.66

Total for Group 0072: $485,401.96

Group 0073: Design Contingency Costs

0243	V-MC-CNTG MAJOR COST DRIVERS, CONTINGENCY COSTS *25%*	1.00	LS	$2,145,533.49000	$2,145,533.49
0244	V-OC-CNTG OTHER COSTS, CONTINGENCY COSTS	1.00	LS	$0.00000	$0.00

Total for Group 0073: $2,145,533.49

Group 0074: Inflation Contingency

0266	V-OC-CNTG OTHER COSTS, CONTINGENCY COSTS	0.00	LS	$0.00000	$0.00

Total for Group 0074: $0.00

PID 89056 **County** HAM **Route** 75 **Section** 1.04 **This R/W Acquisition cost estimate is prepared for Alternative** I

Macro View

Acquisition	Unit (SF) or (Acreage)	X	Cost/Unit ($$/SF) ($$/Acre)	Subtotal Land Value	+	Structure Values (if Taken)	+	Damages (Loss in Value to the Residue)	Subtotal Structures & Damages	=	Total Non Labor Acquisition Costs
-Residential	0	X	$0.00	$0	+	0	+	N/A	$0.00	=	$0.00
-Commercial	0.01	X	$702,025.81	$7,020	+	0	+	N/A	$0.00	=	$7,020.26
-Industrial	0	X	$0.00	$0	+	0	+	N/A	$0.00	=	$0.00
-Agricultural	0	X	$0.00	$0	+	0	+	N/A	$0.00	=	$0.00

Attributes

Parcel Count	Total Takes	Partial Takes	No. of Structures Impacted
0	0	0	0
1	0	1	0
0	0	0	0
0	0	0	0

Relocation	Unit (Displacement)	X	*RHP/*RSP	+	Move Cost	+	Reestablishment	=	Total Non Labor RAP Costs
-Residential									
Owner Occupant	0	X	$34,000	+	$6,000			=	$0
Tenant	0	X	$10,000	+	$1,750			=	$0
-Commerical/Farm/NPO									
Owner	0			X	$15,000	+	$10,000	=	$0
Tenant	0			X	$15,000	+	$10,000	=	$0
-Personal Property	0			X	$1,000			=	$0

Estimate amount of time necessary to relocate all RAP parcels = (months) 18

Estimate number of years until project wide R/W acquisition begins = 1.75

{[(Total Cost of Acquisition Cost)x0.90]x0.025}+{[(Total of Acquisition Cost)x0.15]x1.20}+{[(Total of Acquisition Cost)x0.10]x1.50} = Contingency

Contingency (Incidentals, Admin. Review & Appropriation)	2474.64098
Total Non Labor R/W Costs	$9,494.90

*RHP - Replacement Housing Payment
*RSP - Rent Supplemental Payment
*NPO - Non-Profit Organization

Instruction for Acquisition & Relocation Cost Estimates

Estimate the total number of acres involved in the project and allocate those acres into the four categories shown.

Assign an average unit price for each category. These unit prices are typically taken from the auditors tax card data. Cost Estimates prepared at Step 4 (Step 7 on Major Projects) and thereafter must base unit prices on a project sales data book instead of tax card data.

Add structure values from the auditors tax cards only if the structures are taken.

Damages must be assessed by a pre-qualified expert with experience in Before & After analysis. This usually occurs at Step 4 for Minor projects (Step 6 on Major Projects) and requires some knowledge of the impacts of the project on structures.

Relocation Cost Estimates must consider the complexity of the move process. All move estimates that involve a business or a mulit-tenant residential structure should use the services of a relocation Assistance professionnal to accurately gauge costs.

Macro View

Labor (External)	Unit (Parcels)	X	Unit Price	=	Total Cost
Titles	1	X	$400	=	$400
Appraisal					
-Simple	0	X	$750	=	$0
-Detailed	1	X	$4,500	=	$4,500
Appraisal Review					
-Simple	0	X	$500	=	$0
-Detailed	1	X	$2,000	=	$2,000
Negotiations	1	X	$1,100	=	$1,100
Relocations					
-Personal Property	0	X	$1,500	=	$0
-Residential	0	X	$5,200	=	$0
-Commercial/Farm/*NPO	0	X	$5,600	=	$0
Closings	1	X	$400	=	$400
Project Management	1	X	$550	=	$550
Asbestos Testing & Abatement		X		=	
	Total Labor Costs				$8,950

*NPO = Non-Profit Organization

This R/W Cost Estimate Prepared by	Date
Chris Clemons	8/4/2010

This R/W Cost Estimate was performed at Step 6 of the PDP for MAJOR Projects using

Total Labor Costs	$8,950.00
Total Non Labor R/W Costs	$9,494.90
Inflation Adjustments	$1,125.14
Total R/W Costs	**$19,570.04**

Instructions for Labor Cost Estimates

Labor costs are a function of time, distance, and talent. Labor costs estimates should reflect the complexity of the project and the talent necessary to acquire the right of way in a timely manner. The person making the cost estimate may adjust the figures given for the particular project being estimated to reflect local labor costs. It is critical that the estimate be labeled to reflect the alignment alternative, the step in the PDP process and the person(s) performing the estimate.

Comments

Cost/Unit were generated from auditors tax card data.

P.D.P. R/W Cost Estimator

Estimate Alt I OH cont 3

Estimated Cost: $22,959,232.28

Contingency: 32.90%

Estimated Total: $30,512,819.70

OH-3 Ezzard Charles

Base Date: 07/22/10

Spec Year: 10

Unit System: E

Work Type: GEN CONST: INVLVS 2 OR MOR MAJ WRK TYPE

Highway Type: 451

Urban/Rural Type: URBAN CLASS

Season: SUMMER

County: HAMILTON

Midpoint of Latitude:

Midpoint of Longitude:

District: 8

Federal/State Project Number:

Estimate Type: C1

Prepared by Parsons Brinckerhoff on 07/22/10

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
Group 0001: Pavement Removal					
0001	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	0.00	LS	$0.00000	$0.00
0343	202E23000 PAVEMENT REMOVED	21,262.00	SY	$8.00000	$170,096.00
				Total for Group 0001:	$170,096.00
Group 0002: Excavation - Rock					
0003	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	0.00	CY	$30.00000	$0.00
				Total for Group 0002:	$0.00
Group 0003: Excavation - Soil					
0004	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0344	203E10000 EXCAVATION	40,911.00	CY	$8.00000	$327,288.00
				Total for Group 0003:	$327,288.00
Group 0004: Excavation - Hazardous					
0006	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
				Total for Group 0004:	$0.00
Group 0005: Fill - Embankment (includes wasting excess excavation)					
0007	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0345	203E20000 EMBANKMENT	40,911.00	CY	$6.00000	$245,466.00
				Total for Group 0005:	$245,466.00
Group 0006: Fill - Lime Modified Soil					
0010	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0346	205E10050 LIME STABILIZED EMBANKMENT	0.00	CY	$7.00000	$0.00
0347	205E10300 LIME	0.00	TON	$5.00000	$0.00
				Total for Group 0006:	$0.00
Group 0007: Fill - Borrow					
0011	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	0.00	CY	$8.00000	$0.00
				Total for Group 0007:	$0.00
Group 0008: Concrete Barrier					
0012	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0465	622E10060	0.00	FT	$110.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	CONCRETE BARRIER, SINGLE SLOPE, TYPE B				

Total for Group 0008: $0.00

Group 0009: Subgrade Treatment - Lime

0014	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0348	206E10000 LIME STABILIZED SUBGRADE	0.00	SY	$1.85000	$0.00
0349	206E10300 LIME	0.00	TON	$10.00000	$0.00
0350	206E11000 CURING COAT	0.00	SY	$1.00000	$0.00
0351	206E20000 TEST ROLLING	0.00	HOUR	$4.00000	$0.00

Total for Group 0009: $0.00

Group 0010: Subgrade Treatment - Cement

0016	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	27,862.00	SY	$2.50000	$69,655.00

Total for Group 0010: $69,655.00

Group 0011: Subgrade Treatment - Undercut & Backfill

0017	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00

Total for Group 0011: $0.00

Group 0012: Other Roadway Costs

0019	A-OC-RDWY OTHER COSTS, ROADWAY *Contingency*	0.00	LS	$0.00000	$0.00
0020	201E11000 CLEARING AND GRUBBING	0.00	LS	$856,500.00000	$0.00
0021	201E21800 TREE REMOVED, 18" SIZE	0.00	EACH	$250.00000	$0.00
0022	201E23000 TREE REMOVED, 30" SIZE	0.00	EACH	$405.00000	$0.00
0023	201E24800 TREE REMOVED, 48" SIZE	0.00	EACH	$772.00000	$0.00
0026	202E11000 STRUCTURE REMOVED	0.00	LS	$9,310.13000	$0.00
0028	202E35200 PIPE REMOVED, OVER 24"	0.00	FT	$0.00000	$0.00
0029	202E38000 GUARDRAIL REMOVED	0.00	FT	$0.00000	$0.00
0030	202E42206 ANCHOR ASSEMBLY REMOVED	0.00	EACH	$0.00000	$0.00
0031	202E58000 MANHOLE REMOVED	0.00	EACH	$0.00000	$0.00
0032	202E58100 CATCH BASIN REMOVED	0.00	EACH	$0.00000	$0.00
0033	202E75000 FENCE REMOVED	0.00	FT	$0.00000	$0.00
0034	204E45000	0.00	HOUR	$126.59000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	PROOF ROLLING				
0035	204E10000 SUBGRADE COMPACTION	0.00	SY	$0.81000	$0.00
0036	451E30000 SPECIAL - PRESSURE RELIEF JOINT, TYPE A	0.00	FT	$0.00000	$0.00
0037	606E13000 GUARDRAIL, TYPE 5	0.00	FT	$14.00000	$0.00
0038	606E22000 ANCHOR ASSEMBLY, TYPE B-98	0.00	EACH	$1,411.29597	$0.00
0039	606E22010 ANCHOR ASSEMBLY, TYPE E-98	0.00	EACH	$1,712.52574	$0.00
0040	606E26500 ANCHOR ASSEMBLY, TYPE T	0.00	EACH	$487.23435	$0.00
0041	606E35000 BRIDGE TERMINAL ASSEMBLY, TYPE 1	0.00	EACH	$969.12750	$0.00
0042	606E35100 BRIDGE TERMINAL ASSEMBLY, TYPE 2	0.00	EACH	$338.36354	$0.00
0043	606E60010 IMPACT ATTENUATOR, TYPE 1-98 (BIDIRECTIONAL)	0.00	EACH	$3,439.05897	$0.00
0044	607E15000 FENCE, TYPE 47 *For Fencing*	0.00	FT	$0.00000	$0.00
0423	304E20000 AGGREGATE BASE *For Fencing*	0.00	CY	$0.00000	$0.00
0424	601E32100 ROCK CHANNEL PROTECTION, TYPE B WITH FILTER *For Fencing*	0.00	CY	$0.00000	$0.00
0425	607E40500 GATE, TYPE 47 *For Fencing*	0.00	EACH	$731.31641	$0.00
0426	625E32000 GROUND ROD *For Fencing*	0.00	EACH	$0.00000	$0.00
0466		0.00		$0.00000	$0.00

Total for Group 0012: $0.00

Group 0014: Seeding & Mulching / Sodding

0045	B-MC-ERCO MAJOR COST DRIVERS, EROSION CONTROL	1.00	LS	$0.00000	$0.00
0467	659E10000 SEEDING AND MULCHING	14,738.00	SY	$1.00000	$14,738.00
0531	660E25000 SODDING STAKED	0.00	SY	$15.00000	$0.00

Total for Group 0014: $14,738.00

Group 0015: Rock Channel Protection

0047	B-MC-ERCO MAJOR COST DRIVERS, EROSION CONTROL	1.00	LS	$0.00000	$0.00
0469	601E32000 ROCK CHANNEL PROTECTION, TYPE A WITH FILTER	0.00	CY	$75.00000	$0.00

Total for Group 0015: $0.00

Group 0016: Erosion Control - Item 832

0048	B-MC-ERCO	1.00	LS	$0.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	MAJOR COST DRIVERS, EROSION CONTROL				
0470	832E10000 STORM WATER POLLUTION PREVENTION PLAN	1.00	LS	$50,000.00000	$50,000.00
0471	832E20000 EROSION CONTROL	24,000.00	EACH	$1.00000	$24,000.00

Total for Group 0016: $74,000.00

Group 0017: Other Erosion Control Costs

0049	670E00700 DITCH EROSION PROTECTION	0.00	SY	$0.00000	$0.00
0050	B-OC-ERCO OTHER COSTS, EROSION CONTROL	1.00	LS	$0.00000	$0.00
0051	659E00100 SOIL ANALYSIS TEST	0.00	EACH	$0.00000	$0.00
0052	659E00300 TOPSOIL	0.00	CY	$0.00000	$0.00
0053	659E14000 REPAIR SEEDING AND MULCHING	0.00	SY	$0.00000	$0.00
0054	659E15000 INTER-SEEDING	0.00	SY	$0.71000	$0.00
0055	659E20000 COMMERCIAL FERTILIZER	0.00	TON	$410.06813	$0.00
0056	659E31000 LIME	0.00	ACRE	$0.00000	$0.00
0057	659E35000 WATER	0.00	MGAL	$5.00000	$0.00
0058	659E40000 MOWING	0.00	MSF	$0.00000	$0.00

Total for Group 0017: $0.00

Group 0018: Underdrains

0059	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0062	605E05100 4" SHALLOW PIPE UNDERDRAINS	16,411.00	FT	$8.00000	$131,288.00

Total for Group 0018: $131,288.00

Group 0019: Culverts - Type A: < 5'

0474	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	0.00	LS	$0.00000	$0.00
0480	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Pipe Structures - Reinforced Concrete Pipe up to 60"*	0.00	FT	$350.00000	$0.00
0481	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Concrete Masonry*	0.00	EACH	$1,500.00000	$0.00

Total for Group 0019: $0.00

Group 0021: Culverts, Type A: 5' - 10'

0067	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0476	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	0.00	FT	$550.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	Pipe Structures - Reinforced Concrete 5'-10' 66" to 78"				
0477	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Concrete - Headwalls/wingwalls*	0.00	EACH	$1,500.00000	$0.00

Total for Group 0021: $0.00

Group 0022: Culverts, Type A: 10' - 20'

0486	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0487	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Pipe Structures - Reinforced Concrete Pipe 10'-20'*	0.00	FT	$1,400.00000	$0.00
0488	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Concrete Masonry*	0.00	EACH	$1,500.00000	$0.00

Total for Group 0022: $0.00

Group 0024: BMP's

0076	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00

Total for Group 0024: $0.00

Group 0025: Closed Storm System

0077	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0489	603E13400 30" CONDUIT, TYPE B (Average size)	1,400.00	FT	$75.00000	$105,000.00
0523	604E00800 CATCH BASIN, NO. 3A	25.00	EACH	$1,500.00000	$37,500.00
0524	604E31500 MANHOLE, NO. 3	3.00	EACH	$3,000.00000	$9,000.00
0525	604E36601 PRECAST REINFORCED CONCRETE OUTLET, AS PER PLAN	0.00	EACH	$1,250.00000	$0.00
0526	Special Pump Station (Storm)	0.00	LS	$6,400,000.00000	$0.00
0527	Special Stormceptors	0.00	EACH	$5,750.00000	$0.00
0529	Special Retention basin improvements	0.00	LS	$109,000.00000	$0.00

Total for Group 0025: $151,500.00

Group 0026: Other Drainage Costs

0078	C-OC-DRNG OTHER COSTS, DRAINAGE	1.00	LS	$0.00000	$0.00

Total for Group 0026: $0.00

Group 0027: Mainline - Travel Lanes

0095	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0494	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg Base and Subgrade Compaction*	0.00	SY	$68.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
				Total for Group 0027:	$0.00

Group 0028: Mainline - Outside Shoulder

0100	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0495	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg base and Subgrade Compaction*	0.00	SY	$68.00000	$0.00
				Total for Group 0028:	$0.00

Group 0030: Mainline - Inside Shoulder

0115	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0496	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg base and Subgrade Compaction*	0.00	SY	$68.00000	$0.00
				Total for Group 0030:	$0.00

Group 0031: Ramps (including shoulders)

0122	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0497	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg base and Subgrade Compaction*	8,907.00	SY	$68.00000	$605,676.00
				Total for Group 0031:	$605,676.00

Group 0032: Non - Mainline Lanes

0132	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0498	D-MC-PVMT Asphalt *Includes 3" 448, 9" 301, 6" Agg base and Subgrade Compaction*	18,955.00	SY	$41.00000	$777,155.00
				Total for Group 0032:	$777,155.00

Group 0041: Other Pavement Costs

0163	D-OC-PVMT OTHER COSTS, PAVEMENT	1.00	LS	$0.00000	$0.00
				Total for Group 0041:	$0.00

Group 0042: Water Works

0164	E-MC-WATR MAJOR COST DRIVERS, WATER LINE	0.00	LS	$0.00000	$0.00
0165	E-OC-WATR OTHER COSTS, WATER LINE	0.00	LS	$0.00000	$0.00
				Total for Group 0042:	$0.00

Group 0043: Sanitary Line

0170	F-MC-SANI MAJOR COST DRIVERS, SANITARY SEWER	0.00	LS	$0.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
				Total for Group 0043:	$0.00
Group 0044: Lighting - Full Interchange					
0173	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	1.00	LS	$0.00000	$0.00
0499	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	0.00	EACH	$469,000.00000	$0.00
				Total for Group 0044:	$0.00
Group 0045: Lighting - Partial Interchange					
0288	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	0.00	LS	$0.00000	$0.00
				Total for Group 0045:	$0.00
Group 0046: Lighting - Continuous Roadway					
0176	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	1.00	LS	$0.00000	$0.00
0500	G-MC-LTNG Lighting - Continuous	4,966.00	FT	$35.00000	$173,810.00
				Total for Group 0046:	$173,810.00
Group 0047: Other Lighting Costs					
0177	G-OC-LTNG OTHER COSTS, LIGHTING	0.00	LS	$0.00000	$0.00
				Total for Group 0047:	$0.00
Group 0048: Traffic Surveillance					
0178	H-OC-SURV OTHER COSTS, TRAFFIC SURVEILLANCE	0.00	LS	$0.00000	$0.00
				Total for Group 0048:	$0.00
Group 0049: Signs					
0179	J-MC-TRAF MAJOR COST DRIVERS, TRAFFIC CONTROL	1.00	LS	$0.00000	$0.00
0501	J-MC-TRAF Signs	0.94	MILE	$250,000.00000	$235,000.00
				Total for Group 0049:	$235,000.00
Group 0050: Pavement Marking					
0200	J-MC-TRAF MAJOR COST DRIVERS, TRAFFIC CONTROL	1.00	LS	$0.00000	$0.00
0502	644E00100 EDGE LINE	2.44	MILE	$3,000.00000	$7,320.00
0503	644E00200 LANE LINE	0.16	MILE	$2,000.00000	$320.00
				Total for Group 0050:	$7,640.00
Group 0051: Other Traffic Control Costs					

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
0208	J-OC-TRAF OTHER COSTS, TRAFFIC CONTROL	1.00	LS	$0.00000	$0.00

Total for Group 0051: $0.00

Group 0052: Signals - Intersections

0212	K-MC-SGNL MAJOR COST DRIVERS, SIGNALS	4.00	EACH	$175,000.00000	$700,000.00

Total for Group 0052: $700,000.00

Group 0053: Other Traffic Signal Costs

0213	K-OC-SGNL OTHER COSTS, SIGNALS	1.00	LS	$0.00000	$0.00

Total for Group 0053: $0.00

Group 0054: Landscaping

0214	L-MC-LSCP MAJOR COST DRIVERS, LANDSCAPING	1.00	LS	$0.00000	$0.00
0215	L-OC-LSCP OTHER COSTS, LANDSCAPING	1.00	LS	$0.00000	$0.00

Total for Group 0054: $0.00

Group 0055: Retaining Walls $125 + $10/ft for caps, barriers and testing

0216	M-MC-WALL MAJOR COST DRIVERS, RETAINING WALLS	1.00	LS	$0.00000	$0.00
0504	M-MC-WALL Retaining Walls	38,583.00	SF	$135.00000	$5,208,705.00

Total for Group 0055: $5,208,705.00

Group 0056: Other Retaining Wall Costs

0217	M-OC-WALL OTHER COSTS, RETAINING WALLS	1.00	LS	$0.00000	$0.00

Total for Group 0056: $0.00

Group 0057: Building Demolition

0218	N-MC-DEMO MAJOR COST DRIVERS, BUILDING DEMOLITION	1.00	LS	$0.00000	$0.00
0219	N-OC-DEMO OTHER COSTS, BUILDING DEMOLITION	1.00	LS	$0.00000	$0.00
0532	202E98100 REMOVAL MISC.: *Radio Tower*	0.00	EACH	$8,500.00000	$0.00
0533	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Small Residential*	0.00	EACH	$7,500.00000	$0.00
0534	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Large Residential*	0.00	EACH	$12,000.00000	$0.00
0535	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Small Commercial*	0.00	EACH	$15,000.00000	$0.00
0536	202E56101	0.00	EACH	$30,000.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	BUILDING DEMOLISHED, AS PER PLAN *Large Commercial*				

Total for Group 0057: $0.00

Group 0058: Noise Barrier

0220	P-MC-NSBR MAJOR COST DRIVERS, NOISE BARRIER	1.00	LS	$0.00000	$0.00
0505	P-MC-NSBR Noise Barrier	13,370.00	SF	$25.00000	$334,250.00

Total for Group 0058: $334,250.00

Group 0059: Other Noise Barrier Costs

0221	P-OC-NSBR OTHER COSTS, NOISE BARRIER	1.00	LS	$0.00000	$0.00
0368	P-MC-NSBR MAJOR COST DRIVERS, NOISE BARRIER	0.00	LS	$0.00000	$0.00

