

APPENDIX H

Project Team Meeting

Minutes



Architecture Engineering Planning

Groundbreaking by Design.

Project: I-75/Mall Road Interchange Modification Report
Item Number 6-409.00

Purpose: Project Team Meeting #1

Place: District 6 – Boone County

Meeting Date: January 8, 2013

Prepared By: Tom Springer

Presenters: Bob Yeager KYTC – D6
Mike Bezold KYTC – D6
Carol Callan-Ramler KYTC – D6
Daniel Menetrey KYTC – D6
Rick Davis KYTC – D6
James Simpson KYTC – CO Highway Design
Thomas Witt KYTC – CO Planning
Mikael Pelfrey KYTC – CO Planning
Albert Zimmerman Qk4
Jeremy Lukat Qk4
Tom Springer Qk4

The objective of the meeting was to discuss the findings of the planning process for an interchange modification to the existing Mall Road Interchange with I-75 in Boone County. The presentation, which includes much of the details discussed, is included with these minutes. Key points are as follows:

Project Schedule:

Milestones: Everyone was reminded that the project schedule lagged by a few months in order to include traffic forecasts (revised December 7, 2012) in the first Project Team Meeting.

Existing Conditions:

- Tom Springer summarized the existing conditions, including planned projects in the study area; traffic counts and data; ramp spacing; geometric deficiencies within the study area (nothing there were very few and none that should be addressed with this project); LOS, and v/c data; and Safety data.
- Crash data was summarized for January 1, 2009 to December 31, 2011, which did not include 2012 improvements to Mall Road.

- The opening of Aero Parkway in November 2012 may have an impact on the project.

Ramp Preliminary Design:

- The current Mall Road Interchange accommodates Mall Road to I-75 Northbound and I-75 Southbound to Mall Road movements. Alternatives studied are for Mall Road to I-75 Southbound.
- Traffic projections: The OKI traffic model forecasts 4,300 vpd in 2012 and 5,700 vpd in 2040 on the proposed new southbound access ramp.
- Build Alternatives: Qk4 studied two build alternatives: Alternative 1, at 35 MPH design speed, and Alternative 2, at a 45 MPH design speed. Alternative would cost approximately \$190,000 more than Alternative 2 (\$1,219,000 vs. \$1,028,800) due mostly to more utility impacts and the need for a retaining wall. It was decided by the Project Team to advance only Alternative 2 because it would be at a higher design speed and cost less.
- Qk4 was asked if 50 or 55 mph designs would prevent reconstruction of the structure where the existing SB entrance ramp goes under the existing ramp for the SB exit to US 42.
- A Preliminary Signage plan was presented.
- A sketch of I-75 Northbound to Mall Road Ramp was included to show the magnitude of impacts to property as to why this is not going to be included in the interchange modification.

New Ramp Capacity Results:

- It was concluded and agreed that the new ramp would not adversely affect traffic on I-71/I-75.
- Upon a detailed examination of the traffic forecasts, it was decided KYTC would take a second look at the Turning Movement forecast at the intersections of KY 18 and the SB I-71/I-75 ramps, and the US 42/Mall Road intersection. Copies of the KYTC forecasts were provided by Qk4 to District 6 staff, who will provide them to KYTC Planning for revision.
- Qk4 should reorder spreadsheet columns to show AM Existing next to the AM Build and so on.

Draft Purpose and Need Discussion:

- The initial Purpose and Need (P/N) for this proposed project was discussed as compared with the traffic volumes and forecasts. The original P/N is as follows: "The purpose of this project is to improve safety and congestion along KY 18 and US 42 from Mall Road to I-75."
- The traffic forecasts, although they will be revisited, suggest that the Purpose and Need may need to be revised. The team will await the revised traffic data for doing so, but it was considered that the purpose of the project is in large part "system connectivity," specifically, to improve connectivity from a major regional development area to the interstate system.

Schedule & Next Steps:

- Following the receipt of the revised traffic numbers, a re-evaluation of the operational impacts of those numbers by Qk4, and a reevaluation of the Purpose and Need, the project

team would meet again to identify the final recommendations of the plan. It is anticipated that meeting would be held in February or early March, which would help put the project back on the original schedule.