Total for Group 0059: $0.00

Group 0060: New Structures

0222	R-MC-STRC MAJOR COST DRIVERS, STRUCTURES	1.00	LS	$0.00000	$0.00
0506	R-MC-STRC Tier 1 Structures to 25' Height	57,283.00	SF	$125.00000	$7,160,375.00
0507	R-MC-STRC Removal of Existing Structures non-complex	2,637.00	SF	$12.00000	$31,644.00
0508	R-MC-STRC Standard Removal of Existing Structures above average complex	28,124.00	SF	$17.00000	$478,108.00
0509	R-MC-STRC Removal of Existing Structures complex to very complex	0.00	SF	$30.00000	$0.00
0513	R-MC-STRC Tier 2 Structures 25' to 50' Height	0.00	SF	$150.00000	$0.00
0516	R-MC-STRC Tier 3 Structures 50' to 75' Height	0.00	SF	$200.00000	$0.00

Total for Group 0060: $7,670,127.00

Group 0061: Rehabilitated Structures

0223	R-MC-STRC MAJOR COST DRIVERS, STRUCTURES	0.00	SF	$45.00000	$0.00

Total for Group 0061: $0.00

Group 0062: Other Structure Costs

0224	R-OC-STRC OTHER COSTS, STRUCTURES *Contingency*	0.00	LS	$0.00000	$0.00

Total for Group 0062: $0.00

Group 0063: Temporary Road and Pavement Costs

0225	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
				Total for Group 0063:	$0.00
Group 0064: Portable Concrete Barrier (PCB)					
0226	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
				Total for Group 0064:	$0.00
Group 0065: Impact Attenuators					
0227	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
				Total for Group 0065:	$0.00
Group 0066: Sheeting					
0229	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
				Total for Group 0066:	$0.00
Group 0067: Temporary Signals					
0230	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	0.00	LS	$0.00000	$0.00
				Total for Group 0067:	$0.00
Group 0068: Work Zone Lighting					
0231	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	0.00	LS	$0.00000	$0.00
				Total for Group 0068:	$0.00
Group 0069: Innovative Contracting Incentatives					
0232	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	0.00	LS	$0.00000	$0.00
				Total for Group 0069:	$0.00
Group 0070: Other MOT Costs					
0233	S-OC-MNTC OTHER COSTS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
0512	S-OC-MNTC OTHER COSTS, MAINTENANCE OF TRAFFIC	0.94	MILE	$500,000.00000	$470,000.00
				Total for Group 0070:	$470,000.00
Group 0071: Wetland Construction					
0234	T-MC-WTLD MAJOR COST DRIVERS, WETLAND CONSTRUCTION	0.00	LS	$0.00000	$0.00
0360	T-MC-WTLD MAJOR COST DRIVERS, WETLAND CONSTRUCTION	0.00	LS	$0.00000	$0.00
				Total for Group 0071:	$0.00
Group 0072: Misc. Costs					

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
0235	U-MC-MISC MAJOR COST DRIVERS, MISCELLANEOUS COSTS	0.00	LS	$0.00000	$0.00
0236	U-OC-MISC OTHER COSTS, MISCELLANEOUS COSTS	0.00	LS	$0.00000	$0.00
0237	100E00300 SPECIAL - PREMIUM ON RAILROADS' PROTECTIVE PUBLIC LIABILITY AND PROPERTY DAMAGE LIABILITY INSURANCE	0.00	LS	$10,000.00000	$0.00
0238	623E10000 CONSTRUCTION LAYOUT STAKES *0.5%*	1.00	LS	$86,831.97000	$86,831.97
0239	614E11000 MAINTAINING TRAFFIC *5%*	1.00	LS	$347,327.88000	$347,327.88
0240	619E16020 FIELD OFFICE, TYPE C	32.00	MNTH	$2,500.00000	$80,000.00
0242	624E10000 MOBILIZATION	1.00	LS	$400,000.00000	$400,000.00
0511	103E05000 PREMIUM FOR CONTRACT PERFORMANCE BOND AND FOR PAYMENT BOND *0.5%*	1.00	LS	$86,831.97000	$86,831.97

Total for Group 0072: $1,000,991.82

Group 0073: Design Contingency Costs

0243	V-MC-CNTG MAJOR COST DRIVERS, CONTINGENCY COSTS *25%*	1.00	LS	$4,591,846.46000	$4,591,846.46
0244	V-OC-CNTG OTHER COSTS, CONTINGENCY COSTS	1.00	LS	$0.00000	$0.00

Total for Group 0073: $4,591,846.46

Group 0074: Inflation Contingency

0266	V-OC-CNTG OTHER COSTS, CONTINGENCY COSTS	0.00	LS	$0.00000	$0.00

Total for Group 0074: $0.00

PID 89065 **County** HAM **Route** 75 **Section** 1.15 **This R/W Acquisition cost estimate is prepared for Alternative** I

Macro View

Acquisition	Unit (SF) or (Acreage)	X	Cost/Unit ($$/SF) ($$/Acre)	Subtotal Land Value	+	Structure Values (if Taken)	+	Damages (Loss in Value to the Residue)	Subtotal Structures & Damages	=	Total Non Labor Acquisition Costs
-Residential	0.01	X	$101,498.99	$1,015	+	0	+	N/A	$0.00	=	$1,014.99
-Commercial	0.01	X	$91,923.04	$919	+	0	+	N/A	$0.00	=	$919.23
-Industrial	0	X	$0.00	$0	+	0	+	N/A	$0.00	=	$0.00
-Park	0.28	X	$955.66	$268	+	0	+	N/A	$0.00	=	$267.58

Attributes

Parcel Count	Total Takes	Partial Takes	No. of Structures Impacted
1	0	1	0
2	0	2	0
0	0	0	0
1	0	1	0

Relocation	Unit (Displacement)	X	*RHP/*RSP	+	Move Cost	+	Reestablishment	=	Total Non Labor RAP Costs
-Residential									
Owner Occupant	0	X	$34,000	+	$6,000			=	$0
Tenant	0	X	$10,000	+	$1,750			=	$0
-Commerical/Farm/NPO									
Owner	0			X	$15,000	+	$10,000	=	$0
Tenant	0			X	$15,000	+	$10,000	=	$0
-Personal Property	0			X	$1,000			=	$0

Estimate amount of time necessary to relocate all RAP parcels = (months) 18

Estimate number of years until project wide R/W acquisition begins = 1.75

{[(Total Cost of Acquisition Cost)x0.90]x0.025}+{[(Total of Acquisition Cost)x0.15]x1.20}+{[(Total of Acquisition Cost)x0.10]x1.50} = Contingency

Contingency (Incidentals, Admin. Review & Appropriation)	776.1362978
Total Non Labor R/W Costs	$2,977.94

*RHP - Replacement Housing Payment
*RSP - Rent Supplemental Payment
*NPO - Non-Profit Organization

Instruction for Acquisition & Relocation Cost Estimates

Estimate the total number of acres involved in the project and allocate those acres into the four categories shown.

Assign an average unit price for each category. These unit prices are typically taken from the auditors tax card data. Cost Estimates prepared at Step 4 (Step 7 on Major Projects) and thereafter must base unit prices on a project sales data book instead of tax card data.

Add structure values from the auditors tax cards only if the structures are taken.

Damages must be assessed by a pre-qualified expert with experience in Before & After analysis. This usually occurs at Step 4 for Minor projects (Step 6 on Major Projects) and requires some knowledge of the impacts of the project on structures.

Relocation Cost Estimates must consider the complexity of the move process. All move estimates that involve a business or a mulit-tenant residential structure should use the services of a relocation Assistance professionnal to accurately gauge costs.

Macro View

Labor (External)	Unit (Parcels)	X	Unit Price	=	Total Cost
Titles	4	X	$400	=	$1,600
Appraisal					
-Simple	0	X	$750	=	$0
-Detailed	4	X	$4,500	=	$18,000
Appraisal Review					
-Simple	0	X	$500	=	$0
-Detailed	4	X	$2,000	=	$8,000
Negotiations	4	X	$1,100	=	$4,400
Relocations					
-Personal Property	0	X	$1,500	=	$0
-Residential	0	X	$5,200	=	$0
-Commercial/Farm/*NPO	0	X	$5,600	=	$0
Closings	4	X	$400	=	$1,600
Project Management	4	X	$550	=	$2,200
Asbestos Testing & Abatement		X		=	
	Total Labor Costs				$35,800

*NPO = Non-Profit Organization

This R/W Cost Estimate Prepared by	Date
Chris Clemons	8/4/2010

This R/W Cost Estimate was performed at Step 6 of the PDP for MAJOR Projects using

Total Labor Costs	$35,800.00
Total Non Labor R/W Costs	$2,977.94
Inflation Adjustments	$2,365.45
Total R/W Costs	**$41,143.39**

Instructions for Labor Cost Estimates

Labor costs are a function of time, distance, and talent. Labor costs estimates should reflect the complexity of the project and the talent necessary to acquire the right of way in a timely manner. The person making the cost estimate may adjust the figures given for the particular project being estimated to reflect local labor costs. It is critical that the estimate be labeled to reflect the alignment alternative, the step in the PDP process and the person(s) performing the estimate.

Comments

Cost/Unit were generated from auditors tax card data. Changed "Agriculture" category to "Park" to include the Queensgate Ballfields.

P.D.P. R/W Cost Estimator

Estimate Alt I OH cont 4

Estimated Cost: $29,959,628.59

Contingency: 32.90%

Estimated Total: $39,816,346.40

OH-4 Seventh St, Eigth St, Ninth St

Base Date: 07/22/10

Spec Year: 10

Unit System: E

Work Type: GEN CONST: INVLVS 2 OR MOR MAJ WRK TYPE

Highway Type: 451

Urban/Rural Type: URBAN CLASS

Season: SUMMER

County: HAMILTON

Midpoint of Latitude:

Midpoint of Longitude:

District: 8

Federal/State Project Number:

Estimate Type: C1

Prepared by Parsons Brinckerhoff on 07/22/10

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
Group 0001: Pavement Removal					
0001	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	0.00	LS	$0.00000	$0.00
0343	202E23000 PAVEMENT REMOVED	7,488.00	SY	$8.00000	$59,904.00
				Total for Group 0001:	$59,904.00
Group 0002: Excavation - Rock					
0003	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	0.00	CY	$30.00000	$0.00
				Total for Group 0002:	$0.00
Group 0003: Excavation - Soil					
0004	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0344	203E10000 EXCAVATION	45,208.00	CY	$8.00000	$361,664.00
				Total for Group 0003:	$361,664.00
Group 0004: Excavation - Hazardous					
0006	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
				Total for Group 0004:	$0.00
Group 0005: Fill - Embankment (includes wasting excess excavation)					
0007	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0345	203E20000 EMBANKMENT	45,208.00	CY	$6.00000	$271,248.00
				Total for Group 0005:	$271,248.00
Group 0006: Fill - Lime Modified Soil					
0010	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0346	205E10050 LIME STABILIZED EMBANKMENT	0.00	CY	$7.00000	$0.00
0347	205E10300 LIME	0.00	TON	$5.00000	$0.00
				Total for Group 0006:	$0.00
Group 0007: Fill - Borrow					
0011	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	0.00	CY	$8.00000	$0.00
				Total for Group 0007:	$0.00
Group 0008: Concrete Barrier					
0012	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0465	622E10060	0.00	FT	$110.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	CONCRETE BARRIER, SINGLE SLOPE, TYPE B				

Total for Group 0008: $0.00

Group 0009: Subgrade Treatment - Lime

0014	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0348	206E10000 LIME STABILIZED SUBGRADE	0.00	SY	$1.85000	$0.00
0349	206E10300 LIME	0.00	TON	$10.00000	$0.00
0350	206E11000 CURING COAT	0.00	SY	$1.00000	$0.00
0351	206E20000 TEST ROLLING	0.00	HOUR	$4.00000	$0.00

Total for Group 0009: $0.00

Group 0010: Subgrade Treatment - Cement

0016	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	17,679.00	SY	$2.50000	$44,197.50

Total for Group 0010: $44,197.50

Group 0011: Subgrade Treatment - Undercut & Backfill

0017	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00

Total for Group 0011: $0.00

Group 0012: Other Roadway Costs

0019	A-OC-RDWY OTHER COSTS, ROADWAY *Contingency*	0.00	LS	$0.00000	$0.00
0020	201E11000 CLEARING AND GRUBBING	0.00	LS	$856,500.00000	$0.00
0021	201E21800 TREE REMOVED, 18" SIZE	0.00	EACH	$250.00000	$0.00
0022	201E23000 TREE REMOVED, 30" SIZE	0.00	EACH	$405.00000	$0.00
0023	201E24800 TREE REMOVED, 48" SIZE	0.00	EACH	$772.00000	$0.00
0026	202E11000 STRUCTURE REMOVED	0.00	LS	$9,310.13000	$0.00
0028	202E35200 PIPE REMOVED, OVER 24"	0.00	FT	$0.00000	$0.00
0029	202E38000 GUARDRAIL REMOVED	0.00	FT	$0.00000	$0.00
0030	202E42206 ANCHOR ASSEMBLY REMOVED	0.00	EACH	$0.00000	$0.00
0031	202E58000 MANHOLE REMOVED	0.00	EACH	$0.00000	$0.00
0032	202E58100 CATCH BASIN REMOVED	0.00	EACH	$0.00000	$0.00
0033	202E75000 FENCE REMOVED	0.00	FT	$0.00000	$0.00
0034	204E45000	0.00	HOUR	$126.59000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	PROOF ROLLING				
0035	204E10000 SUBGRADE COMPACTION	0.00	SY	$0.81000	$0.00
0036	451E30000 SPECIAL - PRESSURE RELIEF JOINT, TYPE A	0.00	FT	$0.00000	$0.00
0037	606E13000 GUARDRAIL, TYPE 5	0.00	FT	$14.00000	$0.00
0038	606E22000 ANCHOR ASSEMBLY, TYPE B-98	0.00	EACH	$1,411.29597	$0.00
0039	606E22010 ANCHOR ASSEMBLY, TYPE E-98	0.00	EACH	$1,712.52574	$0.00
0040	606E26500 ANCHOR ASSEMBLY, TYPE T	0.00	EACH	$487.23435	$0.00
0041	606E35000 BRIDGE TERMINAL ASSEMBLY, TYPE 1	0.00	EACH	$969.12750	$0.00
0042	606E35100 BRIDGE TERMINAL ASSEMBLY, TYPE 2	0.00	EACH	$338.36354	$0.00
0043	606E60010 IMPACT ATTENUATOR, TYPE 1-98 (BIDIRECTIONAL)	0.00	EACH	$3,439.05897	$0.00
0044	607E15000 FENCE, TYPE 47 *For Fencing*	0.00	FT	$0.00000	$0.00
0423	304E20000 AGGREGATE BASE *For Fencing*	0.00	CY	$0.00000	$0.00
0424	601E32100 ROCK CHANNEL PROTECTION, TYPE B WITH FILTER *For Fencing*	0.00	CY	$0.00000	$0.00
0425	607E40500 GATE, TYPE 47 *For Fencing*	0.00	EACH	$731.31641	$0.00
0426	625E32000 GROUND ROD *For Fencing*	0.00	EACH	$0.00000	$0.00
0466		0.00		$0.00000	$0.00

Total for Group 0012: $0.00

Group 0014: Seeding & Mulching / Sodding

0045	B-MC-ERCO MAJOR COST DRIVERS, EROSION CONTROL	1.00	LS	$0.00000	$0.00
0467	659E10000 SEEDING AND MULCHING	5,080.00	SY	$1.00000	$5,080.00
0531	660E25000 SODDING STAKED	0.00	SY	$15.00000	$0.00

Total for Group 0014: $5,080.00

Group 0015: Rock Channel Protection

0047	B-MC-ERCO MAJOR COST DRIVERS, EROSION CONTROL	1.00	LS	$0.00000	$0.00
0469	601E32000 ROCK CHANNEL PROTECTION, TYPE A WITH FILTER	0.00	CY	$75.00000	$0.00

Total for Group 0015: $0.00

Group 0016: Erosion Control - Item 832

0048	B-MC-ERCO	1.00	LS	$0.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	MAJOR COST DRIVERS, EROSION CONTROL				
0470	832E10000 STORM WATER POLLUTION PREVENTION PLAN	1.00	LS	$50,000.00000	$50,000.00
0471	832E20000 EROSION CONTROL	24,000.00	EACH	$1.00000	$24,000.00

Total for Group 0016: $74,000.00

Group 0017: Other Erosion Control Costs

0049	670E00700 DITCH EROSION PROTECTION	0.00	SY	$0.00000	$0.00
0050	B-OC-ERCO OTHER COSTS, EROSION CONTROL	1.00	LS	$0.00000	$0.00
0051	659E00100 SOIL ANALYSIS TEST	0.00	EACH	$0.00000	$0.00
0052	659E00300 TOPSOIL	0.00	CY	$0.00000	$0.00
0053	659E14000 REPAIR SEEDING AND MULCHING	0.00	SY	$0.00000	$0.00
0054	659E15000 INTER-SEEDING	0.00	SY	$0.71000	$0.00
0055	659E20000 COMMERCIAL FERTILIZER	0.00	TON	$410.06813	$0.00
0056	659E31000 LIME	0.00	ACRE	$0.00000	$0.00
0057	659E35000 WATER	0.00	MGAL	$5.00000	$0.00
0058	659E40000 MOWING	0.00	MSF	$0.00000	$0.00

Total for Group 0017: $0.00

Group 0018: Underdrains

0059	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0062	605E05100 4" SHALLOW PIPE UNDERDRAINS	11,272.00	FT	$8.00000	$90,176.00

Total for Group 0018: $90,176.00

Group 0019: Culverts - Type A: < 5'

0474	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	0.00	LS	$0.00000	$0.00
0480	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Pipe Structures - Reinforced Concrete Pipe up to 60"*	0.00	FT	$350.00000	$0.00
0481	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Concrete Masonry*	0.00	EACH	$1,500.00000	$0.00

Total for Group 0019: $0.00

Group 0021: Culverts, Type A: 5' - 10'

0067	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0476	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	0.00	FT	$550.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	Pipe Structures - Reinforced Concrete 5'-10' 66" to 78"				
0477	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Concrete - Headwalls/wingwalls*	0.00	EACH	$1,500.00000	$0.00

Total for Group 0021: $0.00

Group 0022: Culverts, Type A: 10' - 20'

0486	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0487	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Pipe Structures - Reinforced Concrete Pipe 10'-20'*	0.00	FT	$1,400.00000	$0.00
0488	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Concrete Masonry*	0.00	EACH	$1,500.00000	$0.00

Total for Group 0022: $0.00

Group 0024: BMP's

0076	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00

Total for Group 0024: $0.00

Group 0025: Closed Storm System

0077	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0489	603E13400 30" CONDUIT, TYPE B (Average size)	221.00	FT	$75.00000	$16,575.00
0523	604E00800 CATCH BASIN, NO. 3A	12.00	EACH	$1,500.00000	$18,000.00
0524	604E31500 MANHOLE, NO. 3	0.00	EACH	$3,000.00000	$0.00
0525	604E36601 PRECAST REINFORCED CONCRETE OUTLET, AS PER PLAN	0.00	EACH	$1,250.00000	$0.00
0526	Special Pump Station (Storm)	0.00	LS	$6,400,000.00000	$0.00
0527	Special Stormceptors	0.00	EACH	$5,750.00000	$0.00
0529	Special Retention basin improvements	0.00	LS	$109,000.00000	$0.00

Total for Group 0025: $34,575.00

Group 0026: Other Drainage Costs

0078	C-OC-DRNG OTHER COSTS, DRAINAGE	1.00	LS	$0.00000	$0.00

Total for Group 0026: $0.00

Group 0027: Mainline - Travel Lanes

0095	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0494	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg Base and Subgrade Compaction*	0.00	SY	$68.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
				Total for Group 0027:	$0.00
Group 0028: Mainline - Outside Shoulder					
0100	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0495	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg base and Subgrade Compaction*	0.00	SY	$68.00000	$0.00
				Total for Group 0028:	$0.00
Group 0030: Mainline - Inside Shoulder					
0115	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0496	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg base and Subgrade Compaction*	0.00	SY	$68.00000	$0.00
				Total for Group 0030:	$0.00
Group 0031: Ramps (including shoulders)					
0122	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0497	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg base and Subgrade Compaction*	3,607.00	SY	$68.00000	$245,276.00
				Total for Group 0031:	$245,276.00
Group 0032: Non - Mainline Lanes					
0132	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0498	D-MC-PVMT Asphalt *Includes 3" 448, 9" 301, 6" Agg base and Subgrade Compaction*	14,072.00	SY	$41.00000	$576,952.00
				Total for Group 0032:	$576,952.00
Group 0041: Other Pavement Costs					
0163	D-OC-PVMT OTHER COSTS, PAVEMENT	1.00	LS	$0.00000	$0.00
				Total for Group 0041:	$0.00
Group 0042: Water Works					
0164	E-MC-WATR MAJOR COST DRIVERS, WATER LINE	0.00	LS	$0.00000	$0.00
0165	E-OC-WATR OTHER COSTS, WATER LINE	0.00	LS	$0.00000	$0.00
				Total for Group 0042:	$0.00
Group 0043: Sanitary Line					
0170	F-MC-SANI MAJOR COST DRIVERS, SANITARY SEWER	0.00	LS	$0.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
				Total for Group 0043:	$0.00
Group 0044: Lighting - Full Interchange					
0173	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	1.00	LS	$0.00000	$0.00
0499	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	0.00	EACH	$469,000.00000	$0.00
				Total for Group 0044:	$0.00
Group 0045: Lighting - Partial Interchange					
0288	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	0.00	LS	$0.00000	$0.00
				Total for Group 0045:	$0.00
Group 0046: Lighting - Continuous Roadway					
0176	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	1.00	LS	$0.00000	$0.00
0500	G-MC-LTNG Lighting - Continuous	5,299.00	FT	$35.00000	$185,465.00
				Total for Group 0046:	$185,465.00
Group 0047: Other Lighting Costs					
0177	G-OC-LTNG OTHER COSTS, LIGHTING	0.00	LS	$0.00000	$0.00
				Total for Group 0047:	$0.00
Group 0048: Traffic Surveillance					
0178	H-OC-SURV OTHER COSTS, TRAFFIC SURVEILLANCE	0.00	LS	$0.00000	$0.00
				Total for Group 0048:	$0.00
Group 0049: Signs					
0179	J-MC-TRAF MAJOR COST DRIVERS, TRAFFIC CONTROL	1.00	LS	$0.00000	$0.00
0501	J-MC-TRAF Signs	1.00	MILE	$250,000.00000	$250,000.00
				Total for Group 0049:	$250,000.00
Group 0050: Pavement Marking					
0200	J-MC-TRAF MAJOR COST DRIVERS, TRAFFIC CONTROL	1.00	LS	$0.00000	$0.00
0502	644E00100 EDGE LINE	2.20	MILE	$3,000.00000	$6,600.00
0503	644E00200 LANE LINE	0.95	MILE	$2,000.00000	$1,900.00
				Total for Group 0050:	$8,500.00
Group 0051: Other Traffic Control Costs					

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
0208	J-OC-TRAF OTHER COSTS, TRAFFIC CONTROL	1.00	LS	$0.00000	$0.00

Total for Group 0051: $0.00

Group 0052: Signals - Intersections

0212	K-MC-SGNL MAJOR COST DRIVERS, SIGNALS	1.00	LS	$0.00000	$0.00

Total for Group 0052: $0.00

Group 0053: Other Traffic Signal Costs

0213	K-OC-SGNL OTHER COSTS, SIGNALS	1.00	LS	$0.00000	$0.00

Total for Group 0053: $0.00

Group 0054: Landscaping

0214	L-MC-LSCP MAJOR COST DRIVERS, LANDSCAPING	1.00	LS	$0.00000	$0.00
0215	L-OC-LSCP OTHER COSTS, LANDSCAPING	1.00	LS	$0.00000	$0.00

Total for Group 0054: $0.00

Group 0055: Retaining Walls $125 + $10/ft for caps, barriers and testing

0216	M-MC-WALL MAJOR COST DRIVERS, RETAINING WALLS	1.00	LS	$0.00000	$0.00
0504	M-MC-WALL Retaining Walls	18,939.00	SF	$135.00000	$2,556,765.00

Total for Group 0055: $2,556,765.00

Group 0056: Other Retaining Wall Costs

0217	M-OC-WALL OTHER COSTS, RETAINING WALLS	1.00	LS	$0.00000	$0.00

Total for Group 0056: $0.00

Group 0057: Building Demolition

0218	N-MC-DEMO MAJOR COST DRIVERS, BUILDING DEMOLITION	1.00	LS	$0.00000	$0.00
0219	N-OC-DEMO OTHER COSTS, BUILDING DEMOLITION	1.00	LS	$0.00000	$0.00
0532	202E98100 REMOVAL MISC.: *Radio Tower*	0.00	EACH	$8,500.00000	$0.00
0533	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Large Commercial*	0.00	EACH	$30,000.00000	$0.00
0534	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Small Commercial*	1.00	EACH	$15,000.00000	$15,000.00
0535	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Large Residential*	0.00	EACH	$12,000.00000	$0.00
0536	202E56101	0.00	EACH	$7,500.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	BUILDING DEMOLISHED, AS PER PLAN *Small Residential*				

Total for Group 0057: $15,000.00

Group 0058: Noise Barrier

0220	P-MC-NSBR MAJOR COST DRIVERS, NOISE BARRIER	1.00	LS	$0.00000	$0.00
0505	P-MC-NSBR Noise Barrier	0.00	LS	$400.00000	$0.00

Total for Group 0058: $0.00

Group 0059: Other Noise Barrier Costs

0221	P-OC-NSBR OTHER COSTS, NOISE BARRIER	1.00	LS	$0.00000	$0.00
0368	P-MC-NSBR MAJOR COST DRIVERS, NOISE BARRIER	0.00	LS	$0.00000	$0.00

Total for Group 0059: $0.00

Group 0060: New Structures

0222	R-MC-STRC MAJOR COST DRIVERS, STRUCTURES	1.00	LS	$0.00000	$0.00
0506	R-MC-STRC Tier 1 Structures to 25' Height	0.00	SF	$125.00000	$0.00
0507	R-MC-STRC Removal of Existing Structures non-complex	0.00	SF	$12.00000	$0.00
0508	R-MC-STRC Standard Removal of Existing Structures above average complex	85,729.00	SF	$17.00000	$1,457,393.00
0509	R-MC-STRC Removal of Existing Structures complex to very complex	0.00	SF	$30.00000	$0.00
0513	R-MC-STRC Tier 2 Structures 25' to 50' Height	104,527.00	SF	$150.00000	$15,679,050.00
0516	R-MC-STRC Tier 3 Structures 50' to 75' Height	0.00	SF	$200.00000	$0.00

Total for Group 0060: $17,136,443.00

Group 0061: Rehabilitated Structures

0223	R-MC-STRC MAJOR COST DRIVERS, STRUCTURES	0.00	SF	$45.00000	$0.00

Total for Group 0061: $0.00

Group 0062: Other Structure Costs

0224	R-OC-STRC OTHER COSTS, STRUCTURES *Contingency*	0.00	LS	$0.00000	$0.00

Total for Group 0062: $0.00

Group 0063: Temporary Road and Pavement Costs

0225	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
				Total for Group 0063:	$0.00
Group 0064: Portable Concrete Barrier (PCB)					
0226	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
				Total for Group 0064:	$0.00
Group 0065: Impact Attenuators					
0227	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
				Total for Group 0065:	$0.00
Group 0066: Sheeting					
0229	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
				Total for Group 0066:	$0.00
Group 0067: Temporary Signals					
0230	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	0.00	LS	$0.00000	$0.00
				Total for Group 0067:	$0.00
Group 0068: Work Zone Lighting					
0231	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	0.00	LS	$0.00000	$0.00
				Total for Group 0068:	$0.00
Group 0069: Innovative Contracting Incentatives					
0232	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	0.00	LS	$0.00000	$0.00
				Total for Group 0069:	$0.00
Group 0070: Other MOT Costs					
0233	S-OC-MNTC OTHER COSTS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
0512	S-OC-MNTC OTHER COSTS, MAINTENANCE OF TRAFFIC	1.00	MILE	$500,000.00000	$500,000.00
				Total for Group 0070:	$500,000.00
Group 0071: Wetland Construction					
0234	T-MC-WTLD MAJOR COST DRIVERS, WETLAND CONSTRUCTION	0.00	LS	$0.00000	$0.00
0360	T-MC-WTLD MAJOR COST DRIVERS, WETLAND CONSTRUCTION	0.00	LS	$0.00000	$0.00
				Total for Group 0071:	$0.00
Group 0072: Misc. Costs					

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
0235	U-MC-MISC MAJOR COST DRIVERS, MISCELLANEOUS COSTS	0.00	LS	$0.00000	$0.00
0236	U-OC-MISC OTHER COSTS, MISCELLANEOUS COSTS	0.00	LS	$0.00000	$0.00
0237	100E00300 SPECIAL - PREMIUM ON RAILROADS' PROTECTIVE PUBLIC LIABILITY AND PROPERTY DAMAGE LIABILITY INSURANCE	0.00	LS	$10,000.00000	$0.00
0238	623E10000 CONSTRUCTION LAYOUT STAKES *0.5%*	1.00	LS	$112,076.23000	$112,076.23
0239	614E11000 MAINTAINING TRAFFIC *2%*	1.00	LS	$448,304.91000	$448,304.91
0240	619E16020 FIELD OFFICE, TYPE C	32.00	MNTH	$2,500.00000	$80,000.00
0242	624E10000 MOBILIZATION	1.00	LS	$800,000.00000	$800,000.00
0511	103E05000 PREMIUM FOR CONTRACT PERFORMANCE BOND AND FOR PAYMENT BOND *0.5%*	1.00	LS	$112,076.23000	$112,076.23

Total for Group 0072: $1,552,457.37

Group 0073: Design Contingency Costs

0243	V-MC-CNTG MAJOR COST DRIVERS, CONTINGENCY COSTS *25%*	1.00	LS	$5,991,925.72000	$5,991,925.72
0244	V-OC-CNTG OTHER COSTS, CONTINGENCY COSTS	1.00	LS	$0.00000	$0.00

Total for Group 0073: $5,991,925.72

Group 0074: Inflation Contingency

0266	V-OC-CNTG OTHER COSTS, CONTINGENCY COSTS	0.00	LS	$0.00000	$0.00

Total for Group 0074: $0.00

PID 89067 **County** HAM **Route** 75 **Section** 0.63 **This R/W Acquisition cost estimate is prepared for Alternative** I

Macro View

Acquisition	Unit (SF) or (Acreage)	X	Cost/Unit ($$/SF) ($$/Acre)	Subtotal Land Value	+	Structure Values (if Taken)	+	Damages (Loss in Value to the Residue)	Subtotal Structures & Damages	=	Total Non Labor Acquisition Costs
-Residential	0	X	$0.00	$0	+	0	+	N/A	$0.00	=	$0.00
-Commercial	0.49	X	$457,603.80	$224,226	+	2933200	+	N/A	$2,933,200.00	=	$3,157,425.86
-Industrial	0	X	$0.00	$0	+	0	+	N/A	$0.00	=	$0.00
-Agricultural	0	X	$0.00	$0	+	0	+	N/A	$0.00	=	$0.00

Attributes

Parcel Count	Total Takes	Partial Takes	No. of Structures Impacted
0	0	0	0
3	0	3	1
0	0	0	0
0	0	0	0

Relocation	Unit (Displacement)	X	*RHP/*RSP	+	Move Cost	+	Reestablishment	=	Total Non Labor RAP Costs
-Residential									
Owner Occupant	0	X	$34,000	+	$6,000			=	$0
Tenant	0	X	$10,000	+	$1,750			=	$0
-Commerical/Farm/NPO									
Owner	0			X	$15,000	+	$10,000	=	$0
Tenant	0			X	$15,000	+	$10,000	=	$0
-Personal Property	0			X	$1,000			=	$0

Estimate amount of time necessary to relocate all RAP parcels = (months) 18

Estimate number of years until project wide R/W acquisition begins = 1.75

{[(Total Cost of Acquisition Cost)x0.90]x0.025}+{[(Total of Acquisition Cost)x0.15]x1.20}+{[(Total of Acquisition Cost)x0.10]x1.50} = Contingency

Contingency (Incidentals, Admin. Review & Appropriation)	1112992.616
Total Non Labor R/W Costs	$4,270,418.48

*RHP - Replacement Housing Payment
*RSP - Rent Supplemental Payment
*NPO - Non-Profit Organization

Instruction for Acquisition & Relocation Cost Estimates

Estimate the total number of acres involved in the project and allocate those acres into the four categories shown.

Assign an average unit price for each category. These unit prices are typically taken from the auditors tax card data. Cost Estimates prepared at Step 4 (Step 7 on Major Projects) and thereafter must base unit prices on a project sales data book instead of tax card data.

Add structure values from the auditors tax cards only if the structures are taken.

Damages must be assessed by a pre-qualified expert with experience in Before & After analysis. This usually occurs at Step 4 for Minor projects (Step 6 on Major Projects) and requires some knowledge of the impacts of the project on structures.

Relocation Cost Estimates must consider the complexity of the move process. All move estimates that involve a business or a mulit-tenant residential structure should use the services of a relocation Assistance professionnal to accurately gauge costs.

Macro View

Labor (External)	Unit (Parcels)	X	Unit Price	=	Total Cost
Titles	3	X	$400	=	$1,200
Appraisal					
-Simple	1	X	$750	=	$750
-Detailed	2	X	$4,500	=	$9,000
Appraisal Review					
-Simple	1	X	$500	=	$500
-Detailed	2	X	$2,000	=	$4,000
Negotiations	3	X	$1,100	=	$3,300
Relocations					
-Personal Property	0	X	$1,500	=	$0
-Residential	0	X	$5,200	=	$0
-Commercial/Farm/*NPO	0	X	$5,600	=	$0
Closings	3	X	$400	=	$1,200
Project Management	3	X	$550	=	$1,650
Asbestos Testing & Abatement		X		=	
	Total Labor Costs				$21,600

*NPO = Non-Profit Organization

This R/W Cost Estimate Prepared by	Date
Chris Clemons	8/4/2010

This R/W Cost Estimate was performed at Step 6 of the PDP for MAJOR Projects using

Total Labor Costs	$21,600.00
Total Non Labor R/W Costs	$4,270,418.48
Inflation Adjustments	$261,813.13
Total R/W Costs	**$4,553,831.61**

Instructions for Labor Cost Estimates

Labor costs are a function of time, distance, and talent. Labor costs estimates should reflect the complexity of the project and the talent necessary to acquire the right of way in a timely manner. The person making the cost estimate may adjust the figures given for the particular project being estimated to reflect local labor costs. It is critical that the estimate be labeled to reflect the alignment alternative, the step in the PDP process and the person(s) performing the estimate.

Comments

Cost/Unit were generated from auditors tax card data.

P.D.P. R/W Cost Estimator

Estimate Alt I OH cont 5

Estimated Cost: $84,839,975.26

Contingency: 51.30%

Estimated Total: $128,362,882.57

Reconstruct I-75 from Findlay to the northern terminus of the corridor

Base Date: 07/22/10

Spec Year: 10

Unit System: E

Work Type: GEN CONST: INVLVS 2 OR MOR MAJ WRK TYPE

Highway Type: 451

Urban/Rural Type: URBAN CLASS

Season: SUMMER

County: HAMILTON

Midpoint of Latitude:

Midpoint of Longitude:

District: 8

Federal/State Project Number:

Estimate Type: C1

Prepared by Parsons Brinckerhoff on 07/22/10

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
Group 0001: Pavement Removal					
0001	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	0.00	LS	$0.00000	$0.00
0343	202E23000 PAVEMENT REMOVED	104,667.00	SY	$8.00000	$837,336.00
				Total for Group 0001:	$837,336.00
Group 0002: Excavation - Rock					
0003	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	0.00	CY	$30.00000	$0.00
				Total for Group 0002:	$0.00
Group 0003: Excavation - Soil					
0004	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0344	203E10000 EXCAVATION	77,557.00	CY	$8.00000	$620,456.00
				Total for Group 0003:	$620,456.00
Group 0004: Excavation - Hazardous					
0006	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
				Total for Group 0004:	$0.00
Group 0005: Fill - Embankment (includes wasting excess excavation)					
0007	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0345	203E20000 EMBANKMENT	117,928.00	CY	$6.00000	$707,568.00
				Total for Group 0005:	$707,568.00
Group 0006: Fill - Lime Modified Soil					
0010	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0346	205E10050 LIME STABILIZED EMBANKMENT	0.00	CY	$7.00000	$0.00
0347	205E10300 LIME	0.00	TON	$5.00000	$0.00
				Total for Group 0006:	$0.00
Group 0007: Fill - Borrow					
0011	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	40,371.00	CY	$8.00000	$322,968.00
				Total for Group 0007:	$322,968.00
Group 0008: Concrete Barrier					
0012	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0465	622E10060	17,612.00	FT	$110.00000	$1,937,320.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	CONCRETE BARRIER, SINGLE SLOPE, TYPE B				

Total for Group 0008: $1,937,320.00

Group 0009: Subgrade Treatment - Lime

0014	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0348	206E10000 LIME STABILIZED SUBGRADE	0.00	SY	$1.85000	$0.00
0349	206E10300 LIME	0.00	TON	$10.00000	$0.00
0350	206E11000 CURING COAT	0.00	SY	$1.00000	$0.00
0351	206E20000 TEST ROLLING	0.00	HOUR	$4.00000	$0.00

Total for Group 0009: $0.00

Group 0010: Subgrade Treatment - Cement

0016	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	136,698.00	SY	$2.50000	$341,745.00

Total for Group 0010: $341,745.00

Group 0011: Subgrade Treatment - Undercut & Backfill

0017	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00

Total for Group 0011: $0.00

Group 0012: Other Roadway Costs

0019	A-OC-RDWY OTHER COSTS, ROADWAY *Contingency*	0.00	LS	$0.00000	$0.00
0020	201E11000 CLEARING AND GRUBBING	0.00	LS	$856,500.00000	$0.00
0021	201E21800 TREE REMOVED, 18" SIZE	0.00	EACH	$250.00000	$0.00
0022	201E23000 TREE REMOVED, 30" SIZE	0.00	EACH	$405.00000	$0.00
0023	201E24800 TREE REMOVED, 48" SIZE	0.00	EACH	$772.00000	$0.00
0026	202E11000 STRUCTURE REMOVED	0.00	LS	$9,310.13000	$0.00
0028	202E35200 PIPE REMOVED, OVER 24"	0.00	FT	$0.00000	$0.00
0029	202E38000 GUARDRAIL REMOVED	0.00	FT	$0.00000	$0.00
0030	202E42206 ANCHOR ASSEMBLY REMOVED	0.00	EACH	$0.00000	$0.00
0031	202E58000 MANHOLE REMOVED	0.00	EACH	$0.00000	$0.00
0032	202E58100 CATCH BASIN REMOVED	0.00	EACH	$0.00000	$0.00
0033	202E75000 FENCE REMOVED	0.00	FT	$0.00000	$0.00
0034	204E45000	0.00	HOUR	$126.59000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	PROOF ROLLING				
0035	204E10000 SUBGRADE COMPACTION	0.00	SY	$0.81000	$0.00
0036	451E30000 SPECIAL - PRESSURE RELIEF JOINT, TYPE A	0.00	FT	$0.00000	$0.00
0037	606E13000 GUARDRAIL, TYPE 5	3,295.00	FT	$14.00000	$46,130.00
0038	606E22000 ANCHOR ASSEMBLY, TYPE B-98	0.00	EACH	$1,411.29597	$0.00
0039	606E22010 ANCHOR ASSEMBLY, TYPE E-98	0.00	EACH	$1,712.52574	$0.00
0040	606E26500 ANCHOR ASSEMBLY, TYPE T	0.00	EACH	$487.23435	$0.00
0041	606E35000 BRIDGE TERMINAL ASSEMBLY, TYPE 1	0.00	EACH	$969.12750	$0.00
0042	606E35100 BRIDGE TERMINAL ASSEMBLY, TYPE 2	0.00	EACH	$338.36354	$0.00
0043	606E60010 IMPACT ATTENUATOR, TYPE 1-98 (BIDIRECTIONAL)	0.00	EACH	$3,439.05897	$0.00
0044	607E15000 FENCE, TYPE 47 *For Fencing*	0.00	FT	$0.00000	$0.00
0423	304E20000 AGGREGATE BASE *For Fencing*	0.00	CY	$0.00000	$0.00
0424	601E32100 ROCK CHANNEL PROTECTION, TYPE B WITH FILTER *For Fencing*	0.00	CY	$0.00000	$0.00
0425	607E40500 GATE, TYPE 47 *For Fencing*	0.00	EACH	$731.31641	$0.00
0426	625E32000 GROUND ROD *For Fencing*	0.00	EACH	$0.00000	$0.00
0466		0.00		$0.00000	$0.00

Total for Group 0012: $46,130.00

Group 0014: Seeding & Mulching / Sodding

0045	B-MC-ERCO MAJOR COST DRIVERS, EROSION CONTROL	1.00	LS	$0.00000	$0.00
0467	659E10000 SEEDING AND MULCHING	0.00	SY	$1.00000	$0.00
0531	660E25000 SODDING STAKED	0.00	SY	$15.00000	$0.00

Total for Group 0014: $0.00

Group 0015: Rock Channel Protection

0047	B-MC-ERCO MAJOR COST DRIVERS, EROSION CONTROL	1.00	LS	$0.00000	$0.00
0469	601E32000 ROCK CHANNEL PROTECTION, TYPE A WITH FILTER	0.00	CY	$75.00000	$0.00

Total for Group 0015: $0.00

Group 0016: Erosion Control - Item 832

0048	B-MC-ERCO	1.00	LS	$0.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	MAJOR COST DRIVERS, EROSION CONTROL				
0470	832E10000 STORM WATER POLLUTION PREVENTION PLAN	1.00	LS	$50,000.00000	$50,000.00
0471	832E20000 EROSION CONTROL	35,000.00	EACH	$1.00000	$35,000.00

Total for Group 0016: $85,000.00

Group 0017: Other Erosion Control Costs

0049	670E00700 DITCH EROSION PROTECTION	0.00	SY	$0.00000	$0.00
0050	B-OC-ERCO OTHER COSTS, EROSION CONTROL	1.00	LS	$0.00000	$0.00
0051	659E00100 SOIL ANALYSIS TEST	0.00	EACH	$0.00000	$0.00
0052	659E00300 TOPSOIL	0.00	CY	$0.00000	$0.00
0053	659E14000 REPAIR SEEDING AND MULCHING	0.00	SY	$0.00000	$0.00
0054	659E15000 INTER-SEEDING	0.00	SY	$0.71000	$0.00
0055	659E20000 COMMERCIAL FERTILIZER	0.00	TON	$410.06813	$0.00
0056	659E31000 LIME	0.00	ACRE	$0.00000	$0.00
0057	659E35000 WATER	0.00	MGAL	$5.00000	$0.00
0058	659E40000 MOWING	0.00	MSF	$0.00000	$0.00

Total for Group 0017: $0.00

Group 0018: Underdrains

0059	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0062	605E05100 4" SHALLOW PIPE UNDERDRAINS	63,704.00	FT	$8.00000	$509,632.00

Total for Group 0018: $509,632.00

Group 0019: Culverts - Type A: < 5'

0474	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	0.00	LS	$0.00000	$0.00
0480	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Pipe Structures - Reinforced Concrete Pipe up to 60"*	0.00	FT	$350.00000	$0.00
0481	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Concrete Masonry*	0.00	EACH	$1,500.00000	$0.00

Total for Group 0019: $0.00

Group 0021: Culverts, Type A: 5' - 10'

0067	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0476	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	0.00	FT	$550.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	Pipe Structures - Reinforced Concrete 5'-10' 66" to 78"				
0477	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Concrete - Headwalls/wingwalls*	0.00	EACH	$1,500.00000	$0.00

Total for Group 0021: $0.00

Group 0022: Culverts, Type A: 10' - 20'

0486	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0487	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Pipe Structures - Reinforced Concrete Pipe 10'-20'*	0.00	FT	$1,400.00000	$0.00
0488	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Concrete Masonry*	0.00	EACH	$1,500.00000	$0.00