End of Meeting Notes



I-75 / Mall Road
Interchange

6-409.00

Boone County

Original Project Schedule

Milestones	Milestone Dates	Actual Dates
Notice to Proceed	June 25, 2012	July 3, 2012
Assessment of Existing Conditions	August 31, 2012	
Development of Alternative Concepts	October 15, 2012	*Received Revised Traffic December 7, 2012
First Project Team Meeting	October 31, 2012	January 8, 2013
Second Project Team Meeting	February 15, 2013	
Submission of Draft Report	April 1, 2013	
Address Comments/Resubmit	June 15, 2013	
After Approval of Final Report	July 5, 2013	

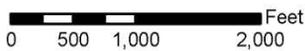
Original Purpose of the Project

KY 18 in the vicinity of its I-75 interchange is the most congested non-Interstate route in District 6. The existing partial interchange at Mall Road addressed that issue. Congestion on US 42 in the vicinity of its I-75 interchange remains a problem. **One of the purposes of the proposed interchange modification is to address that congestion.** The current project was suggested to KYTC by the City of Florence, and was ranked as the fifth highest priority project in District 6 in the recently completed District Transportation Plan.

Study Area

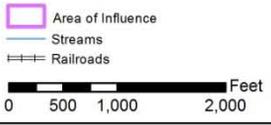
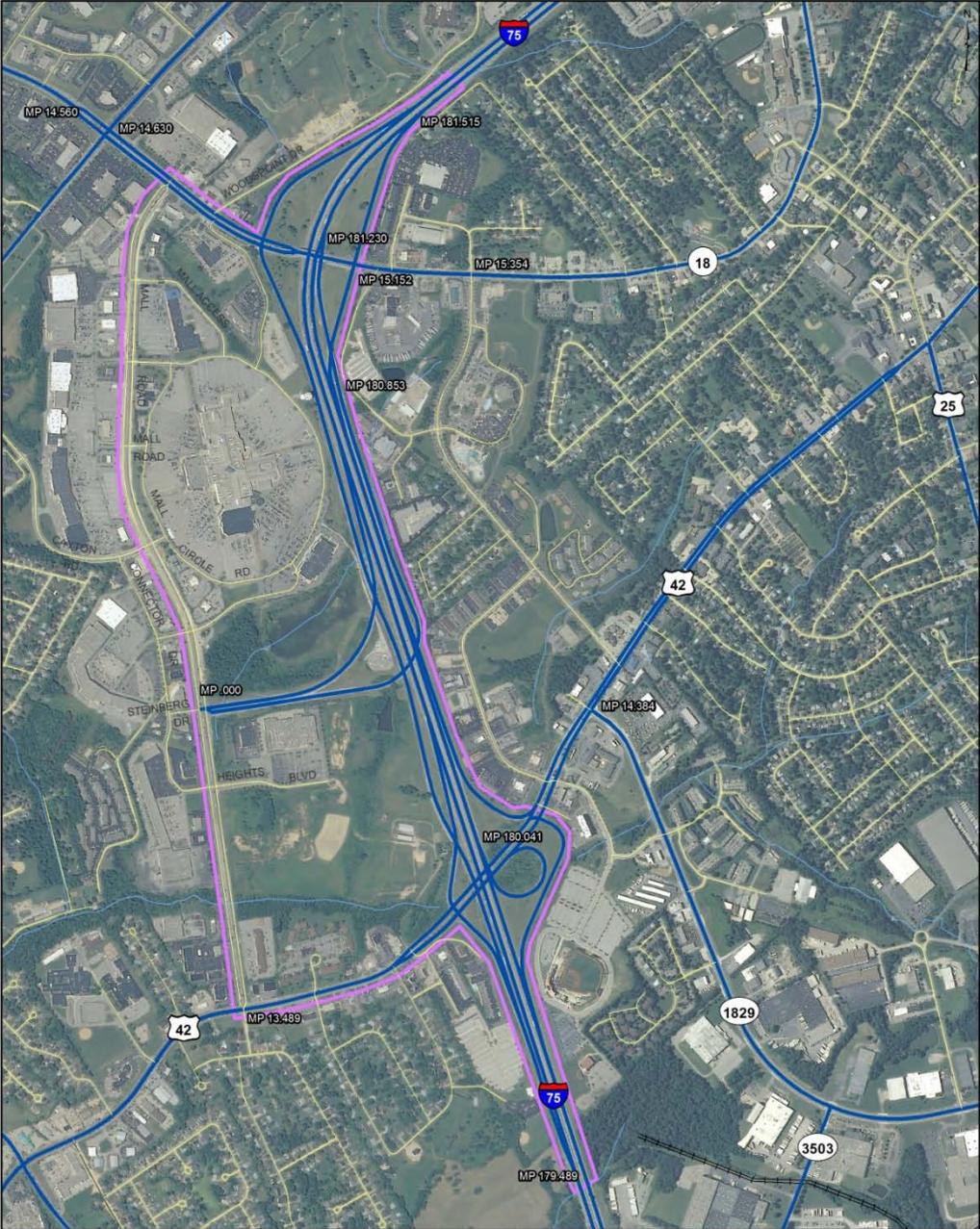