Total for Group 0022: $0.00

Group 0024: BMP's

0076	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00

Total for Group 0024: $0.00

Group 0025: Closed Storm System

0077	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0489	603E13400 30" CONDUIT, TYPE B (Average size)	11,504.00	FT	$75.00000	$862,800.00
0523	604E00800 CATCH BASIN, NO. 3A	152.00	EACH	$1,500.00000	$228,000.00
0524	604E31500 MANHOLE, NO. 3	15.00	EACH	$3,000.00000	$45,000.00
0525	604E36601 PRECAST REINFORCED CONCRETE OUTLET, AS PER PLAN	0.00	EACH	$1,250.00000	$0.00
0526	Special Pump Station (Storm)	0.00	LS	$6,400,000.00000	$0.00
0527	Special Stormceptors	0.00	EACH	$5,750.00000	$0.00
0529	Special Retention basin improvements	0.00	LS	$109,000.00000	$0.00

Total for Group 0025: $1,135,800.00

Group 0026: Other Drainage Costs

0078	C-OC-DRNG OTHER COSTS, DRAINAGE	1.00	LS	$0.00000	$0.00

Total for Group 0026: $0.00

Group 0027: Mainline - Travel Lanes

0095	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0494	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg Base and Subgrade Compaction*	68,870.00	SY	$68.00000	$4,683,160.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension

Total for Group 0027: $4,683,160.00

Group 0028: Mainline - Outside Shoulder

0100	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0495	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg base and Subgrade Compaction*	8,030.00	SY	$68.00000	$546,040.00

Total for Group 0028: $546,040.00

Group 0030: Mainline - Inside Shoulder

0115	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0496	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg base and Subgrade Compaction*	15,773.00	SY	$68.00000	$1,072,564.00

Total for Group 0030: $1,072,564.00

Group 0031: Ramps (including shoulders)

0122	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0497	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg base and Subgrade Compaction*	37,642.00	SY	$68.00000	$2,559,656.00

Total for Group 0031: $2,559,656.00

Group 0032: Non - Mainline Lanes

0132	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0498	D-MC-PVMT Asphalt *Includes 3" 448, 9" 301, 6" Agg base and Subgrade Compaction*	6,383.00	SY	$41.00000	$261,703.00

Total for Group 0032: $261,703.00

Group 0041: Other Pavement Costs

0163	D-OC-PVMT OTHER COSTS, PAVEMENT	1.00	LS	$0.00000	$0.00

Total for Group 0041: $0.00

Group 0042: Water Works

0164	E-MC-WATR MAJOR COST DRIVERS, WATER LINE	0.00	LS	$0.00000	$0.00
0165	E-OC-WATR OTHER COSTS, WATER LINE	0.00	LS	$0.00000	$0.00

Total for Group 0042: $0.00

Group 0043: Sanitary Line

0170	F-MC-SANI MAJOR COST DRIVERS, SANITARY SEWER	0.00	LS	$0.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
				Total for Group 0043:	$0.00
Group 0044: Lighting - Full Interchange					
0173	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	1.00	LS	$0.00000	$0.00
0499	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	1.00	EACH	$469,000.00000	$469,000.00
				Total for Group 0044:	$469,000.00
Group 0045: Lighting - Partial Interchange					
0288	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	0.00	LS	$0.00000	$0.00
				Total for Group 0045:	$0.00
Group 0046: Lighting - Continuous Roadway					
0176	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	1.00	LS	$0.00000	$0.00
0500	G-MC-LTNG Lighting - Continuous	9,226.00	FT	$35.00000	$322,910.00
				Total for Group 0046:	$322,910.00
Group 0047: Other Lighting Costs					
0177	G-OC-LTNG OTHER COSTS, LIGHTING	0.00	LS	$0.00000	$0.00
				Total for Group 0047:	$0.00
Group 0048: Traffic Surveillance					
0178	H-OC-SURV OTHER COSTS, TRAFFIC SURVEILLANCE	1.00	LS	$635,388.64000	$635,388.64
				Total for Group 0048:	$635,388.64
Group 0049: Signs					
0179	J-MC-TRAF MAJOR COST DRIVERS, TRAFFIC CONTROL	1.00	LS	$0.00000	$0.00
0501	J-MC-TRAF Signs	1.75	MILE	$250,000.00000	$437,500.00
				Total for Group 0049:	$437,500.00
Group 0050: Pavement Marking					
0200	J-MC-TRAF MAJOR COST DRIVERS, TRAFFIC CONTROL	1.00	LS	$0.00000	$0.00
0502	644E00100 EDGE LINE	11.68	MILE	$3,000.00000	$35,040.00
0503	644E00200 LANE LINE	11.53	MILE	$2,000.00000	$23,060.00
				Total for Group 0050:	$58,100.00
Group 0051: Other Traffic Control Costs					

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
0208	J-OC-TRAF OTHER COSTS, TRAFFIC CONTROL	1.00	LS	$0.00000	$0.00

Total for Group 0051: $0.00

Group 0052: Signals - Intersections

0212	K-MC-SGNL MAJOR COST DRIVERS, SIGNALS	3.00	EACH	$175,000.00000	$525,000.00

Total for Group 0052: $525,000.00

Group 0053: Other Traffic Signal Costs

0213	K-OC-SGNL OTHER COSTS, SIGNALS	1.00	LS	$0.00000	$0.00

Total for Group 0053: $0.00

Group 0054: Landscaping

0214	L-MC-LSCP MAJOR COST DRIVERS, LANDSCAPING	1.00	LS	$0.00000	$0.00
0215	L-OC-LSCP OTHER COSTS, LANDSCAPING	1.00	LS	$0.00000	$0.00

Total for Group 0054: $0.00

Group 0055: Retaining Walls $125 + $10/ft for caps, barriers and testing

0216	M-MC-WALL MAJOR COST DRIVERS, RETAINING WALLS	1.00	LS	$0.00000	$0.00
0504	M-MC-WALL Retaining Walls	113,592.00	SF	$135.00000	$15,334,920.00

Total for Group 0055: $15,334,920.00

Group 0056: Other Retaining Wall Costs

0217	M-OC-WALL OTHER COSTS, RETAINING WALLS	1.00	LS	$0.00000	$0.00

Total for Group 0056: $0.00

Group 0057: Building Demolition

0218	N-MC-DEMO MAJOR COST DRIVERS, BUILDING DEMOLITION	1.00	LS	$0.00000	$0.00
0219	N-OC-DEMO OTHER COSTS, BUILDING DEMOLITION	1.00	LS	$0.00000	$0.00
0532	202E98100 REMOVAL MISC.: *Radio Tower*	0.00	EACH	$8,500.00000	$0.00
0533	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Small Commercial*	2.00	EACH	$15,000.00000	$30,000.00
0534	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Large Commercial*	1.00	EACH	$30,000.00000	$30,000.00
0535	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Large Residential*	0.00	EACH	$12,000.00000	$0.00
0536	202E56101	0.00	EACH	$7,500.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	BUILDING DEMOLISHED, AS PER PLAN *Small Residential*				

Total for Group 0057: $60,000.00

Group 0058: Noise Barrier

0220	P-MC-NSBR MAJOR COST DRIVERS, NOISE BARRIER	1.00	LS	$0.00000	$0.00
0505	P-MC-NSBR Noise Barrier	0.00	LS	$25.00000	$0.00

Total for Group 0058: $0.00

Group 0059: Other Noise Barrier Costs

0221	P-OC-NSBR OTHER COSTS, NOISE BARRIER	1.00	LS	$0.00000	$0.00
0368	P-MC-NSBR MAJOR COST DRIVERS, NOISE BARRIER	0.00	LS	$0.00000	$0.00

Total for Group 0059: $0.00

Group 0060: New Structures

0222	R-MC-STRC MAJOR COST DRIVERS, STRUCTURES	1.00	LS	$0.00000	$0.00
0506	R-MC-STRC Tier 1 Structures to 25' Height	176,046.00	SF	$125.00000	$22,005,750.00
0507	R-MC-STRC Removal of Existing Structures non-complex	0.00	SF	$12.00000	$0.00
0508	R-MC-STRC Standard Removal of Existing Structures above average complex	100,928.00	SF	$17.00000	$1,715,776.00
0509	R-MC-STRC Removal of Existing Structures complex to very complex	58,771.00	SF	$30.00000	$1,763,130.00
0513	R-MC-STRC Tier 2 Structures 25' to 50' Height	28,698.00	SF	$150.00000	$4,304,700.00
0516	R-MC-STRC Tier 3 Structures 50' to 75' Height	0.00	SF	$200.00000	$0.00

Total for Group 0060: $29,789,356.00

Group 0061: Rehabilitated Structures

0223	R-MC-STRC MAJOR COST DRIVERS, STRUCTURES	0.00	SF	$45.00000	$0.00

Total for Group 0061: $0.00

Group 0062: Other Structure Costs

0224	R-OC-STRC OTHER COSTS, STRUCTURES *Contingency*	0.00	LS	$0.00000	$0.00

Total for Group 0062: $0.00

Group 0063: Temporary Road and Pavement Costs

0225	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
				Total for Group 0063:	$0.00
Group 0064: Portable Concrete Barrier (PCB)					
0226	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
				Total for Group 0064:	$0.00
Group 0065: Impact Attenuators					
0227	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
				Total for Group 0065:	$0.00
Group 0066: Sheeting					
0229	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
				Total for Group 0066:	$0.00
Group 0067: Temporary Signals					
0230	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	0.00	LS	$0.00000	$0.00
				Total for Group 0067:	$0.00
Group 0068: Work Zone Lighting					
0231	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	0.00	LS	$0.00000	$0.00
				Total for Group 0068:	$0.00
Group 0069: Innovative Contracting Incentatives					
0232	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	0.00	LS	$0.00000	$0.00
				Total for Group 0069:	$0.00
Group 0070: Other MOT Costs					
0233	S-OC-MNTC OTHER COSTS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
0512	S-OC-MNTC OTHER COSTS, MAINTENANCE OF TRAFFIC	1.75	MILE	$500,000.00000	$875,000.00
				Total for Group 0070:	$875,000.00
Group 0071: Wetland Construction					
0234	T-MC-WTLD MAJOR COST DRIVERS, WETLAND CONSTRUCTION	0.00	LS	$0.00000	$0.00
0360	T-MC-WTLD MAJOR COST DRIVERS, WETLAND CONSTRUCTION	0.00	LS	$0.00000	$0.00
				Total for Group 0071:	$0.00
Group 0072: Misc. Costs					

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
0235	U-MC-MISC MAJOR COST DRIVERS, MISCELLANEOUS COSTS	0.00	LS	$0.00000	$0.00
0236	U-OC-MISC OTHER COSTS, MISCELLANEOUS COSTS	0.00	LS	$0.00000	$0.00
0237	100E00300 SPECIAL - PREMIUM ON RAILROADS' PROTECTIVE PUBLIC LIABILITY AND PROPERTY DAMAGE LIABILITY INSURANCE	1.00	LS	$10,000.00000	$10,000.00
0238	623E10000 CONSTRUCTION LAYOUT STAKES *0.5%*	1.00	LS	$320,871.26000	$320,871.26
0239	614E11000 MAINTAINING TRAFFIC *5%*	1.00	LS	$1,283,485.05000	$1,283,485.05
0240	619E16020 FIELD OFFICE, TYPE C	65.00	MNTH	$2,500.00000	$162,500.00
0242	624E10000 MOBILIZATION	1.00	LS	$1,600,000.00000	$1,600,000.00
0511	103E05000 PREMIUM FOR CONTRACT PERFORMANCE BOND AND FOR PAYMENT BOND *0.5%*	1.00	LS	$320,871.26000	$320,871.26

Total for Group 0072: $3,697,727.57

Group 0073: Design Contingency Costs

0243	V-MC-CNTG MAJOR COST DRIVERS, CONTINGENCY COSTS *25%*	1.00	LS	$16,967,995.05000	$16,967,995.05
0244	V-OC-CNTG OTHER COSTS, CONTINGENCY COSTS	1.00	LS	$0.00000	$0.00

Total for Group 0073: $16,967,995.05

Group 0074: Inflation Contingency

0266	V-OC-CNTG OTHER COSTS, CONTINGENCY COSTS	0.00	LS	$0.00000	$0.00

Total for Group 0074: $0.00

PID 89069 **County** HAM **Route** 75 **Section** 1.9 **This R/W Acquisition cost estimate is prepared for Alternative** I

Macro View

Acquisition	Unit (SF) or (Acreage)	X	Cost/Unit ($$/SF) ($$/Acre)	Subtotal Land Value	+	Structure Values (if Taken)	+	Damages (Loss in Value to the Residue)	Subtotal Structures & Damages	=	Total Non Labor Acquisition Costs
-Residential	0	X	$0.00	$0	+	0	+	N/A	$0.00	=	$0.00
-Commercial	0.25	X	$122,978.79	$30,745	+	355150	+	N/A	$355,150.00	=	$385,894.70
-Industrial	1.16	X	$71,861.63	$83,359	+	242100	+	N/A	$242,100.00	=	$325,459.49
-Agricultural	0	X	$0.00	$0	+	0	+	N/A	$0.00	=	$0.00

Attributes

Parcel Count	Total Takes	Partial Takes	No. of Structures Impacted
0	0	0	0
8	0	8	1
12	4	8	2
0	0	0	0

Relocation	Unit (Displacement)	X	*RHP/*RSP	+	Move Cost	+	Reestablishment	=	Total Non Labor RAP Costs
-Residential									
Owner Occupant	0	X	$34,000	+	$6,000			=	$0
Tenant	0	X	$10,000	+	$1,750			=	$0
-Commerical/Farm/NPO									
Owner	2			X	$15,000	+	$10,000	=	$50,000
Tenant	1			X	$15,000	+	$10,000	=	$25,000
-Personal Property	0			X	$1,000			=	$0

Estimate amount of time necessary to relocate all RAP parcels = (months) 24

Estimate number of years until project wide R/W acquisition begins = 2

{[(Total Cost of Acquisition Cost)x0.90]x0.025}+{[(Total of Acquisition Cost)x0.15]x1.20}+{[(Total of Acquisition Cost)x0.10]x1.50} = Contingency

Contingency (Incidentals, Admin. Review & Appropriation)	250752.3514
Total Non Labor R/W Costs	$1,037,106.54

*RHP - Replacement Housing Payment
*RSP - Rent Supplemental Payment
*NPO - Non-Profit Organization

Instruction for Acquisition & Relocation Cost Estimates

Estimate the total number of acres involved in the project and allocate those acres into the four categories shown.

Assign an average unit price for each category. These unit prices are typically taken from the auditors tax card data. Cost Estimates prepared at Step 4 (Step 7 on Major Projects) and thereafter must base unit prices on a project sales data book instead of tax card data.

Add structure values from the auditors tax cards only if the structures are taken.

Damages must be assessed by a pre-qualified expert with experience in Before & After analysis. This usually occurs at Step 4 for Minor projects (Step 6 on Major Projects) and requires some knowledge of the impacts of the project on structures.

Relocation Cost Estimates must consider the complexity of the move process. All move estimates that involve a business or a mulit-tenant residential structure should use the services of a relocation Assistance professionnal to accurately gauge costs.

Macro View

Labor (External)	Unit (Parcels)	X	Unit Price	=	Total Cost
Titles	20	X	$400	=	$8,000
Appraisal					
-Simple	7	X	$750	=	$5,250
-Detailed	13	X	$4,500	=	$58,500
Appraisal Review					
-Simple	7	X	$500	=	$3,500
-Detailed	13	X	$2,000	=	$26,000
Negotiations	20	X	$1,100	=	$22,000
Relocations					
-Personal Property	0	X	$1,500	=	$0
-Residential	0	X	$5,200	=	$0
-Commercial/Farm/*NPO	3	X	$5,600	=	$16,800
Closings	20	X	$400	=	$8,000
Project Management	20	X	$550	=	$11,000
Asbestos Testing & Abatement		X		=	
	Total Labor Costs				$159,050

*NPO = Non-Profit Organization

This R/W Cost Estimate Prepared by	Date
Chris Clemons	8/9/2010

This R/W Cost Estimate was performed at Step 6 of the PDP for MAJOR Projects using

Total Labor Costs	$159,050.00
Total Non Labor R/W Costs	$1,037,106.54
Inflation Adjustments	$98,084.84
Total R/W Costs	**$1,294,241.38**

Instructions for Labor Cost Estimates

Labor costs are a function of time, distance, and talent. Labor costs estimates should reflect the complexity of the project and the talent necessary to acquire the right of way in a timely manner. The person making the cost estimate may adjust the figures given for the particular project being estimated to reflect local labor costs. It is critical that the estimate be labeled to reflect the alignment alternative, the step in the PDP process and the person(s) performing the estimate.

Comments

Cost/Unit were generated from auditors tax card data.

P.D.P. R/W Cost Estimator

Estimate Alt I OH cont 6

Estimated Cost: $31,450,188.58

Contingency: 57.60%

Estimated Total: $49,565,497.20

Reconstruction from north of Linn St to Findlay St

Base Date: 07/22/10

Spec Year: 10

Unit System: E

Work Type: GEN CONST: INVLVS 2 OR MOR MAJ WRK TYPE

Highway Type: 451

Urban/Rural Type: URBAN CLASS

Season: SUMMER

County: HAMILTON

Midpoint of Latitude:

Midpoint of Longitude:

District: 8

Federal/State Project Number:

Estimate Type: C1

Prepared by Parsons Brinckerhoff on 07/22/10

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
Group 0001: Pavement Removal					
0001	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	0.00	LS	$0.00000	$0.00
0343	202E23000 PAVEMENT REMOVED	72,055.00	SY	$8.00000	$576,440.00
				Total for Group 0001:	$576,440.00
Group 0002: Excavation - Rock					
0003	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	0.00	CY	$30.00000	$0.00
				Total for Group 0002:	$0.00
Group 0003: Excavation - Soil					
0004	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0344	203E10000 EXCAVATION	171,489.00	CY	$8.00000	$1,371,912.00
				Total for Group 0003:	$1,371,912.00
Group 0004: Excavation - Hazardous					
0006	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
				Total for Group 0004:	$0.00
Group 0005: Fill - Embankment (includes wasting excess excavation)					
0007	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0345	203E20000 EMBANKMENT	171,489.00	CY	$6.00000	$1,028,934.00
				Total for Group 0005:	$1,028,934.00
Group 0006: Fill - Lime Modified Soil					
0010	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0346	205E10050 LIME STABILIZED EMBANKMENT	0.00	CY	$7.00000	$0.00
0347	205E10300 LIME	0.00	TON	$5.00000	$0.00
				Total for Group 0006:	$0.00
Group 0007: Fill - Borrow					
0011	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	0.00	CY	$8.00000	$0.00
				Total for Group 0007:	$0.00
Group 0008: Concrete Barrier					
0012	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0465	622E10060	10,712.00	FT	$110.00000	$1,178,320.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	CONCRETE BARRIER, SINGLE SLOPE, TYPE B				

Total for Group 0008: $1,178,320.00

Group 0009: Subgrade Treatment - Lime

0014	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0348	206E10000 LIME STABILIZED SUBGRADE	0.00	SY	$1.85000	$0.00
0349	206E10300 LIME	0.00	TON	$10.00000	$0.00
0350	206E11000 CURING COAT	0.00	SY	$1.00000	$0.00
0351	206E20000 TEST ROLLING	0.00	HOUR	$4.00000	$0.00

Total for Group 0009: $0.00

Group 0010: Subgrade Treatment - Cement

0016	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	97,995.00	SY	$2.50000	$244,987.50

Total for Group 0010: $244,987.50

Group 0011: Subgrade Treatment - Undercut & Backfill

0017	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00

Total for Group 0011: $0.00

Group 0012: Other Roadway Costs

0019	A-OC-RDWY OTHER COSTS, ROADWAY *Contingency*	0.00	LS	$0.00000	$0.00
0020	201E11000 CLEARING AND GRUBBING	0.00	LS	$856,500.00000	$0.00
0021	201E21800 TREE REMOVED, 18" SIZE	0.00	EACH	$250.00000	$0.00
0022	201E23000 TREE REMOVED, 30" SIZE	0.00	EACH	$405.00000	$0.00
0023	201E24800 TREE REMOVED, 48" SIZE	0.00	EACH	$772.00000	$0.00
0026	202E11000 STRUCTURE REMOVED	0.00	LS	$9,310.13000	$0.00
0028	202E35200 PIPE REMOVED, OVER 24"	0.00	FT	$0.00000	$0.00
0029	202E38000 GUARDRAIL REMOVED	0.00	FT	$0.00000	$0.00
0030	202E42206 ANCHOR ASSEMBLY REMOVED	0.00	EACH	$0.00000	$0.00
0031	202E58000 MANHOLE REMOVED	0.00	EACH	$0.00000	$0.00
0032	202E58100 CATCH BASIN REMOVED	0.00	EACH	$0.00000	$0.00
0033	202E75000 FENCE REMOVED	0.00	FT	$0.00000	$0.00
0034	204E45000	0.00	HOUR	$126.59000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	PROOF ROLLING				
0035	204E10000 SUBGRADE COMPACTION	0.00	SY	$0.81000	$0.00
0036	451E30000 SPECIAL - PRESSURE RELIEF JOINT, TYPE A	0.00	FT	$0.00000	$0.00
0037	606E13000 GUARDRAIL, TYPE 5	2,291.00	FT	$14.00000	$32,074.00
0038	606E22000 ANCHOR ASSEMBLY, TYPE B-98	0.00	EACH	$1,411.29597	$0.00
0039	606E22010 ANCHOR ASSEMBLY, TYPE E-98	0.00	EACH	$1,712.52574	$0.00
0040	606E26500 ANCHOR ASSEMBLY, TYPE T	0.00	EACH	$487.23435	$0.00
0041	606E35000 BRIDGE TERMINAL ASSEMBLY, TYPE 1	0.00	EACH	$969.12750	$0.00
0042	606E35100 BRIDGE TERMINAL ASSEMBLY, TYPE 2	0.00	EACH	$338.36354	$0.00
0043	606E60010 IMPACT ATTENUATOR, TYPE 1-98 (BIDIRECTIONAL)	0.00	EACH	$3,439.05897	$0.00
0044	607E15000 FENCE, TYPE 47 *For Fencing*	0.00	FT	$0.00000	$0.00
0423	304E20000 AGGREGATE BASE *For Fencing*	0.00	CY	$0.00000	$0.00
0424	601E32100 ROCK CHANNEL PROTECTION, TYPE B WITH FILTER *For Fencing*	0.00	CY	$0.00000	$0.00
0425	607E40500 GATE, TYPE 47 *For Fencing*	0.00	EACH	$731.31641	$0.00
0426	625E32000 GROUND ROD *For Fencing*	0.00	EACH	$0.00000	$0.00
0466		0.00		$0.00000	$0.00

Total for Group 0012: $32,074.00

Group 0014: Seeding & Mulching / Sodding

0045	B-MC-ERCO MAJOR COST DRIVERS, EROSION CONTROL	1.00	LS	$0.00000	$0.00
0467	659E10000 SEEDING AND MULCHING	0.00	SY	$1.00000	$0.00
0531	660E25000 SODDING STAKED	0.00	SY	$15.00000	$0.00

Total for Group 0014: $0.00

Group 0015: Rock Channel Protection

0047	B-MC-ERCO MAJOR COST DRIVERS, EROSION CONTROL	1.00	LS	$0.00000	$0.00
0469	601E32000 ROCK CHANNEL PROTECTION, TYPE A WITH FILTER	0.00	CY	$75.00000	$0.00

Total for Group 0015: $0.00

Group 0016: Erosion Control - Item 832

0048	B-MC-ERCO	1.00	LS	$0.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	MAJOR COST DRIVERS, EROSION CONTROL				
0470	832E10000 STORM WATER POLLUTION PREVENTION PLAN	1.00	LS	$50,000.00000	$50,000.00
0471	832E20000 EROSION CONTROL	42,000.00	EACH	$1.00000	$42,000.00

Total for Group 0016: $92,000.00

Group 0017: Other Erosion Control Costs

0049	670E00700 DITCH EROSION PROTECTION	0.00	SY	$0.00000	$0.00
0050	B-OC-ERCO OTHER COSTS, EROSION CONTROL	1.00	LS	$0.00000	$0.00
0051	659E00100 SOIL ANALYSIS TEST	0.00	EACH	$0.00000	$0.00
0052	659E00300 TOPSOIL	0.00	CY	$0.00000	$0.00
0053	659E14000 REPAIR SEEDING AND MULCHING	0.00	SY	$0.00000	$0.00
0054	659E15000 INTER-SEEDING	0.00	SY	$0.71000	$0.00
0055	659E20000 COMMERCIAL FERTILIZER	0.00	TON	$410.06813	$0.00
0056	659E31000 LIME	0.00	ACRE	$0.00000	$0.00
0057	659E35000 WATER	0.00	MGAL	$5.00000	$0.00
0058	659E40000 MOWING	0.00	MSF	$0.00000	$0.00

Total for Group 0017: $0.00

Group 0018: Underdrains

0059	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0062	605E05100 4" SHALLOW PIPE UNDERDRAINS	49,472.00	FT	$8.00000	$395,776.00

Total for Group 0018: $395,776.00

Group 0019: Culverts - Type A: < 5'

0474	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	0.00	LS	$0.00000	$0.00
0480	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Pipe Structures - Reinforced Concrete Pipe up to 60"*	0.00	FT	$350.00000	$0.00
0481	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Concrete Masonry*	0.00	EACH	$1,500.00000	$0.00

Total for Group 0019: $0.00

Group 0021: Culverts, Type A: 5' - 10'

0067	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0476	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	0.00	FT	$550.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	Pipe Structures - Reinforced Concrete 5'-10' 66" to 78"				
0477	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Concrete - Headwalls/wingwalls*	0.00	EACH	$1,500.00000	$0.00

Total for Group 0021: $0.00

Group 0022: Culverts, Type A: 10' - 20'

0486	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0487	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Pipe Structures - Reinforced Concrete Pipe 10'-20'*	0.00	FT	$1,400.00000	$0.00
0488	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Concrete Masonry*	0.00	EACH	$1,500.00000	$0.00

Total for Group 0022: $0.00

Group 0024: BMP's

0076	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00

Total for Group 0024: $0.00

Group 0025: Closed Storm System

0077	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0489	603E13400 30" CONDUIT, TYPE B (Average size)	8,090.00	FT	$75.00000	$606,750.00
0523	604E00800 CATCH BASIN, NO. 3A	71.00	EACH	$1,500.00000	$106,500.00
0524	604E31500 MANHOLE, NO. 3	9.00	EACH	$3,000.00000	$27,000.00
0525	604E36601 PRECAST REINFORCED CONCRETE OUTLET, AS PER PLAN	0.00	EACH	$1,250.00000	$0.00
0526	Special Pump Station (Storm)	0.00	LS	$6,400,000.00000	$0.00
0527	Special Stormceptors	0.00	EACH	$5,750.00000	$0.00
0529	Special Retention basin improvements	0.00	LS	$109,000.00000	$0.00

Total for Group 0025: $740,250.00

Group 0026: Other Drainage Costs

0078	C-OC-DRNG OTHER COSTS, DRAINAGE	1.00	LS	$0.00000	$0.00

Total for Group 0026: $0.00

Group 0027: Mainline - Travel Lanes

0095	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0494	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg Base and Subgrade Compaction*	73,584.00	SY	$68.00000	$5,003,712.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension

Total for Group 0027: $5,003,712.00

Group 0028: Mainline - Outside Shoulder

0100	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0495	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg base and Subgrade Compaction*	10,683.00	SY	$68.00000	$726,444.00

Total for Group 0028: $726,444.00

Group 0030: Mainline - Inside Shoulder

0115	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0496	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg base and Subgrade Compaction*	13,728.00	SY	$68.00000	$933,504.00

Total for Group 0030: $933,504.00

Group 0031: Ramps (including shoulders)

0122	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0497	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg base and Subgrade Compaction*	0.00	SY	$68.00000	$0.00

Total for Group 0031: $0.00

Group 0032: Non - Mainline Lanes

0132	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0498	D-MC-PVMT Asphalt *Includes 3" 448, 9" 301, 6" Agg base and Subgrade Compaction*	0.00	SY	$41.00000	$0.00

Total for Group 0032: $0.00

Group 0041: Other Pavement Costs

0163	D-OC-PVMT OTHER COSTS, PAVEMENT	1.00	LS	$0.00000	$0.00

Total for Group 0041: $0.00

Group 0042: Water Works

0164	E-MC-WATR MAJOR COST DRIVERS, WATER LINE	0.00	LS	$0.00000	$0.00
0165	E-OC-WATR OTHER COSTS, WATER LINE	0.00	LS	$0.00000	$0.00

Total for Group 0042: $0.00

Group 0043: Sanitary Line

0170	F-MC-SANI MAJOR COST DRIVERS, SANITARY SEWER	0.00	LS	$0.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
				Total for Group 0043:	$0.00
Group 0044: Lighting - Full Interchange					
0173	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	1.00	LS	$0.00000	$0.00
0499	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	0.00	EACH	$469,000.00000	$0.00
				Total for Group 0044:	$0.00
Group 0045: Lighting - Partial Interchange					
0288	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	0.00	LS	$0.00000	$0.00
				Total for Group 0045:	$0.00
Group 0046: Lighting - Continuous Roadway					
0176	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	1.00	LS	$0.00000	$0.00
0500	G-MC-LTNG Lighting - Continuous	4,272.00	FT	$35.00000	$149,520.00
				Total for Group 0046:	$149,520.00
Group 0047: Other Lighting Costs					
0177	G-OC-LTNG OTHER COSTS, LIGHTING	0.00	LS	$0.00000	$0.00
				Total for Group 0047:	$0.00
Group 0048: Traffic Surveillance					
0178	H-OC-SURV OTHER COSTS, TRAFFIC SURVEILLANCE	1.00	LS	$233,107.29000	$233,107.29
				Total for Group 0048:	$233,107.29
Group 0049: Signs					
0179	J-MC-TRAF MAJOR COST DRIVERS, TRAFFIC CONTROL	1.00	LS	$0.00000	$0.00
0501	J-MC-TRAF Signs	0.81	MILE	$250,000.00000	$202,500.00
				Total for Group 0049:	$202,500.00
Group 0050: Pavement Marking					
0200	J-MC-TRAF MAJOR COST DRIVERS, TRAFFIC CONTROL	1.00	LS	$0.00000	$0.00
0502	644E00100 EDGE LINE	3.66	MILE	$3,000.00000	$10,980.00
0503	644E00200 LANE LINE	5.81	MILE	$2,000.00000	$11,620.00
				Total for Group 0050:	$22,600.00
Group 0051: Other Traffic Control Costs					

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
0208	J-OC-TRAF OTHER COSTS, TRAFFIC CONTROL	1.00	LS	$0.00000	$0.00

Total for Group 0051: $0.00

Group 0052: Signals - Intersections

0212	K-MC-SGNL MAJOR COST DRIVERS, SIGNALS	1.00	LS	$0.00000	$0.00

Total for Group 0052: $0.00

Group 0053: Other Traffic Signal Costs

0213	K-OC-SGNL OTHER COSTS, SIGNALS	1.00	LS	$0.00000	$0.00

Total for Group 0053: $0.00

Group 0054: Landscaping

0214	L-MC-LSCP MAJOR COST DRIVERS, LANDSCAPING	1.00	LS	$0.00000	$0.00
0215	L-OC-LSCP OTHER COSTS, LANDSCAPING	1.00	LS	$0.00000	$0.00

Total for Group 0054: $0.00

Group 0055: Retaining Walls $125 + $10/ft for caps, barriers and testing

0216	M-MC-WALL MAJOR COST DRIVERS, RETAINING WALLS	1.00	LS	$0.00000	$0.00
0504	M-MC-WALL Retaining Walls	29,621.00	SF	$135.00000	$3,998,835.00

Total for Group 0055: $3,998,835.00

Group 0056: Other Retaining Wall Costs

0217	M-OC-WALL OTHER COSTS, RETAINING WALLS	1.00	LS	$0.00000	$0.00

Total for Group 0056: $0.00

Group 0057: Building Demolition

0218	N-MC-DEMO MAJOR COST DRIVERS, BUILDING DEMOLITION	1.00	LS	$0.00000	$0.00
0219	N-OC-DEMO OTHER COSTS, BUILDING DEMOLITION	1.00	LS	$0.00000	$0.00
0532	202E98100 REMOVAL MISC.: *Radio Tower*	0.00	EACH	$8,500.00000	$0.00
0533	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Small Commercial*	0.00	EACH	$15,000.00000	$0.00
0534	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Large Commercial*	0.00	EACH	$30,000.00000	$0.00
0535	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Large Residential*	0.00	EACH	$12,000.00000	$0.00
0536	202E56101	0.00	EACH	$7,500.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	BUILDING DEMOLISHED, AS PER PLAN *Small Residential*				

Total for Group 0057: $0.00

Group 0058: Noise Barrier

0220	P-MC-NSBR MAJOR COST DRIVERS, NOISE BARRIER	1.00	LS	$0.00000	$0.00
0505	P-MC-NSBR Noise Barrier	42,806.00	SF	$25.00000	$1,070,150.00

Total for Group 0058: $1,070,150.00

Group 0059: Other Noise Barrier Costs

0221	P-OC-NSBR OTHER COSTS, NOISE BARRIER	1.00	LS	$0.00000	$0.00
0368	P-MC-NSBR MAJOR COST DRIVERS, NOISE BARRIER	0.00	LS	$0.00000	$0.00

Total for Group 0059: $0.00

Group 0060: New Structures

0222	R-MC-STRC MAJOR COST DRIVERS, STRUCTURES	1.00	LS	$0.00000	$0.00
0506	R-MC-STRC Tier 1 Structures to 25' Height	36,980.00	SF	$125.00000	$4,622,500.00
0507	R-MC-STRC Removal of Existing Structures non-complex	0.00	SF	$12.00000	$0.00
0508	R-MC-STRC Standard Removal of Existing Structures above average complex	30,310.00	SF	$17.00000	$515,270.00
0509	R-MC-STRC Removal of Existing Structures complex to very complex	0.00	SF	$30.00000	$0.00
0513	R-MC-STRC Tier 2 Structures 25' to 50' Height	0.00	SF	$150.00000	$0.00
0516	R-MC-STRC Tier 3 Structures 50' to 75' Height	0.00	SF	$200.00000	$0.00

Total for Group 0060: $5,137,770.00

Group 0061: Rehabilitated Structures

0223	R-MC-STRC MAJOR COST DRIVERS, STRUCTURES	0.00	SF	$45.00000	$0.00

Total for Group 0061: $0.00

Group 0062: Other Structure Costs

0224	R-OC-STRC OTHER COSTS, STRUCTURES *Contingency*	0.00	LS	$0.00000	$0.00

Total for Group 0062: $0.00

Group 0063: Temporary Road and Pavement Costs

0225	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
				Total for Group 0063:	$0.00
Group 0064: Portable Concrete Barrier (PCB)					
0226	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
				Total for Group 0064:	$0.00
Group 0065: Impact Attenuators					
0227	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
				Total for Group 0065:	$0.00
Group 0066: Sheeting					
0229	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
				Total for Group 0066:	$0.00
Group 0067: Temporary Signals					
0230	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	0.00	LS	$0.00000	$0.00
				Total for Group 0067:	$0.00
Group 0068: Work Zone Lighting					
0231	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	0.00	LS	$0.00000	$0.00
				Total for Group 0068:	$0.00
Group 0069: Innovative Contracting Incentatives					
0232	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	0.00	LS	$0.00000	$0.00
				Total for Group 0069:	$0.00
Group 0070: Other MOT Costs					
0233	S-OC-MNTC OTHER COSTS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
0512	S-OC-MNTC OTHER COSTS, MAINTENANCE OF TRAFFIC	0.81	MILE	$500,000.00000	$405,000.00
				Total for Group 0070:	$405,000.00
Group 0071: Wetland Construction					
0234	T-MC-WTLD MAJOR COST DRIVERS, WETLAND CONSTRUCTION	0.00	LS	$0.00000	$0.00
0360	T-MC-WTLD MAJOR COST DRIVERS, WETLAND CONSTRUCTION	0.00	LS	$0.00000	$0.00
				Total for Group 0071:	$0.00
Group 0072: Misc. Costs					

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
0235	U-MC-MISC MAJOR COST DRIVERS, MISCELLANEOUS COSTS	0.00	LS	$0.00000	$0.00
0236	U-OC-MISC OTHER COSTS, MISCELLANEOUS COSTS	0.00	LS	$0.00000	$0.00
0237	100E00300 SPECIAL - PREMIUM ON RAILROADS' PROTECTIVE PUBLIC LIABILITY AND PROPERTY DAMAGE LIABILITY INSURANCE	0.00	LS	$10,000.00000	$0.00
0238	623E10000 CONSTRUCTION LAYOUT STAKES *0.5%*	1.00	LS	$117,719.18000	$117,719.18
0239	619E16020 FIELD OFFICE, TYPE C	44.00	MNTH	$2,500.00000	$110,000.00
0240	614E11000 MAINTAINING TRAFFIC *2%*	1.00	LS	$470,876.72000	$470,876.72
0242	624E10000 MOBILIZATION	1.00	LS	$800,000.00000	$800,000.00
0511	103E05000 PREMIUM FOR CONTRACT PERFORMANCE BOND AND FOR PAYMENT BOND *0.5%*	1.00	LS	$117,719.18000	$117,719.18

Total for Group 0072: $1,616,315.08

Group 0073: Design Contingency Costs

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
0243	V-MC-CNTG MAJOR COST DRIVERS, CONTINGENCY COSTS *25%*	1.00	LS	$6,290,037.71000	$6,290,037.71
0244	V-OC-CNTG OTHER COSTS, CONTINGENCY COSTS	1.00	LS	$0.00000	$0.00

Total for Group 0073: $6,290,037.71

Group 0074: Inflation Contingency

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
0266	V-OC-CNTG OTHER COSTS, CONTINGENCY COSTS	0.00	LS	$0.00000	$0.00

Total for Group 0074: $0.00

Estimate Alt I OH cont 7

Estimated Cost: $373,074,847.21

Contingency: 57.60%

Estimated Total: $587,965,959.20

OH-7 Reconstruction from the new bridge over the Ohio to north of Linn St.

Base Date: 07/22/10

Spec Year: 10

Unit System: E

Work Type: GEN CONST: INVLVS 2 OR MOR MAJ WRK TYPE

Highway Type: 451

Urban/Rural Type: URBAN CLASS

Season: SUMMER

County: HAMILTON

Midpoint of Latitude:

Midpoint of Longitude:

District: 8

Federal/State Project Number:

Estimate Type: C1

Prepared by Parsons Brinckerhoff on 07/22/10

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension

Group 0001: Pavement Removal

0001	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	0.00	LS	$0.00000	$0.00
0343	202E23000 PAVEMENT REMOVED	117,932.00	SY	$8.00000	$943,456.00

Total for Group 0001: $943,456.00

Group 0002: Excavation - Rock

0003	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	0.00	CY	$30.00000	$0.00

Total for Group 0002: $0.00

Group 0003: Excavation - Soil

0004	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0344	203E10000 EXCAVATION	453,980.00	CY	$8.00000	$3,631,840.00

Total for Group 0003: $3,631,840.00

Group 0004: Excavation - Hazardous

0006	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00

Total for Group 0004: $0.00

Group 0005: Fill - Embankment (includes wasting excess excavation)

0007	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0345	203E20000 EMBANKMENT	453,980.00	CY	$6.00000	$2,723,880.00

Total for Group 0005: $2,723,880.00

Group 0006: Fill - Lime Modified Soil

0010	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0346	205E10050 LIME STABILIZED EMBANKMENT	0.00	CY	$7.00000	$0.00
0347	205E10300 LIME	0.00	TON	$5.00000	$0.00

Total for Group 0006: $0.00

Group 0007: Fill - Borrow

0011	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	0.00	CY	$8.00000	$0.00

Total for Group 0007: $0.00

Group 0008: Concrete Barrier

0012	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0465	622E10060	22,439.00	FT	$110.00000	$2,468,290.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	CONCRETE BARRIER, SINGLE SLOPE, TYPE B				

Total for Group 0008: $2,468,290.00

Group 0009: Subgrade Treatment - Lime

0014	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00
0348	206E10000 LIME STABILIZED SUBGRADE	0.00	SY	$1.85000	$0.00
0349	206E10300 LIME	0.00	TON	$10.00000	$0.00
0350	206E11000 CURING COAT	0.00	SY	$1.00000	$0.00
0351	206E20000 TEST ROLLING	0.00	HOUR	$4.00000	$0.00

Total for Group 0009: $0.00

Group 0010: Subgrade Treatment - Cement

0016	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	155,020.00	SY	$2.50000	$387,550.00

Total for Group 0010: $387,550.00

Group 0011: Subgrade Treatment - Undercut & Backfill

0017	A-MC-RDWY MAJOR COST DRIVERS, ROADWAY	1.00	LS	$0.00000	$0.00

Total for Group 0011: $0.00

Group 0012: Other Roadway Costs

0019	A-OC-RDWY OTHER COSTS, ROADWAY *Contingency*	0.00	LS	$0.00000	$0.00
0020	201E11000 CLEARING AND GRUBBING	0.00	LS	$856,500.00000	$0.00
0021	201E21800 TREE REMOVED, 18" SIZE	0.00	EACH	$250.00000	$0.00
0022	201E23000 TREE REMOVED, 30" SIZE	0.00	EACH	$405.00000	$0.00
0023	201E24800 TREE REMOVED, 48" SIZE	0.00	EACH	$772.00000	$0.00
0026	202E11000 STRUCTURE REMOVED	0.00	LS	$9,310.13000	$0.00
0028	202E35200 PIPE REMOVED, OVER 24"	0.00	FT	$0.00000	$0.00
0029	202E38000 GUARDRAIL REMOVED	0.00	FT	$0.00000	$0.00
0030	202E42206 ANCHOR ASSEMBLY REMOVED	0.00	EACH	$0.00000	$0.00
0031	202E58000 MANHOLE REMOVED	0.00	EACH	$0.00000	$0.00
0032	202E58100 CATCH BASIN REMOVED	0.00	EACH	$0.00000	$0.00
0033	202E75000 FENCE REMOVED	0.00	FT	$0.00000	$0.00
0034	204E45000	0.00	HOUR	$126.59000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	PROOF ROLLING				
0035	204E10000 SUBGRADE COMPACTION	0.00	SY	$0.81000	$0.00
0036	451E30000 SPECIAL - PRESSURE RELIEF JOINT, TYPE A	0.00	FT	$0.00000	$0.00
0037	606E13000 GUARDRAIL, TYPE 5	14,675.00	FT	$14.00000	$205,450.00
0038	606E22000 ANCHOR ASSEMBLY, TYPE B-98	0.00	EACH	$1,411.29597	$0.00
0039	606E22010 ANCHOR ASSEMBLY, TYPE E-98	0.00	EACH	$1,712.52574	$0.00
0040	606E26500 ANCHOR ASSEMBLY, TYPE T	0.00	EACH	$487.23435	$0.00
0041	606E35000 BRIDGE TERMINAL ASSEMBLY, TYPE 1	0.00	EACH	$969.12750	$0.00
0042	606E35100 BRIDGE TERMINAL ASSEMBLY, TYPE 2	0.00	EACH	$338.36354	$0.00
0043	606E60010 IMPACT ATTENUATOR, TYPE 1-98 (BIDIRECTIONAL)	0.00	EACH	$3,439.05897	$0.00
0044	607E15000 FENCE, TYPE 47 *For Fencing*	0.00	FT	$0.00000	$0.00
0423	304E20000 AGGREGATE BASE *For Fencing*	0.00	CY	$0.00000	$0.00
0424	601E32100 ROCK CHANNEL PROTECTION, TYPE B WITH FILTER *For Fencing*	0.00	CY	$0.00000	$0.00
0425	607E40500 GATE, TYPE 47 *For Fencing*	0.00	EACH	$731.31641	$0.00
0426	625E32000 GROUND ROD *For Fencing*	0.00	EACH	$0.00000	$0.00
0466		0.00		$0.00000	$0.00

Total for Group 0012: $205,450.00

Group 0014: Seeding & Mulching / Sodding

0045	B-MC-ERCO MAJOR COST DRIVERS, EROSION CONTROL	1.00	LS	$0.00000	$0.00
0467	659E10000 SEEDING AND MULCHING	26,772.00	SY	$1.00000	$26,772.00
0531	660E25000 SODDING STAKED	0.00	SY	$15.00000	$0.00