-  Ramp Designation
-  Streams
-  Railroads



Study Area
I-75/Mall Road
Boone County, KY

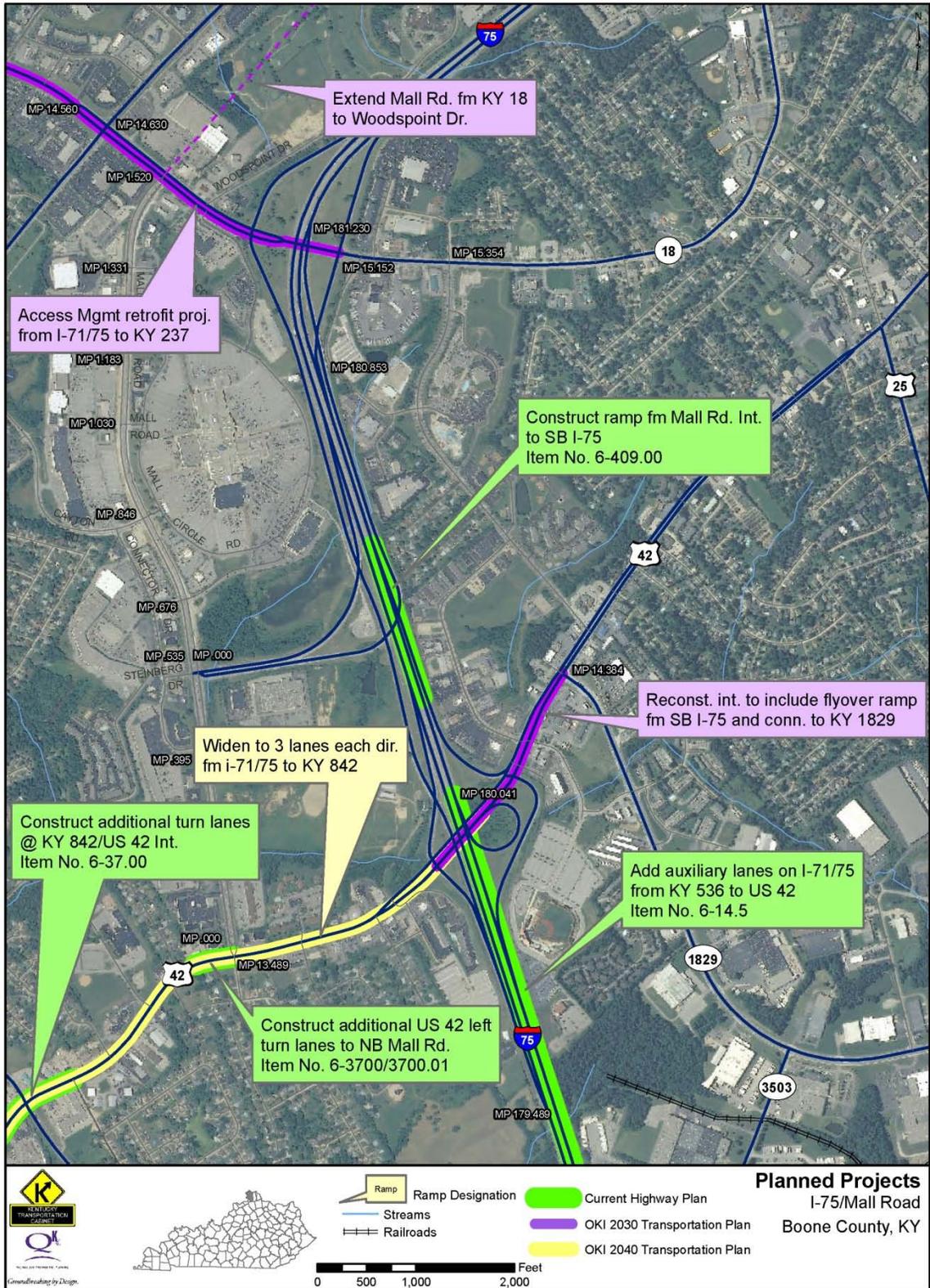
Area of Influence



Area of Influence
 I-75/Mall Road
 Boone County, KY

EXISTING CONDITIONS

Planned Projects



Mall Road Interchange and Other Plans

- The addition of an I-75 southbound on-ramp at Mall Road was identified as a priority in the
 - Boone County Transportation Plan 2030 (November 30, 2005, Appendix B).
 - OKI 2040 Regional Transportation Plan (June 2012).
 - Highway District 6 Transportation Plan (October 2011), this project was ranked fifth to be considered for the KYTC's next Highway Plan.
 - Current Highway Plan.
 - 2012 Mall Road District Study
 - and is now a part of the 2012 Statewide Transportation Improvement Program identified under the Regionally Significant Air Quality State Funded Projects for FY 2013-FY 2016 approved by the General Assembly.