Total for Group 0014: $26,772.00

Group 0015: Rock Channel Protection

0047	B-MC-ERCO MAJOR COST DRIVERS, EROSION CONTROL	1.00	LS	$0.00000	$0.00
0469	601E32000 ROCK CHANNEL PROTECTION, TYPE A WITH FILTER	0.00	CY	$75.00000	$0.00

Total for Group 0015: $0.00

Group 0016: Erosion Control - Item 832

0048	B-MC-ERCO	1.00	LS	$0.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	MAJOR COST DRIVERS, EROSION CONTROL				
0470	832E10000 STORM WATER POLLUTION PREVENTION PLAN	1.00	LS	$50,000.00000	$50,000.00
0471	832E20000 EROSION CONTROL	170,000.00	EACH	$1.00000	$170,000.00

Total for Group 0016: $220,000.00

Group 0017: Other Erosion Control Costs

0049	670E00700 DITCH EROSION PROTECTION	0.00	SY	$0.00000	$0.00
0050	B-OC-ERCO OTHER COSTS, EROSION CONTROL	1.00	LS	$0.00000	$0.00
0051	659E00100 SOIL ANALYSIS TEST	0.00	EACH	$0.00000	$0.00
0052	659E00300 TOPSOIL	0.00	CY	$0.00000	$0.00
0053	659E14000 REPAIR SEEDING AND MULCHING	0.00	SY	$0.00000	$0.00
0054	659E15000 INTER-SEEDING	0.00	SY	$0.71000	$0.00
0055	659E20000 COMMERCIAL FERTILIZER	0.00	TON	$410.06813	$0.00
0056	659E31000 LIME	0.00	ACRE	$0.00000	$0.00
0057	659E35000 WATER	0.00	MGAL	$5.00000	$0.00
0058	659E40000 MOWING	0.00	MSF	$0.00000	$0.00

Total for Group 0017: $0.00

Group 0018: Underdrains

0059	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0062	605E05100 4" SHALLOW PIPE UNDERDRAINS	93,645.00	FT	$8.00000	$749,160.00

Total for Group 0018: $749,160.00

Group 0019: Culverts - Type A: < 5'

0474	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	0.00	LS	$0.00000	$0.00
0480	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Pipe Structures - Reinforced Concrete Pipe up to 60"*	0.00	FT	$350.00000	$0.00
0481	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Concrete Masonry*	0.00	EACH	$1,500.00000	$0.00

Total for Group 0019: $0.00

Group 0021: Culverts, Type A: 5' - 10'

0067	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0476	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	0.00	FT	$550.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	Pipe Structures - Reinforced Concrete 5'-10' 66" to 78"				
0477	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Concrete - Headwalls/wingwalls*	0.00	EACH	$1,500.00000	$0.00

Total for Group 0021: $0.00

Group 0022: Culverts, Type A: 10' - 20'

0486	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0487	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Pipe Structures - Reinforced Concrete Pipe 10'-20'*	0.00	FT	$1,400.00000	$0.00
0488	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE *Concrete Masonry*	0.00	EACH	$1,500.00000	$0.00

Total for Group 0022: $0.00

Group 0024: BMP's

0076	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00

Total for Group 0024: $0.00

Group 0025: Closed Storm System

0077	C-MC-DRNG MAJOR COST DRIVERS, DRAINAGE	1.00	LS	$0.00000	$0.00
0489	603E13400 30" CONDUIT, TYPE B (Average size)	18,743.00	FT	$75.00000	$1,405,725.00
0523	604E00800 CATCH BASIN, NO. 3A	196.00	EACH	$1,500.00000	$294,000.00
0524	604E31500 MANHOLE, NO. 3	16.00	EACH	$3,000.00000	$48,000.00
0525	604E36601 PRECAST REINFORCED CONCRETE OUTLET, AS PER PLAN	0.00	EACH	$1,250.00000	$0.00
0526	Special Pump Station (Storm)	0.00	LS	$6,400,000.00000	$0.00
0527	Special Stormceptors	0.00	EACH	$5,750.00000	$0.00
0529	Special Retention basin improvements	0.00	LS	$109,000.00000	$0.00

Total for Group 0025: $1,747,725.00

Group 0026: Other Drainage Costs

0078	C-OC-DRNG OTHER COSTS, DRAINAGE	1.00	LS	$0.00000	$0.00

Total for Group 0026: $0.00

Group 0027: Mainline - Travel Lanes

0095	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0494	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg Base and Subgrade Compaction*	78,463.00	SY	$68.00000	$5,335,484.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension

Total for Group 0027: $5,335,484.00

Group 0028: Mainline - Outside Shoulder

0100	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0495	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg base and Subgrade Compaction*	17,545.00	SY	$68.00000	$1,193,060.00

Total for Group 0028: $1,193,060.00

Group 0030: Mainline - Inside Shoulder

0115	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0496	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg base and Subgrade Compaction*	19,110.00	SY	$68.00000	$1,299,480.00

Total for Group 0030: $1,299,480.00

Group 0031: Ramps (including shoulders)

0122	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0497	D-MC-PVMT 13" Reinforced Concrete Pavement *Includes 6" Agg base and Subgrade Compaction*	25,969.00	SY	$68.00000	$1,765,892.00

Total for Group 0031: $1,765,892.00

Group 0032: Non - Mainline Lanes

0132	D-MC-PVMT MAJOR COST DRIVERS, PAVEMENT	1.00	LS	$0.00000	$0.00
0498	D-MC-PVMT Asphalt *Includes 3" 448, 9" 301, 6" Agg base and Subgrade Compaction*	13,933.00	SY	$41.00000	$571,253.00

Total for Group 0032: $571,253.00

Group 0041: Other Pavement Costs

0163	D-OC-PVMT OTHER COSTS, PAVEMENT	1.00	LS	$0.00000	$0.00

Total for Group 0041: $0.00

Group 0042: Water Works

0164	E-MC-WATR MAJOR COST DRIVERS, WATER LINE	0.00	LS	$0.00000	$0.00
0165	E-OC-WATR OTHER COSTS, WATER LINE	0.00	LS	$0.00000	$0.00

Total for Group 0042: $0.00

Group 0043: Sanitary Line

0170	F-MC-SANI MAJOR COST DRIVERS, SANITARY SEWER	0.00	LS	$0.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
				Total for Group 0043:	$0.00
Group 0044: Lighting - Full Interchange					
0173	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	1.00	LS	$0.00000	$0.00
0499	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	3.00	EACH	$469,000.00000	$1,407,000.00
				Total for Group 0044:	$1,407,000.00
Group 0045: Lighting - Partial Interchange					
0288	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	0.00	LS	$0.00000	$0.00
				Total for Group 0045:	$0.00
Group 0046: Lighting - Continuous Roadway					
0176	G-MC-LTNG MAJOR COST DRIVERS, LIGHTING	1.00	LS	$0.00000	$0.00
0500	G-MC-LTNG Lighting - Continuous	21,768.00	FT	$35.00000	$761,880.00
				Total for Group 0046:	$761,880.00
Group 0047: Other Lighting Costs					
0177	G-OC-LTNG OTHER COSTS, LIGHTING	0.00	LS	$0.00000	$0.00
				Total for Group 0047:	$0.00
Group 0048: Traffic Surveillance					
0178	H-OC-SURV OTHER COSTS, TRAFFIC SURVEILLANCE	1.00	LS	$2,848,600.19000	$2,848,600.19
				Total for Group 0048:	$2,848,600.19
Group 0049: Signs					
0179	J-MC-TRAF MAJOR COST DRIVERS, TRAFFIC CONTROL	1.00	LS	$0.00000	$0.00
0501	J-MC-TRAF Signs	4.13	MILE	$250,000.00000	$1,032,500.00
				Total for Group 0049:	$1,032,500.00
Group 0050: Pavement Marking					
0200	J-MC-TRAF MAJOR COST DRIVERS, TRAFFIC CONTROL	1.00	LS	$0.00000	$0.00
0502	644E00100 EDGE LINE	17.83	MILE	$3,000.00000	$53,490.00
0503	644E00200 LANE LINE	8.92	MILE	$2,000.00000	$17,840.00
				Total for Group 0050:	$71,330.00
Group 0051: Other Traffic Control Costs					

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
0208	J-OC-TRAF OTHER COSTS, TRAFFIC CONTROL	1.00	LS	$0.00000	$0.00

Total for Group 0051: $0.00

Group 0052: Signals - Intersections

0212	K-MC-SGNL MAJOR COST DRIVERS, SIGNALS	3.50	EACH	$175,000.00000	$612,500.00

Total for Group 0052: $612,500.00

Group 0053: Other Traffic Signal Costs

0213	K-OC-SGNL OTHER COSTS, SIGNALS	1.00	LS	$0.00000	$0.00

Total for Group 0053: $0.00

Group 0054: Landscaping

0214	L-MC-LSCP MAJOR COST DRIVERS, LANDSCAPING	1.00	LS	$0.00000	$0.00
0215	L-OC-LSCP OTHER COSTS, LANDSCAPING	1.00	LS	$0.00000	$0.00

Total for Group 0054: $0.00

Group 0055: Retaining Walls $125 + $10/ft for caps, barriers and testing

0216	M-MC-WALL MAJOR COST DRIVERS, RETAINING WALLS	1.00	LS	$0.00000	$0.00
0504	M-MC-WALL Retaining Walls	145,137.00	SF	$135.00000	$19,593,495.00

Total for Group 0055: $19,593,495.00

Group 0056: Other Retaining Wall Costs

0217	M-OC-WALL OTHER COSTS, RETAINING WALLS	1.00	LS	$0.00000	$0.00

Total for Group 0056: $0.00

Group 0057: Building Demolition

0218	N-MC-DEMO MAJOR COST DRIVERS, BUILDING DEMOLITION	1.00	LS	$0.00000	$0.00
0219	N-OC-DEMO OTHER COSTS, BUILDING DEMOLITION	1.00	LS	$0.00000	$0.00
0532	202E98100 REMOVAL MISC.: *Radio Tower*	0.00	EACH	$8,500.00000	$0.00
0533	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Large Commercial*	1.00	EACH	$30,000.00000	$30,000.00
0534	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Small Commercial*	3.00	EACH	$15,000.00000	$45,000.00
0535	202E56101 BUILDING DEMOLISHED, AS PER PLAN *Large Residential*	0.00	EACH	$12,000.00000	$0.00
0536	202E56101	0.00	EACH	$7,500.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	BUILDING DEMOLISHED, AS PER PLAN *Small Residential*				

Total for Group 0057: $75,000.00

Group 0058: Noise Barrier

0220	P-MC-NSBR MAJOR COST DRIVERS, NOISE BARRIER	1.00	LS	$0.00000	$0.00
0505	P-MC-NSBR Noise Barrier	0.00	LS	$400.00000	$0.00

Total for Group 0058: $0.00

Group 0059: Other Noise Barrier Costs

0221	P-OC-NSBR OTHER COSTS, NOISE BARRIER	1.00	LS	$0.00000	$0.00
0368	P-MC-NSBR MAJOR COST DRIVERS, NOISE BARRIER	0.00	LS	$0.00000	$0.00

Total for Group 0059: $0.00

Group 0060: New Structures

0222	R-MC-STRC MAJOR COST DRIVERS, STRUCTURES	1.00	LS	$0.00000	$0.00
0506	R-MC-STRC Tier 1 Structures to 25' Height	65,593.00	SF	$125.00000	$8,199,125.00
0507	R-MC-STRC Removal of Existing Structures non-complex	0.00	SF	$12.00000	$0.00
0508	R-MC-STRC Standard Removal of Existing Structures above average complex	396,141.00	SF	$17.00000	$6,734,397.00
0509	R-MC-STRC Removal of Existing Structures complex to very complex	267,295.00	SF	$30.00000	$8,018,850.00
0513	R-MC-STRC Tier 2 Structures 25' to 50' Height	631,959.00	SF	$150.00000	$94,793,850.00
0516	R-MC-STRC Tier 3 Structures 50' to 75' Height	591,129.00	SF	$200.00000	$118,225,800.00

Total for Group 0060: $235,972,022.00

Group 0061: Rehabilitated Structures

0223	R-MC-STRC MAJOR COST DRIVERS, STRUCTURES	0.00	SF	$45.00000	$0.00

Total for Group 0061: $0.00

Group 0062: Other Structure Costs

0224	R-OC-STRC OTHER COSTS, STRUCTURES *Contingency*	0.00	LS	$0.00000	$0.00

Total for Group 0062: $0.00

Group 0063: Temporary Road and Pavement Costs

0225	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
				Total for Group 0063:	$0.00
Group 0064: Portable Concrete Barrier (PCB)					
0226	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
				Total for Group 0064:	$0.00
Group 0065: Impact Attenuators					
0227	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
				Total for Group 0065:	$0.00
Group 0066: Sheeting					
0229	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
				Total for Group 0066:	$0.00
Group 0067: Temporary Signals					
0230	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	0.00	LS	$0.00000	$0.00
				Total for Group 0067:	$0.00
Group 0068: Work Zone Lighting					
0231	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	0.00	LS	$0.00000	$0.00
				Total for Group 0068:	$0.00
Group 0069: Innovative Contracting Incentatives					
0232	S-MC-MNTC MAJOR COST DRIVERS, MAINTENANCE OF TRAFFIC	0.00	LS	$0.00000	$0.00
				Total for Group 0069:	$0.00
Group 0070: Other MOT Costs					
0233	S-OC-MNTC OTHER COSTS, MAINTENANCE OF TRAFFIC	1.00	LS	$0.00000	$0.00
0512	S-OC-MNTC OTHER COSTS, MAINTENANCE OF TRAFFIC	4.13	MILE	$500,000.00000	$2,065,000.00
				Total for Group 0070:	$2,065,000.00
Group 0071: Wetland Construction					
0234	T-MC-WTLD MAJOR COST DRIVERS, WETLAND CONSTRUCTION	0.00	LS	$0.00000	$0.00
0360	T-MC-WTLD MAJOR COST DRIVERS, WETLAND CONSTRUCTION	0.00	LS	$0.00000	$0.00
				Total for Group 0071:	$0.00
Group 0072: Misc. Costs					

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
0235	U-MC-MISC MAJOR COST DRIVERS, MISCELLANEOUS COSTS	0.00	LS	$0.00000	$0.00
0236	U-OC-MISC OTHER COSTS, MISCELLANEOUS COSTS	0.00	LS	$0.00000	$0.00
0237	100E00300 SPECIAL - PREMIUM ON RAILROADS' PROTECTIVE PUBLIC LIABILITY AND PROPERTY DAMAGE LIABILITY INSURANCE	1.00	LS	$10,000.00000	$10,000.00
0238	623E10000 CONSTRUCTION LAYOUT STAKES *0.5%*	1.00	LS	$1,438,543.10000	$1,438,543.10
0239	614E11000 MAINTAINING TRAFFIC *2%*	1.00	LS	$5,754,172.38000	$5,754,172.38
0240	619E16020 FIELD OFFICE, TYPE C	44.00	MNTH	$2,500.00000	$110,000.00
0242	624E10000 MOBILIZATION	1.00	LS	$2,000,000.00000	$2,000,000.00
0511	103E05000 PREMIUM FOR CONTRACT PERFORMANCE BOND AND FOR PAYMENT BOND *0.5%*	1.00	LS	$1,438,543.10000	$1,438,543.10

Total for Group 0072: $10,751,258.58

Group 0073: Design Contingency Costs

0243	V-MC-CNTG MAJOR COST DRIVERS, CONTINGENCY COSTS *25%*	1.00	LS	$74,614,969.44000	$74,614,969.44
0244	V-OC-CNTG OTHER COSTS, CONTINGENCY COSTS	1.00	LS	$0.00000	$0.00

Total for Group 0073: $74,614,969.44

Group 0074: Inflation Contingency

0266	V-OC-CNTG OTHER COSTS, CONTINGENCY COSTS	0.00	LS	$0.00000	$0.00

Total for Group 0074: $0.00

PID 89068 **County** HAM **Route** 75 **Section** 0.22 **This R/W Acquisition cost estimate is prepared for Alternative** I

Macro View

Acquisition	Unit (SF) or (Acreage)	X	Cost/Unit ($$/SF) ($$/Acre)	Subtotal Land Value	+	Structure Values (if Taken)	+	Damages (Loss in Value to the Residue)	Subtotal Structures & Damages	=	Total Non Labor Acquisition Costs
-Residential	0	X	$0.00	$0	+	0	+	N/A	$0.00	=	$0.00
-Commercial	1.89	X	$523,138.30	$988,731	+	6684870	+	N/A	$6,684,870.00	=	$7,673,601.39
-Industrial	5.85	X	$159,395.56	$932,464	+	3740	+	N/A	$3,740.00	=	$936,204.03
-Agricultural	0	X	$0.00	$0	+	0	+	N/A	$0.00	=	$0.00

Attributes

Parcel Count	Total Takes	Partial Takes	No. of Structures Impacted
0	0	0	0
10	3	7	3
19	8	11	1
0	0	0	0

Relocation	Unit (Displacement)	X	*RHP/*RSP	+	Move Cost	+	Reestablishment	=	Total Non Labor RAP Costs
-Residential									
Owner Occupant	0	X	$34,000	+	$6,000			=	$0
Tenant	0	X	$10,000	+	$1,750			=	$0
-Commerical/Farm/NPO									
Owner	3			X	$15,000	+	$10,000	=	$75,000
Tenant	22			X	$15,000	+	$10,000	=	$550,000
-Personal Property	0			X	$1,000			=	$0

Estimate amount of time necessary to relocate all RAP parcels = (months) 24

Estimate number of years until project wide R/W acquisition begins = 2

{[(Total Cost of Acquisition Cost)x0.90]x0.025}+{[(Total of Acquisition Cost)x0.15]x1.20}+{[(Total of Acquisition Cost)x0.10]x1.50} = Contingency

Contingency (Incidentals, Admin. Review & Appropriation)	3034956.408
Total Non Labor R/W Costs	$12,269,761.82

*RHP - Replacement Housing Payment
*RSP - Rent Supplemental Payment
*NPO - Non-Profit Organization

Instruction for Acquisition & Relocation Cost Estimates

Estimate the total number of acres involved in the project and allocate those acres into the four categories shown.

Assign an average unit price for each category. These unit prices are typically taken from the auditors tax card data. Cost Estimates prepared at Step 4 (Step 7 on Major Projects) and thereafter must base unit prices on a project sales data book instead of tax card data.

Add structure values from the auditors tax cards only if the structures are taken.

Damages must be assessed by a pre-qualified expert with experience in Before & After analysis. This usually occurs at Step 4 for Minor projects (Step 6 on Major Projects) and requires some knowledge of the impacts of the project on structures.

Relocation Cost Estimates must consider the complexity of the move process. All move estimates that involve a business or a mulit-tenant residential structure should use the services of a relocation Assistance professionnal to accurately gauge costs.

Macro View

Labor (External)	Unit (Parcels)	X	Unit Price	=	Total Cost
Titles	29	X	$400	=	$11,600
Appraisal					
-Simple	4	X	$750	=	$3,000
-Detailed	25	X	$4,500	=	$112,500
Appraisal Review					
-Simple	4	X	$500	=	$2,000
-Detailed	25	X	$2,000	=	$50,000
Negotiations	29	X	$1,100	=	$31,900
Relocations					
-Personal Property	0	X	$1,500	=	$0
-Residential	0	X	$5,200	=	$0
-Commercial/Farm/*NPO	25	X	$5,600	=	$140,000
Closings	29	X	$400	=	$11,600
Project Management	29	X	$550	=	$15,950
Asbestos Testing & Abatement		X		=	
	Total Labor Costs				$378,550

*NPO = Non-Profit Organization

This R/W Cost Estimate Prepared by	Date
Chris Clemons	8/9/2010

This R/W Cost Estimate was performed at Step 6 of the PDP for MAJOR Projects using

Total Labor Costs	$378,550.00
Total Non Labor R/W Costs	$12,269,761.82
Inflation Adjustments	$1,037,161.57
Total R/W Costs	**$13,685,473.39**

Instructions for Labor Cost Estimates

Labor costs are a function of time, distance, and talent. Labor costs estimates should reflect the complexity of the project and the talent necessary to acquire the right of way in a timely manner. The person making the cost estimate may adjust the figures given for the particular project being estimated to reflect local labor costs. It is critical that the estimate be labeled to reflect the alignment alternative, the step in the PDP process and the person(s) performing the estimate.

Comments

Cost/Unit were generated from auditors tax card data.

P.D.P. R/W Cost Estimator

Appendix J
Design Exceptions

Brent Spence Bridge
Design Exceptions - Alternate E

I-71/I-75/US 50 INTERCHANGE	Curve PI	Design Exception	D.E. Number	Design Speed Met (Required)	Horizontal Dc (Maximum)	Horizontal SSD (Minimum)	Vertical Curvature - K (Minimum)	Other	Design Speed Existing	Reason(s) For Design Exception	Potential Impact(s) to Eliminate Design Exceptions	Potential Mitigation Solutions
I-75	48+69.80 (Horiz)	Y	1	51 mph (60)		454' (570)			50 mph	• Concrete Barrier. • A 22.5' shoulder would be needed for Design SSD. This would increase overhead bridge lengths and increase impact to parking garage at TV station since I-75 SB to I-71 NB ramp would have to shift farther west.	• Flattening the curve at this location will force the I-75 SB to I-71 NB/FWW EB connection into the Harriet Beecher Stowe building (parking garage), as well as creating vertical clearance issues with I-75 mainline as this alignment connects to US 50 to I-71 NB/FWW EB. US 50 EB to I-75 SB will also have to be relocated and will impact the UPS parking lot. I-71 SB to I-75 NB will also have substandard miniman terminal ramp spacing with C-D NB which cannot be adjust otherwise that connection does not have the required length for a lane drop.	Add Signage/ Lighting
	76+47.01 (Horiz)	Y	2	54 mph (60)		480' (570)			40 mph	• Median barrier. • A 20' shoulder would be needed. • If a flatter curve would be used 5 Residential structures could potentially be impacted since Winchell Ave. would need to be relocated also.	• Flattening the curve to obtain the required SSD will impact the following connections; C-D NB to Winchell, Sixth Street to Winchell, Ninth Street to Winchellremoval of Freeman Ave to I-75 NB Ramp however it is possible to relocate this ramp north of the Winchell/Ezzard Charles intersection.	Add Signage/ Lighting
I-71 NB	23+95.64 (Horiz)	Y	3	46 mph (60)		375' (570)			49 mph	• Bridge parapet. • A wider shoulder would significantly increase structure width.	• Using a 60 mph design speed for I-71 NB we flatten the curve but are still required to have at least a 22' outside shoulder. In addition, the top deck of the new main span bridge will need to be elevated higher for both I-71 NB and SB to have the required vertical clearance over C-D NB and SB. There is one location near the railroad bridge and Clay Wade Bailey where I-71 NB passes above the CWB/Second Street intersection. At this location there will need to be a 350 foot bridge span. Potential impacts to other connections are identical to I-71 SB.	Add Signage/ Lighting
	31+39.32 (Horiz)	Y	4	40 mph (60)	11° 12' 27" (4° 15' 00)				45 mph	• Curve needed to clear NB and SB CD Road alignments, 2nd Street ramps and then tie into US 50 EB which just misses the Dunhumby Building.		Add Signage/Traffic Control Devices
	31+39.32 (Horiz)	Y	5	36 mph (60)		260' (570)			33 mph	• Bridge parapet. • A wider shoulder would significantly increase structure width.		Add Signage/ Lighting
	39+54.57 (Horiz)	Y	6	55 mph (60)	5° 21' 17" (4° 15' 00")				55 mph	• Curve needed to clear NB and SB CD Road alignments, 2nd Street ramps and then tie into US 50 EB which just misses the Dunhumby Building.		Add Signage/Traffic Control Devices
	39+54.57 (Horiz)	Y	7	51 mph (60)		440' (570)			42 mph	• Bridge parapet. • A wider shoulder would significantly increase structure width.		Add Signage/ Lighting
	30+98.00 (Vertical)	Y	8	45 mph (60)			61 (151)			• Vertical curve needed to keep a tangent on the new bridge and then achieve vertical clearance over I-75 and the railroad.	• Increasing the K value will increase the grade of I-71 NB which is already at 6%	Add Signage/ Lighting
I-71 SB	3+96.80 (Horiz)	Y	9	45 mph (60)	7° 48' 53" (4° 15' 00")				45 mph	• Curve needed to remain in existing corridor to avoid impact to an office building to the East and the Dunhumby Building to the West.	• Using a 60 mph design speed for I-71 SB, we keep the alignment south of Third Street. This will eliminate design exceptions 9 through 13, existing design deficiences, and avoid impacts to the DunnHumby building. However, vertical clearance issues as well as maintenance of traffic and construction will be difficult as the ramps in and out of the Fort Washington Way Trench will be close together, in a small area, and at a higher elevation than before. Potential impacts include; vertical clearance issues with the existing Brent Spence Bridge, ramp connections to Second Street from C-D northbound, C-D southbound, and I-71 SB to US 50 and I-75 NB, as well as the horizontal curve extending past the location set for the main span bridge approaches.	Add Signage/Traffic Control Devices
	3+96.80 (Horiz)	Y	10	45 mph (60)		365' (570)			41 mph	• Bridge parapet. • A wider shoulder would shift 3rd Street to I-71 SB alignment into an office building.		Add Signage/ Lighting
	6+62.17 (Horiz)	Y	11	35 mph (60)	13° 00' 54" (4° 15' 00")				35 mph	• Curve needed to remain in existing corridor to avoid impact to an office building to the East and the Dunhumby Building to the West.		Add Signage/Traffic Control Devices
	6+62.17 (Horiz)	Y	12	42 mph (60)		335' (570)			33 mph	• Bridge parapet. • A wider shoulder would shift 3rd Street to I-71 SB alignment into an office building.		Add Signage/ Lighting
	17+34.68 (Horiz)	Y	13	40 mph (60)	11° 14' 04" (4° 15' 00")				40 mph	• Curve needed to tie into proposed I-75 alignment, avoid impacting 2 commercial structures, and avoid additional impacts to Longworth Hall.	• A 22' inside shoulder will be required. Connections to the FWW Trench will need to be reviewed on whether those connections can be maintained.	Add Signage/Traffic Control Devices
	17+34.68 (Horiz)	Y	14	31 mph (60)		215' (570)			29 mph	• Bridge parapet. • A wider shoulder would significantly increase structure width.		Add Signage/ Lighting
	29+35.43 (Horiz)	Y	15	55 mph (60)		495' (570)			70 mph	• Bridge parapet. • A wider shoulder would significantly increase structure width.		A wider shoulder will need to be used to transition into the required 14' shoulders for the main span bridge

N/A = Not Applicable
D.E. = Design Exceptions
Design Speed for Interstate is 60 mph and ramps per 503-1

Brent Spence Bridge
Design Exceptions - Alternate E

I-71/I-75/US 50 INTERCHANGE	Curve PI	Design Exception	D.E. Number	Design Speed Met (Required)	Horizontal Dc (Maximum)	Horizontal SSD (Minimum)	Vertical Curvature - K (Minimum)	Other	Design Speed Existing	Reason(s) For Design Exception	Potential Impact(s) to Eliminate Design Exceptions	Potential Mitigation Solutions
EBSBNB (NB CD to I-75 NB)	48+86.24 (Horiz)	Y	16	45 mph (50)	7° 42' 14.3" (6° 45' 00")				N/A	• Curve needed to parallel 7th to SB CD Road to avoid shifting other ramp alignments to the East into a commercial building along 7th.	Commercial buildings along 7th will be impacted.	Add Signage/Traffic Control Devices. Might be able to improve horizontal geometry if
	48+86.24 (Horiz)	Y	17	41 mph (50)		315' (425)			N/A	• Barrier and retaining wall.	By flattening the curve commercial buildings along 7th will be impacted	Add Signage/ Lighting
EBSBSB (8th St to SB CD RD)	21+58.2 (Horiz)	Y	18	40 mph (50)	10° 24' 15.7" (6° 45' 00")				N/A		Flattening the curve at this location will increase the vertical grade of the off ramp from I-75 SB to 7th Street.	Use a flatter curve or reduce design speed (classification). Eliminate access from 8th Street to CD SB and only allow freeflow left turn onto 7th Street eastbound.
	21+58.2 (Horiz)	Y	19	39 mph (50)		300' (425)			N/A	• Barrier for bridge pier.		
	32+03.55 (Horiz)	Y	20	30 mph (50)	20° 22' 36.3" (6° 45' 00")				N/A	• Intersection alignment of NB and SB movements to reduce skew.	• Any re-alignment to the east will impact the storage capacity of Fourth Street WB and Fifth Street EB.	Use a flatter curve, change tangent through intersection, and/or reduce design speed (classification).
	32+03.55 (Horiz)	Y	21	27 mph (50)		175' (425)			N/A	• Bridge parapet. • Wider shoulder would increase structure width.		Add Signage/ Lighting. Reduce design speed (classification).
	32+03.55 (Horiz)	Y	22	30 mph (50)				60' (212)	N/A	• Ahead sprial through intersection.		Add Signage/Traffic Control Devices
	35+29.53 (Horiz)	Y	23	30 mph (50)	17° 17' 08.8" (6° 45' 00")				N/A	• Intersection alignment of NB and SB movements to reduce skew.		Use a flatter curve, change tangent through intersection, increase rear spiral length, and/or reduce design speed (classification).
	35+29.53 (Horiz)	Y	24	27 mph (50)		175' (425)			N/A	• Bridge parapet. • Wider shoulder would increase structure width.		Add Signage/ Lighting
	35+29.53 (Horiz)	Y	25	30 mph (50)				60' (208)	N/A	• Back sprial through intersection.		Use a flatter curve, change tangent through intersection, increase ahead spiral length, and/or reduce design speed (classification).
	40+62.31 (Horiz)	Y	26	28 mph (50)		180' (425)			N/A	• Bridge parapet. • Wider shoulder would increase structure width.		Add Signage/ Lighting
	45+70.78 (Horiz)	Y	27	42 mph (50)		325' (570)			N/A	• Bridge parapet. • Wider shoulder would increase structure width.		Add Signage/ Lighting
	43+25.09 (Vertical)	Y	28	45 mph (50)			61 (84)		N/A	• Curve needed for clearance over NB CD Road and under I-71 SB.		Add Signage/Traffic Control Devices. Look at changing grades to allow for more room to increase vertical curve lengths.
ECDSB7 (SB CD Road to 7th)	37+80.71 (Horiz)	Y	29	45 mph (50)	7° 22' 33.6" (6° 45' 00")				45 mph	• Curve needed to get clearance under 7th to SB CD Road and over ramp from to I-75 SB to I-71 NB.		Add Signage/Traffic Control Devices
	37+80.71 (Horiz)	Y	30	37 mph (50)		270' (425)			36 mph	• Bridge parapet. • Wider shoulder would increase structure width.		Add Signage/ Lighting
	37+80.71 (Horiz)	Y	31	45 mph (50)				200' (393)	N/A	• Spiral in an intersection that intersects another transition.		Change geometry.
ESBFWWEB (I-75 SB to I-71 NB)	33+07.04 (Horiz)	Y	32	28 mph (45)		185' (360)			33 mph	• Bridge parapet. • Wider shoulder would increase structure width.	• With the flattening of the curve to I-75 mainline, I-75 SB to I-71 NB will be relocated to the west, impacting the tv station/parking garage. In addition the distance needed to make the vertical clearance requirements under I-75 mainline is much less than before. In addition, changes to US 50 to I-71 NB will require that I-75 mainline have a steeper grade south of US 50 to allow I-75 SB to I-71 NB enough room to tie into the gore of US 50 to I-71 NB.	Add Signage/ Lighting
EBSBSB2 (SB CD RD to 2nd)	5+57.82 (Horiz)	Y	33	28 mph (30)		180' (200)			32 mph	• Bridge parapet. • Wider shoulder would increase structure width.		Add Signage/ Lighting, wider shoulder at this location will not impact any other structures
EUS50FWWEB (US 50 to I-71 NB/US 50 EB)	15+55.27 (Horiz)	Y	34	38 mph (45)		280' (360)			30 mph	• Bridge parapet. • Wider shoulder would increase structure width, shift US 50 WB alignment (since it is parallel) which then would impact the Dunhumby building.	• With I-75 Mainline using a flatter curve at Sta. 46+00, there is more room for the connections to/from I-75 and I-71 from/to US 50. However, with the design speed changes made to I-71 NB and I-71 SB will create vertical clearance issues which may lead to higher structures and steeper grades. Also the horizontal sight distance leading into the Fort Washington Way Trench will need to be studied to determine at which point the shoulders can be tapered down to meet the tie-in points for all connections into and out of the Trench.	Add Signage/ Lighting
EFWWWB75 (I-71 SB to I-75 NB)	13+69.55 (Horiz)	Y	35	39 mph (45)		300' (360)			35 mph	• Bridge parapet. • Wider shoulder would increase structure width. Also, shifting the US	• See US50FWWEB potential impacts	Add Signage/Traffic Control Devices
	27+36.92 (Horiz)	Y	36	39 mph (45)		290' (360)			N/A			Use a flatter curve or reduce design speed (classification).
E75SBFREE (I-75 SB to Freeman Ave)	6+39.26 (Horiz)	Y	37	44 mph (45)		350' (360)			57 mph	• Barrier and retaining wall. • A flatter curve can not be used since the alignment is parallel to the SB CD Rd and I-75.		Add Signage/Traffic Control Devices, wider shoulder

N/A = Not Applicable
D.E. = Design Exceptions
Design Speed for Interstate is 60 mph and ramps per 503-1

Brent Spence Bridge
Design Exceptions - Alternate E

I-75/I-71	Station	Design Exception	D.E. Number	Design Speed Met (Required)	Horizontal SSD (Minimum)	Horizontal Dc (Maximum)	Vertical Curvature - K (Minimum)	Other	Design Speed Existing	Reason For Design Exception	Potential Impact(s) to Eliminate Design Exceptions	Potential Mitigation Solutions
SB I-75 to Kyles Lane	Sta. 445+00	Y	1					Grade		• Proposed ramp grade is 8.1 percent due to right of way considerations.	• Extending the beginning of ramp futher south and thus widening the right of way limits required for the connection to the existing elevtion at the ramp terminal.	• This steep slope is less than 500 feet long and provides an exit ramp to Kyles Lane on which traffic has to decelerate.
NB CD Road	Existing Bridge (Lower Deck)	Y	2					Lane Width		• 11' lanes needed to utilize the existing bridge width.	• Replace the existing bridge and rebuild structure to accommodate a wider section.	• Will be maintaining one 12' lane on the lower bridge deck.
	Existing Bridge (Lower Deck)	Y	3					Shoulder Width		• A minimum 4' left shoulder and an 8' right shoulder are needed to maintain 3 through lanes and utilize the existing bridge width.	• Replace the existing bridge and rebuild structure to accommodate a wider section.	
NB I-75 Mainline	Sta. 571+00	Y	4					Shoulder Width		• At this location, the southbound structure of the C-D road over I-75 would have a long span and require a pier located at the center of I-75. The proposed pier diameter would be nine feet. This pier would reduce the inside shoulder widths from 14 feet to 9 feet around the pier and tapers.	Widen the overall footprint of roadway to accommodate pier diameter.	Add Signage to warn of reduced shoulder width.
SB I-75 Mainline	Sta. 571+00	Y	5					Shoulder Width		• At this location, the southbound structure of the C-D road over I-75 would have a long span and require a pier located at the center of I-75. The proposed pier diameter would be nine feet. This pier would reduce the inside shoulder widths from 14 feet to 9 feet around the pier and tapers.	Widen the overall footprint of roadway to accommodate pier diameter.	Add Signage to warn of reduced shoulder width.

N/A = Not Applicable
D.E. = Design Exceptions
Design Speed for Interstate is 60 mph and ramps per 503-1

Brent Spence Bridge
Design Exceptions - Alternative I

I-71/I-75/US 50 INTERCHANGE	Station	Design Exception	D.E. Number	Design Speed Met (Required)	Horizontal Dc (Maximum)	Horizontal SSD (Minimum)	Vertical Curvature - K (Minimum)	Other	Design Speed Existing	Reason(s) For Design Exception	Potential Impact(s) to Eliminate Design Exceptions	Potential Mitigation Solutions
Interstate 75 (OH)	CURVE NO. 5 PI Sta. 24+98.87 (Horiz.)	Y	1	57 mph (60)		526' (570')			44 mph	• The line of sight for the northbound inside lane is impeded by the median barrier and the southbound outside lane a the bridge parapet. • The proposed 12' median shoulder (minimum) needs to be widened to 20' to meet the needed sight distance. • The median shoulder width was discussed with the Office of Roadway Engineering and a guideline was given to cap the width at 12'. This is due to several factors; expense, excessively wide shoulders can confuse drivers and be used as a passing lane, and collecting debris.	• Widen the inside shoulder for the I-75 NB. This can be accomplished by either linearly transitioning the shoulder or separating the NB and SB horizontal alignments. The two profiles will be different as well and bifurcated barrier will be required. This will impact the potential connection from Clay Wade Bailey Bridge to I-75. • If this potential connection from Clay Wade Bailey Bridge is to be maintained, all NB alignments will need to shift to the East potentially causing vertical clearance issues with US 50 WB and I-71 SB. This would potentially impact the Dunnhumby Building also. • If using a flatter curve, 5 structures (businesses) could potentially be impacted and additional impacts to Longworth Hall would be needed. • A design speed of 55 MPH would also fix this design exception.	• Add Signage/ Lighting
	Sta. 23+00 to Sta. 27+00 (Southbound Only)	Y	2					6.0% (Downgrade)		• A grade of 6.0% (5.0 % max) needed to achieve clearance over the existing railroad/I-71 SB to SB CD Road and under I-71 SB to SB CD Road to maintain a 60 mph design speed. The 6.0 % grade has a tangent length of 150'.	• Shift SB CD Road alignment further West so that the lower deck does not cross under the upper deck until after the existing railroad. This would increase the impact to Longworth Hall and could potentially impact 4 additional buildings and parking.	
	CURVE NO. 6 PI Sta. 33+88.15 (Horiz.)	Y	3	51 mph (60)		443' (570)			50 mph	• The line of sight for the inside lane is impeded by the median barrier. • The proposed 12' median shoulder needs to be widened to 25' to meet the needed sight distance. • The median shoulder width was discussed with the Office of Roadway Engineering and a guideline was given to cap the width at 12'. This is due to several factors; expense, excessively wide shoulders can confuse drivers and be used as a passing lane, and collecting debris. • 55 mph would require a 17' minimum shoulder.	• Widen the inside shoulder for the I-75 NB. This can be accomplished by either linearly transitioning the shoulder or separating the NB and SB horizontal alignments. The two profiles will be different as well and bifurcated barrier will be required. This will impact the potential connection from Clay Wade Bailey Bridge to I-75. • If this potential connection from Clay Wade Bailey Bridge is to be maintained, all NB alignments will need to shift to the East potentially causing vertical clearance issues with US 50 WB and I-71 SB. This would potentially impact the Dunnhumby Building also. • If using a flatter curve, 5 structures (businesses) could potentially be impacted and additional impacts to Longworth Hall would be needed.	• Add Signage/ Lighting
	CURVE NO. 9 PI Sta. 65+12.82 (Horiz.)	Y	4	52 mph (60)		463' (570)			40 mph	• The line of sight for the outside lane is impeded by the roadside barrier. • The proposed 12' outside shoulder needs to be widened to 20' to meet the needed sight distance. • 55 mph would require a 15' shoulder (standard minimum shoulder is 12').	• The ramp from Freeman Ave to I-75 NB and Winchell Ave would have to shift to the East. This would impact the property on the SE corner of Ezzard Charles Drive and Winchell Ave. • There is also a potential impact to a 60" combined sewer under Winchell Ave. • The Freeman Ave to Winchell Ave bridge and the Ezzard Charles Drive bridges would need to be lengthened to span the additional pavement width. • If using a flatter curve, this could potentially impact 8 structures, relocate 3 local roads (Ezzard Charles Drive EB and WB, Winchell Ave.), cut off 2 local roads (West Court Street and Freeman Ave to I-75 NB).	• Add Signage/ Lighting
I-75 SB Baseline at Ezzard Charles	CURVE NO. 16 PI Sta. 65+22.36 (Horiz.)	Y	5	54 mph (60)		488' (570)			40 mph	• The line of sight for the inside lane is impeded by the median barrier. • The proposed 12' median shoulder needs to be widened to 20' to meet the needed sight distance. • The median shoulder width was discussed with the Office of Roadway Engineering and a guideline was given to cap the width at 12'. This is due to several factors; expense, excessively wide shoulders can confuse drivers and be used as a passing lane, and collecting debris. • 55 mph would require a 13' shoulder (standard minimum shoulder is 12').	• Widen the inside shoulder of the I-75 SB. This can be accomplished by either linearly transitioning the shoulder or separating the NB and SB horizontal alignments The Northbound lanes would remain the same. This location will have a bi-furcated barrier section. • By changing the SB baseline, the Southbound CD Road would need to move further to the SW which would change three other alignments (I-75 SB to Freeman Ave, Western Ave. to SB CD Road and Gest Street). Gest Street was already narrowed down to 3 lanes and this will narrow it even further. • If using a flatter curve, this could potentially impact 8 structures and 3 local roads (Western Ave, Gest St., and part of Freeman Ave.).	• Add Signage/ Lighting

N/A = Not Applicable
D.E. = Design Exception
Design Speed for Interstate is 60 mph and ramps per 503-1