TRAFFIC COUNTS

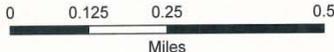


Legend

- US Highways
- State Roads
- Local Roads
- NHD Flowline Features



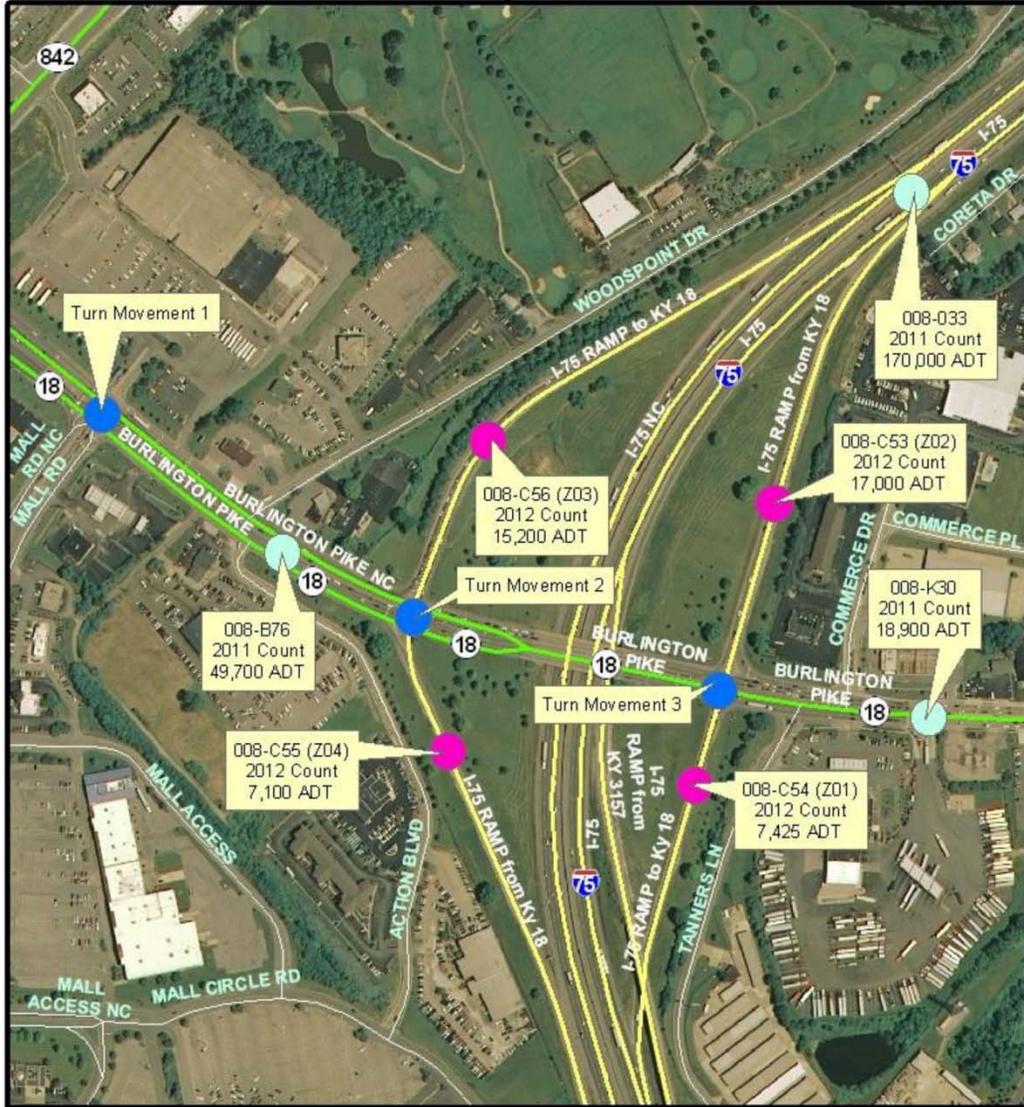
I-75/Mall Road IMR
Study Area



7-9 A.M.
4-6 P.M.

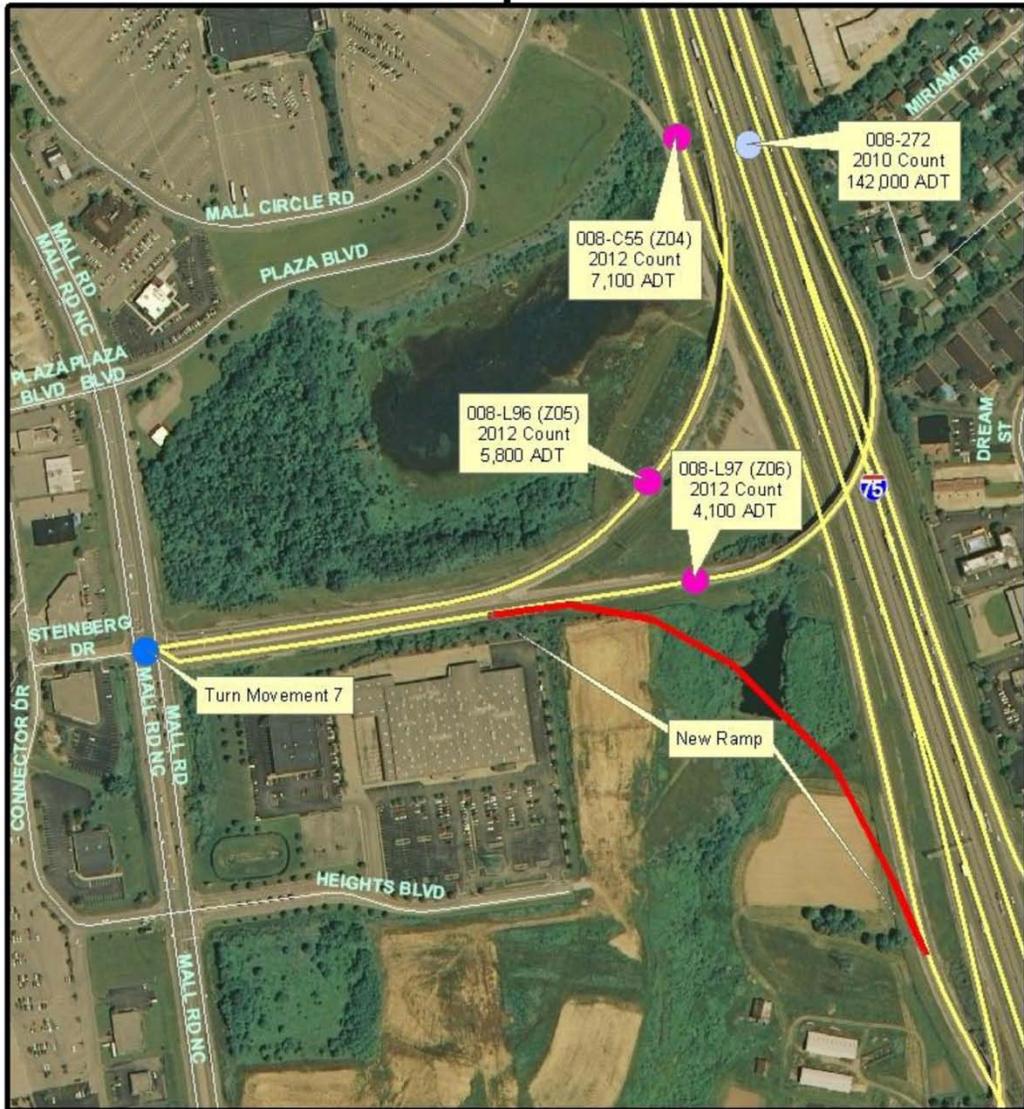
KENTUCKY
TRANSPORTATION
CABINET

Volume and Special Counts 1



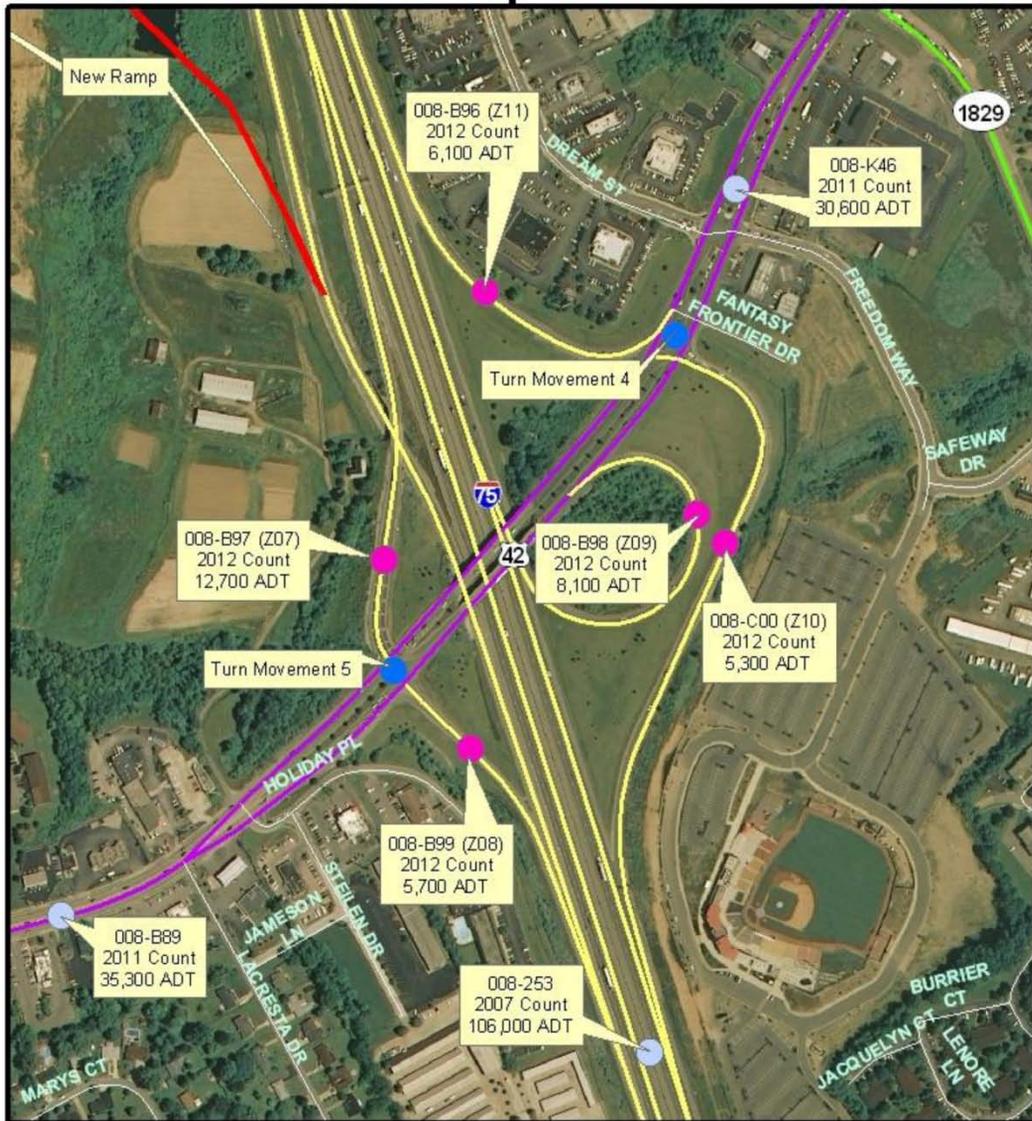
	LEGEND New Ramp Turn Movement Volume Counts Ramp Counts	Boone County Construct additional Ramp on I-75 near Exit 180A Item # 06-0409.00			
	KYTC Division of Planning				