Brent Spence Bridge
Design Exceptions - Alternative I

I-71/I-75/US 50 INTERCHANGE	Station	Design Exception	D.E. Number	Design Speed Met (Required)	Horizontal Dc (Maximum)	Horizontal SSD (Minimum)	Vertical Curvature - K (Minimum)	Other	Design Speed Existing	Reason(s) For Design Exception	Potential Impact(s) to Eliminate Design Exceptions	Potential Mitigation Solutions
I-71 Southbound (OH)	CURVE NO. 24 PI Sta. 16+31.45 (Horiz.)	Y	6	50 mph (60)	6° 30' 00" (4° 15' 00")				35 mph	• Curve needed to tie into existing Fort Washington Way footprint, avoid Dunnhumby building, and to tie into proposed new bridge before bridge abutment.	• Using Fort Washington Way (I-71 SB) as a fixed tie in point, a 4 degree curve will require the new Ohio River Bridge crossing the river to move about 250' to the West. • Additional potential impacts from this alignment change would include going through the Duke Energy substation. In addition, the I-75 centerline would also need to shift West possibly impacting half of the Longworth Hall and an additional 5 structures just to the west of I-75 between 3rd Street and 9th Street which include two Duke Energy buildings, two UPS buildings, and the former Harriet Beecher Stowe Elementary School (Fox 19) building. • The curves (super transitions) from these alignment changes may also extend onto the new Ohio River Bridge.	• Add Signage/Traffic Control Devices
	CURVE NO. 24 PI Sta. 16+31.45 (Horiz.)	Y	7	42 mph (60)		339' (570)			35 mph	• The line of sight for the inside lane is impeded by the bridge parapet. • The proposed shoulder needs to be widened to meet the needed sight distance therefore increasing the structure width. • 50 mph would require a 20' shoulder (standard minimum shoulder is 12').	• Widen inside shoulder to match the proposed bridge width (3 lanes and 14' shoulder). • A flatter curve is not possible without introducing a curve starting around Plum Street and extending onto the new bridge which would also need to move west as described above. Some connections may potentially become a problem doing this (i.e. US 50) and using the existing bridge would be very difficult.	• Add Signage/ Lighting
		Y	8					Shoulder Width		• Allows for a deceleration lane to be added to exit from I-71 SB to SB CD Road within the existing footprint of Fort Washington Way (4' left shoulder, 6.5' right shoulder for about 700').	• Widen pavement width on outside of I-71 SB (Fort Washington Way) from Elm Street to Central Ave. This will impact the Elm Street bridge and reduce the 3rd Street on ramp to SB CD Road to 1 lane from 2 lanes.	• Add Signage/ Lighting
	Sta. 20+00 to Sta. 32+00	Y	9					5.9 % (Upgrade)		• A grade of 6.0% (5.0 % max) needed to achieve clearance over the existing railroad/I-71 SB to SB CD Road and under I-71 SB to SB CD Road to maintain a 60 mph design speed. • This grade matches the existing profile set during the Fort Washington Way project. It allows for clearance over Plum Street, flood wall, future rail lines.	• A flatter grade of 5.0 % would create a clearance problem over the NB CD Road to 5th Street resulting in the potential of this connection being cut off.	
I-71 Northbound (OH)	CURVE NO. 20 PI Sta. 14+44.56 (Horiz.)	Y	10	50 mph (60)	6° 30' 00" (4° 15' 00")				45 mph	• Curve needed to tie into existing bridge abutment and still tie in with US 50 EB before entering Fort Washington Way.	• Using Fort Washington Way (I-71 NB) as a fixed tie in point and trying to tie into the existing bridge, several connections would be lost. Connections off of the NB CD Road from Kentucky to I-71 NB and to 2nd Street would be lost. Clearance over the existing railroad may also be an issue coming off of the bridge if the existing profile is to be maintained. • Another option using Fort Washington Way (I-71 NB) as a fixed tie in point and trying to tie into the new Ohio River Bridge, a 4 degree curve will require the new Ohio River Bridge crossing the river to move about 250' to the West if we were to maintain all connections. Other connections including I-75 NB and SB, and NB CD Road would need to be investigated on whether their connections could be maintained.	• Add Signage/Traffic Control Devices
	CURVE NO. 20 PI Sta. 14+44.56 (Horiz.)	Y	11	44 mph (60)		358' (570)			41 mph	• The line of sight for the inside lane is impeded by the bridge parapet. • The proposed shoulder needs to be widened to meet the needed sight distance therefore increasing the structure width. • 50 mph would require a 20' shoulder (standard minimum shoulder is 12').	• Widen inside shoulder with a pavement taper on the bridge. • A flatter curve tying into the existing bridge is not possible without introducing a curve starting around Plum Street and extending onto the existing bridge. Second Street would need to be relocated along with the flood wall. Connections off of the NB CD Road from Kentucky to I-71 NB and to 2nd Street would be lost.	• Add Signage/ Lighting
	Sta. 25+00 to Sta. 29+00	Y	12					6.0 % (Downgrade)		• A grade of 6.0% (5.0 % max) needed to achieve clearance over Plum Street for pedestrians. The 6.0 % grade has a tangent length of about 300'. • This grade matches the existing profile set during the Fort Washington Way project. It allows for clearance over Plum Street, flood wall, future rail lines.	• A flatter grade of 5.0 % could potentially create a clearance problem over US 50 WB and 3rd Street.	
US 50 EB	CURVE NO. 47 PI Sta. 109+73.97 (Horiz.)	Y	13	40 mph (50)	10° 30' 00" (6° 45' 00")				30 mph	• Curve needed to achieve clearance over SB CD Road and under US 50 to 5th Street	• See US 50 WB impacts.	• Add Signage/Traffic Control Devices
	CURVE NO. 47 PI Sta. 109+73.97 (Horiz.)	Y	14	36 mph (50)		261' (425)			30 mph	• The line of sight for the inside lane is impeded by the bridge parapet. • The proposed shoulder needs to be widened to meet the needed sight distance therefore increasing the structure width. This potentially could reduce clearances over SB CD Road to 2nd Street to below minimum.		• Add Signage/ Lighting

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Brent Spence Bridge
Design Exceptions - Alternative I

I-71/I-75/US 50 INTERCHANGE	Station	Design Exception	D.E. Number	Design Speed Met (Required)	Horizontal Dc (Maximum)	Horizontal SSD (Minimum)	Vertical Curvature - K (Minimum)	Other	Design Speed Existing	Reason(s) For Design Exception	Potential Impact(s) to Eliminate Design Exceptions	Potential Mitigation Solutions
US 50 WB	CURVE NO. 53 PI Sta. 114+02.58 (Horiz.)	Y	15	40 mph (50)	10° 30' 00" (6° 45' 00")				35 mph	• Curve needed to achieve clearance over I-75 NB and under US 50 to 5th Street	• Design exceptions 9, 10, 11, 12, and 13 need to be treated as a whole in order to fix. To design an alignment to maintain a 50 mph design speed (existing US 50 posted speed West of I-75), the geometry would follow the proposed alignment shown for US 50 EB/SB CD to 2nd Street. US 50 EB would parallel US 50 WB in order to tie into existing US 50 lanes through Fort Washington Way to the East causing some connections to be lost. • Connections that could potentially be lost would include: 1) US 50 EB to 5th Street, 2) I-75 SB to I-71 NB from I-75 mainline lanes, 3) SB CD Road to potential Clay Wade Bailey Bridge, 4) US 50 WB to Gest Street, 5) Linn Street to US 50 EB (would be significantly impacted if not cut off) which is beyond our current project limits. • SB CD Road alignment would shift West approximately 200' which would impact the former Harriet Beecher Stowe Elementary School (Fox 19) building in addition to their parking garage and the UPS warehouse would also now be impacted in addition to their parking. In addition, the Duke Energy buildings North of 3rd Street, Longworth Hall, and the Duke Energy substation along the river will have additional impacts. • The new Ohio River Bridge would need to be either moved west or widened to accommodate the taper of the SB CD Road into the I-71 SB to SB CD Road ramp which would not come together soon enough to tie into the current bridge typical section and abutment limits. • The horizontal sight distance can not be fixed with out taking the alignment for US 50 west from Fort Washington Way along 3rd Street.	• Add Signage/Traffic Control Devices
	CURVE NO. 53 PI Sta. 114+02.58 (Horiz.)	Y	16	34 mph (50)		242' (425)			30 mph	• The line of sight for the inside lane is impeded by the bridge parapet. • The proposed shoulder needs to be widened to meet the needed sight distance therefore increasing the structure width. This potentially could reduce clearances over I-75 NB to below minimum.		• Add Signage/ Lighting
	CURVE NO. 56 PI Sta. 128+38.49 (Horiz.)	Y	17	40 mph (50)	10° 30' 00" (6° 45' 00")				35 mph	• Curve needed to avoid Dunnhumby building and achieve clearance under I-71 SB		• Add Signage/Traffic Control Devices

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Brent Spence Bridge
Design Exceptions - Alternative I

I-71/I-75/US 50 INTERCHANGE	Station	Design Exception	D.E. Number	Design Speed Met (Required)	Horizontal Dc (Maximum)	Horizontal SSD (Minimum)	Vertical Curvature - K (Minimum)	Other	Design Speed Existing	Reason(s) For Design Exception	Potential Impact(s) to Eliminate Design Exceptions	Potential Mitigation Solutions
NB CD ROAD to I-75 NB (NB CD Road)	CURVE NO. 125 PI Sta. 33+41.55 (Horiz.)	Y	18	41 mph (50)		315' (425)			N/A	• The line of sight is impeded by a roadside barrier and retaining wall. • The proposed shoulder needs to be widened to meet the needed sight distance therefore increasing the structure length of 6th Street to US 50 WB. • 50 mph would require a 14' shoulder (standard minimum shoulder is 4').	• Widen inside shoulder by changing alignment. This could impact the NB CD Road to 5th Street alignment and an existing parking lot between 4th Street and Central Ave. • Another way to possibly eliminate this DE would be to switch NB CD Road to US 50 WB and NB CD Road to I-75 alignments. This may allow for a flatter curve but the connection from NB CD to US 50 WB would need to be investigated to see if it would work.	• Add Signage/Traffic Control Devices
I-75 SB to SB CD ROAD (SB CD Road)	Sta. 26+00 to Sta. 30+50	Y	19					6.50 % (Upgrade)		• A grade of 6.50% (5.0 % max) needed to achieve clearance under US 50 EB and yet tie into the ramp from I-71 SB to SB CD Road. The 6.50% grade has a tangent length of 315'.	• Using a flatter grade potentially could impact US 50 EB to 5th Street, US 50 EB, and US 50 WB to Gest Street clearances.	
I-75 SB to I-71 NB	CURVE NO. 70 PI Sta. 120+59.21 (Horiz.)	Y	20	43 mph (45)		341' (360)			N/A	• The line of sight for the inside lane is impeded by the bridge parapet. • The proposed shoulder needs to be widened to meet the needed sight distance therefore increasing the structure width. • 45 mph would require a 8' shoulder (standard minimum shoulder is 4', a 6' shoulder is used).	• Widen inside shoulder using a pavement taper. • Using a flatter curve for sight distance may impact vertical clearance with 3rd Street to I-75 NB, NB CD Road to US 50 WB, and I-71 SB. Also, impacts to the Dunnhumby building would need to be investigated.	• Add Signage/ Lighting
	CURVE NO. 71 PI Sta. 125+75.61 (Horiz.)	Y	21	40 mph (45)	10° 30' 00" (9° 00' 00")				40 mph	• Curve needed to avoid Dunnhumby building and achieve clearance under I-71 SB.	• Using a flatter curve may impact vertical clearance with 3rd Street to I-75 NB, NB CD Road to US 50 WB, and I-71 SB. Also, impacts to the Dunnhumby building would need to be investigated.	• Add Signage/Traffic Control Devices
	CURVE NO. 71 PI Sta. 125+75.61 (Horiz.)	Y	22	34 mph (45)		240' (360)			33 mph	• The line of sight for the inside lane is impeded by the bridge parapet. • The proposed shoulder needs to be widened to meet the needed sight distance therefore increasing the structure width. • 45 mph would require a 22.5' shoulder (standard minimum shoulder is 4', a 6' shoulder is used).	• Widen inside shoulder using a pavement taper. • Using a flatter curve for sight distance may impact vertical clearance with 3rd Street to I-75 NB, NB CD Road to US 50 WB, and I-71 SB. Also, impacts to the Dunnhumby building would need to be investigated.	• Add Signage/ Lighting
I-71 SB to SB CD ROAD (Directional Ramp)	CURVE NO. 108 PI Sta. 31+16.63 (Horiz.)	Y	23	35 mph (45)	14° 15' 00" (9° 00' 00")				N/A	• Curve needed to clear I-75 then tie into SB CD Road on the lower deck of the proposed bridge.	• A flatter curve could impact 3 structures including additional impact to Longworth hall. • Other potential impacts may occur to the North when southbound alignments are adjusted to tie into flatter curve.	• Add Signage/Traffic Control Devices
	CURVE NO. 108 PI Sta. 31+16.63 (Horiz.)	Y	24	31 mph (45)		213' (360)			N/A	• The line of sight for the inside lane is impeded by the bridge parapet. • The proposed shoulder needs to be widened to meet the needed sight distance therefore increasing the structure width.		
	CURVE NO. 111 PI Sta. 34+50.75 (Horiz.)	Y	25	35 mph (45)	14° 30' 00" (9° 00' 00")				N/A	• Curve needed to avoid Dunnhumby building, structure on NE corner of Central Ave. and 3rd Street, and tie into I-71 SB.	• If using a flatter curve, 3rd Street ramp to SB CD Road might be cut off, 2 structures may be impacted, and Fort Washington Way would need to be widened at the West end of the trench.	• Add Signage/Traffic Control Devices
	CURVE NO. 111 PI Sta. 34+50.75 (Horiz.)	Y	26	31 mph (45)		213' (360)			N/A	• The line of sight for the inside lane is impeded by the bridge parapet. • The proposed shoulder needs to be widened to meet the needed sight distance therefore increasing the structure width.	• Widen inside shoulder. • Widening the inside shoulder would reduce the width of the 3rd Street to SB CD Road ramp. • If using a flatter curve, 3rd Street ramp to SB CD Road might be cut off, 2 structures may be impacted, and Fort Washington Way would need to be widened at the West end of the trench.	• Add Signage/ Lighting
I-71 SB/US 50 WB to NB CD ROAD (Directional Ramp)	CURVE NO. 121 PI Sta. 17+51.02 (Horiz.)	Y	27	40 mph (45)	11° 45' 00" (9° 00' 00")				35 mph	• Curve needed to achieve clearance under I-71 SB and avoid the Dunnhumby building.	• If using a flatter curve, I-71 SB would be shifted North through the Dunnhumby building so that clearance under I-71 SB can be maintained. • Shifting I-71 SB would also reduce the design speed for I-71 SB unless the proposed I-75 mainline bridge is shifted further West.	• Add Signage/Traffic Control Devices
	CURVE NO. 121 PI Sta. 17+51.02 (Horiz.)	Y	28	33 mph (45)		230' (360)			35 mph	• The line of sight for the inside lane is impeded by the bridge parapet. • The proposed shoulder needs to be widened to meet the needed sight distance therefore increasing the structure width.	• Widen inside shoulder. • There is a potential impact to the vertical minimum clearance under I-71 SB if the shoulder is widened.	• Add Signage/ Lighting

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Brent Spence Bridge
Design Exceptions - Alternative I

I-71/I-75/US 50 INTERCHANGE	Station	Design Exception	D.E. Number	Design Speed Met (Required)	Horizontal Dc (Maximum)	Horizontal SSD (Minimum)	Vertical Curvature - K (Minimum)	Other	Design Speed Existing	Reason(s) For Design Exception	Potential Impact(s) to Eliminate Design Exceptions	Potential Mitigation Solutions
3rd Street WB (OH) to SB CD ROAD		N										
3rd Street/Clay Wade Bailey to I-75 NB		N										
US 50 WB to GEST ST.		N										
6th Street WB (OH) to US 50 WB		N										
4th Street WB (OH) to NB CD ROAD		N										
NB CD ROAD to US 50 WB (Directional Ramp)	CURVE NO. 63 PI Sta. 22+70.83 (Horiz.) (NB CD Road)	Y	29	44 mph (50)		354' (425)			N/A	● The line of sight for the inside lane is impeded by the bridge parapet. ● The proposed shoulder needs to be widened to meet the needed sight distance therefore increasing the structure width. ● 50 mph would require a 17' shoulder (standard minimum shoulder is 10').	● Widen the inside shoulder. This may impact the clearance over 4th Street to NB CD Road ramp.	● Add Signage/ Lighting
	CURVE NO. 66 PI Sta. 33+69.33 (Horiz.) (Directional Ramp)	Y	30	40 mph (45)	11° 45' 00" (9° 00' 00")				35 mph	● Curve needed to tie into 6th Street to US 50 WB and clear 4th Street to NB CD Road.	● A flatter curve could require the 4th Street NB on ramp to be relocated from its current alignment creating weaving on the NB CD Road. The ramp from US 50 WB to Gest Street potentially could be cut off also if US 50 WB would also need to be flattened.	● Add Signage/Traffic Control Devices
	CURVE NO. 66 PI Sta. 33+69.33 (Horiz.) (Directional Ramp)	Y	31	33 mph (45)		236' (360)			32 mph	● The line of sight for the inside lane is impeded by the bridge parapet. ● The proposed shoulder needs to be widened to meet the needed sight distance therefore increasing the structure width. ● 45 mph would require a 26' shoulder (standard minimum shoulder is 4', a 6' shoulder is used).	● Widen the inside shoulder. ● A flatter curve could require the 4th Street NB on ramp to be relocated from its current alignment creating weaving on the NB CD Road. The ramp from US 50 WB to Gest Street potentially could be cut off also if US 50 WB would also need to be flattened.	● Add Signage/ Lighting
NB CD ROAD to 5th Street EB (OH)		N										
NB CD ROAD to I-71 NB (Directional Ramp)	Sta. 27+80 Rt (I-71 NB)	Y	32					Shoulder Width	N/A	● < 8' min due to flood wall. ● A 39:1/acceleration lane taper Sta. 14+75 to Sta. 30+00 (I-71 NB) is needed to minimize the impact to the flood wall/I-71 (FWW) and maintain a 4' minimum shy line from the roadside barrier.	● If a 50:1 taper is used I-71 in the trench will need to be widened just to maintain a 4 foot shoulder.	
	Sta. 9+50	Y	33					6.69 % (Upgrade)		● A grade of 6.69% (5.0 % max) needed to achieve clearance under I-71 NB (upper deck) and yet tie into I-71 NB before entering the Fort Washington Way trench and to clear the existing railroad. The 6.69% grade does not have a tangent length, the vertical curves are reverse curves.	● A flatter grade would violate railroad clearance if existing vertical curve on the existing bridge is to be maintained.	
NB CD ROAD to 2nd Street EB (OH)		N										
6th Street WB (OH) to WINCHELL AVE		N										
9th street to 6th connector to Winchell		N										
Gest St/Freeman Ave to Winchell Ave		N										
Gest St/Freeman Ave (OH) to I-75 NB		N										
SB CD ROAD to 7th Street (OH)		N										

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Brent Spence Bridge
Design Exceptions - Alternative I

I-71/I-75/US 50 INTERCHANGE	Station	Design Exception	D.E. Number	Design Speed Met (Required)	Horizontal Dc (Maximum)	Horizontal SSD (Minimum)	Vertical Curvature - K (Minimum)	Other	Design Speed Existing	Reason(s) For Design Exception	Potential Impact(s) to Eliminate Design Exceptions	Potential Mitigation Solutions
SB CD RD to Gest St/Freeman Ave		N										
Western Ave (OH) to SB CD ROAD		N										
SB CD ROAD to 5th Street (OH)		Y	34					7.5% upgrade		• Sta. 26+10 to Sta. 32+60 (Vertical, 7.0% max) a grade of 7.5% is needed to achieve clearance under US 50 WB and over I-75 SB to I-71 NB.	• Flattening the vertical curve will impact the clearance over I-75 SB to I-71 NB. Either the SB CD Road to 5th Street or I-75 SB to I-71 NB alignment will potentially be cut of and traffic will need to be directed another way. • If the connections are to be maintained, raising the US 50 WB profile would be an alternate but there may be a potential that US 50 WB to Gest Street may be cut off due to the higher profile. Changing the profiles for NB CD Road to US 50 WB and 6th Street to US 50 WB will also need to be investigated.	• Add Signage/Traffic Control Devices
SB CD ROAD to 2nd ST. (OH)		N										
SB CD ROAD to 3rd ST. (OH)		N										
9th Street (OH) to SB CD ROAD		N										
US 50 EB to SB CD ROAD	CURVE NO. 85 PI Sta. 108+02.34 (Horiz.)	Y	35	40 mph (45)	10° 45' 00" (9° 00' 00")				N/A	• Diverging curvature per table 505-2a is not met.	• Flattening the curve in gore area could increase impacts to the UPS warehouse, cut off on ramp from Linn Street, and create a pavement taper on the new Ohio River Bridge.	• PI Sta. 29+81.48 (Horiz.) Exit Geometry
	CURVE NO. 85 PI Sta. 108+02.34 (Horiz.)	Y	36	34 mph (45)		246' (360)			N/A	• The line of sight for the inside lane is impeded by the bridge parapet. • The proposed shoulder needs to be widened to meet the needed sight distance therefore increasing the structure width.	• Widen shoulder which could potentially increase impact to the UPS Building and increase retaining wall heights.	• Add Signage/Traffic Control Devices
US 50 EB to 2ND ST (OH)		N										
US 50 EB to 5TH ST (OH)		N										

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Brent Spence Bridge
Design Exceptions - Alternative I

I-71/I-75/US 50 INTERCHANGE	Curve PI	Design Exception	D.E. Number	Design Speed Met (Required)	Horizontal SSD (Minimum)	Horizontal Dc (Maximum)	Vertical Curvature - K (Minimum)	Other	Design Speed Existing	Reason For Design Exception	Potential Impact(s) to Eliminate Design Exceptions	Potential Mitigation Solutions
Third Street (OH)		N										
Central Avenue (OH)		N										
Seventh Street (OH)		N										
Ninth Street (OH)		N										
Linn Street (OH)		N										
NB CD ROAD to Winchell Ave (Local)	PI Sta. 65+75.00 (Vertical)	Y	37	31 mph (40)			39 (44) - crest		N/A	• Curve needed to be able to tie profile in from NB CD Road to Winchell Ave.	• To fix, the horizontal alignment would need to be adjusted for three connections (NB CD Road to Winchell Ave., 6th Street to Winchell Ave., and W. Court Street.). • Moving these alignments could potentially impact 7 structures along Winchell Ave. and W. Court Street.	• Add Signage/ Lighting • Vertical Curve 2.0 times the minimum length needed.
	PI Sta. 69+20.00 (Vertical)	Y	38	31 mph (40)			39 (64) - sag		N/A	• Vertical curve used to match existing profile.	• Fill in the sag point which may impact neihboring apartment building.	• Add Signage/ Lighting • Vertical Curve 2.0 times the minimum length needed.
					Existing posted speed limit on Winchell Ave. is 40 mph							
Gest Street (OH)	CURVE NO. 192 PI Sta. 14+34.53 (Horiz.)	Y	39	30 mph (40)	207' (305)				33 mph	• The line of sight is impeded by a roadside barrier and retaining wall. • The proposed shoulder needs to be widened to meet the needed sight distance therefore increasing the structure length of 7th and 9th streets.	• Widen shoulder using a pvement taper. • Flattening the curve could potentially impact a hotel parking garage. • Extend overhead bridges to set abutments outside of the clear zone so that ne barrier is needed.	• Add Signage/ Lighting
John St.		N										
West Court St.		N										
Ezzard Charles WB		N										
Ezzard Charles EB		N										

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Brent Spence Bridge
Design Exceptions - Alternative I

I-75/I-71	Station	Design Exception	D.E. Number	Design Speed Met (Required)	Horizontal SSD (Minimum)	Horizontal Dc (Maximum)	Vertical Curvature - K (Minimum)	Other	Design Speed Existing	Reason For Design Exception	Potential Impact(s) to Eliminate Design Exceptions	Potential Mitigation Solutions
SB I-75 to Kyles Lane	Sta. 445+00	Y	40					Grade		• Proposed ramp grade is 8.1 percent due to right of way considerations.	• Extending the beginning of ramp futher south and thus widening the right of way limits required for the connection to the existing elevtion at the ramp terminal.	• This steep slope is less than 500 feet long and provides an exit ramp to Kyles Lane on which traffic has to decelerate.
NB CD Road	Existing Bridge (Lower Deck)	Y	41					Lane Width		• 11' lanes needed to utilize the existing bridge width.	• Replace the existing bridge and rebuild structure to accommodate a wider section.	• Will be maintaining one 12' lane on the lower bridge deck.
	Existing Bridge (Lower Deck)	Y	42					Shoulder Width		• A minimum 4' left shoulder and an 8' right shoulder are needed to maintain 3 through lanes and utilize the existing bridge width.	• Replace the existing bridge and rebuild structure to accommodate a wider section.	

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