Volume and Special Counts 2



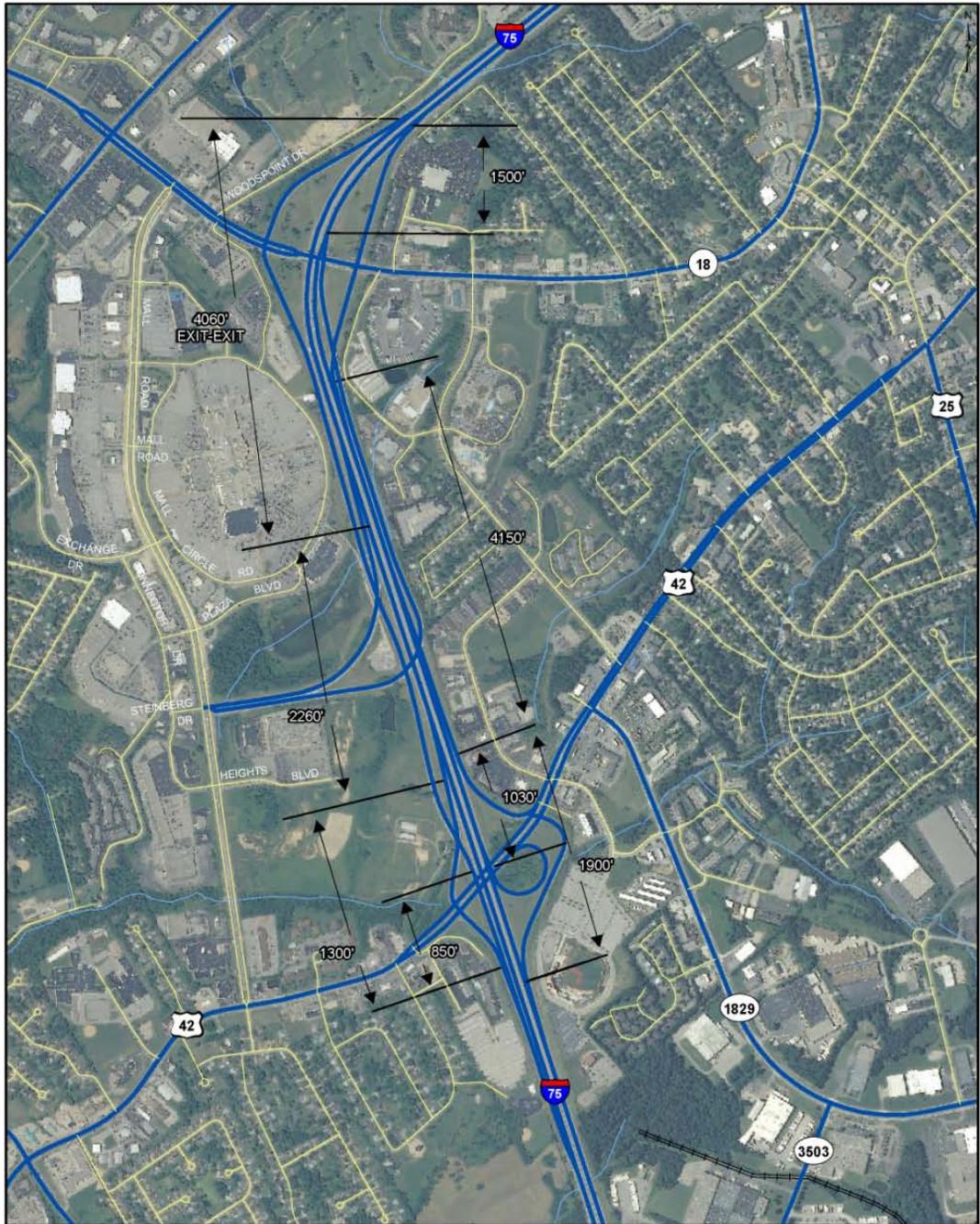
<p>N</p> <p>LEGEND</p> <ul style="list-style-type: none"> — New Ramp ● Turn Movement ● Volume Counts ● Ramp Counts 	<p>Boone County Construct additional Ramp on I-75 near Exit 180A Item # 06-0409.00</p>	<p>Kentucky UNBRIDLED SPIRIT™</p> <p>0 0.05 0.1 0.2 Miles</p>
	<p>Boone County Construct additional Ramp on I-75 near Exit 180A Item # 06-0409.00</p>	

Volume and Special Counts 3



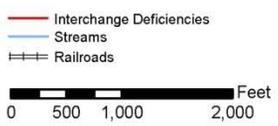
<p>N</p> <p>LEGEND</p> <ul style="list-style-type: none"> — New Ramp ● Turn Movement ● Volume Counts ● Ramp Counts 	<p>Boone County Construct additional Ramp on I-75 near Exit 180A Item # 06-0409.00</p>	<p>Kentucky UNBRIDLED SPIRIT™</p> <p>0 0.05 0.1 0.2 Miles</p>
	<p>0 0.05 0.1 0.2 Miles</p>	

Ramp Spacing



Ramp Spacing
I-75/Mall Road
Boone County, KY

Geometric Deficiencies



Study Area Deficiencies
I-75/Mall Road
Boone County, KY

CAPACITY

Mainline I-75 No-Build LOS

Location	Year	Scenario	ADT	Design Hour Volume	Peak Direction DHV	Truck %	Number of Lanes	Capacity (vphpl)	v/c Ratio	LOS
North of KY 18	2012	No Build	168,350	15,657	8,815	9.5%	10	2,400	0.93	E
	2040	No Build	221,300	20,581	11,587	9.5%	10	2,400	1.23	F
Between KY 18 & US 42	2012	No Build	134,850	12,541	7,061	10.4%	8	2,400	0.94	E
	2040	No Build	174,600	16,238	9,142	10.4%	8	2,400	1.22	F
South of US 42	2012	No Build	125,750	11,695	6,584	20.5%	8	2,400	1.00	F
	2040	No Build	163,100	15,168	8,540	20.5%	10	2,400	1.03	F

2012 and 2040 No Build LOS Ramps and Intersections

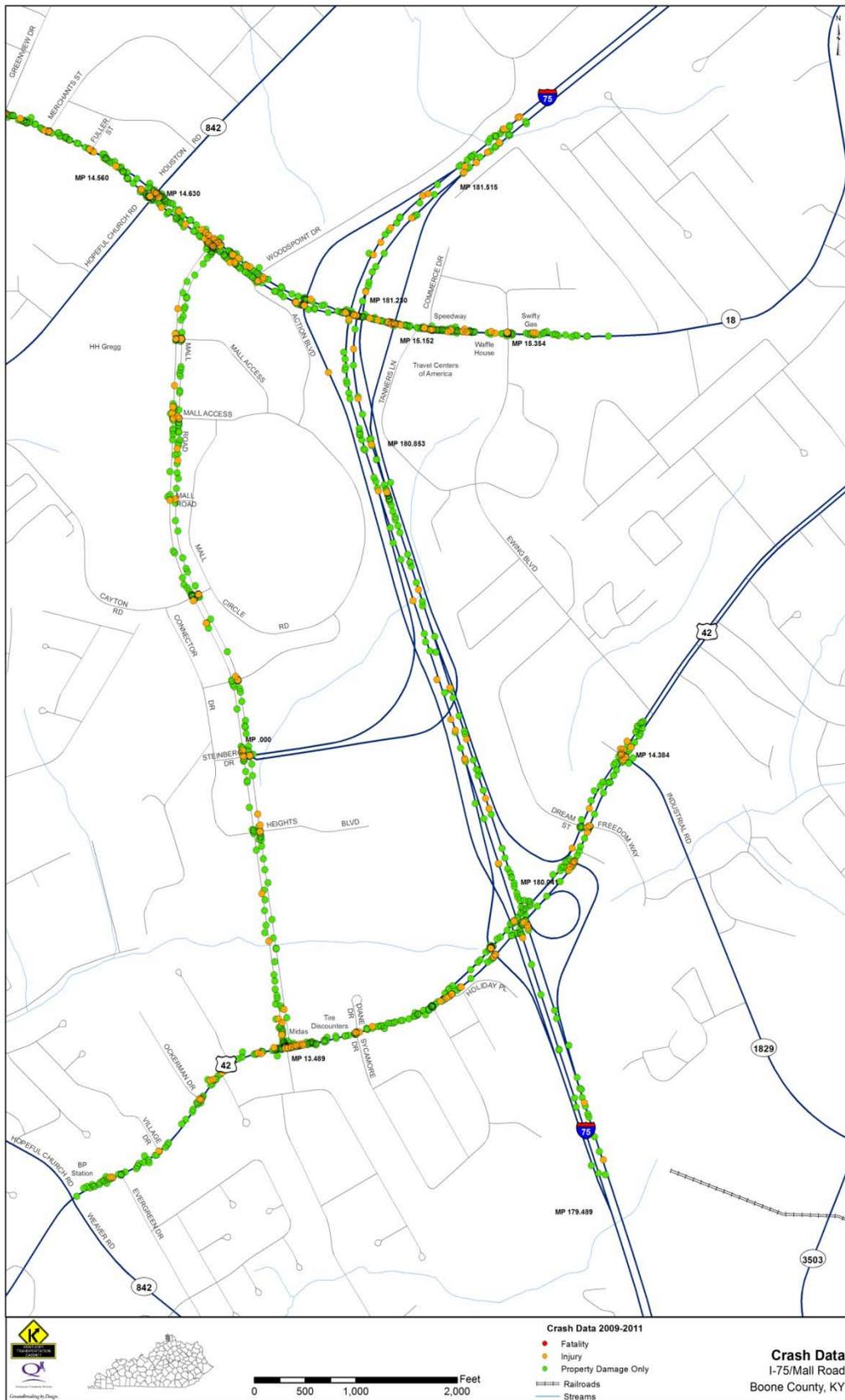
Description	Roadway Section	2012 AM Existing LOS	2012 AM Existing Delay (sec) or Density (pc/mi/ln)	2012 PM Existing LOS	2012 PM Existing Delay (sec) or Density (pc/mi/ln)	2040 AM No-Build LOS	2040 AM No-Build Delay (sec) or Density (pc/mi/ln)	2040 PM No-Build LOS	2040 PM No-Build Delay (sec) or Density (pc/mi/ln)
I75 NB to US 42	Ramp 411	D	31.4	D	31.4	F	41.6	F	42.0
US 42 EB to I75 NB	Ramp 412	D	29.2	C	27.1	F	39.7	F	35.6
US 42 WB to I75 NB	Ramp 421	D	30.0	D	33.6	F	39.9	F	39.9
I75 SB to US 42	Ramp 431	E	35.2	E	35.5	E	44.3	E	44.6
Mall Road to I75 NB	Ramp 521	D	31.9	F	33.1	F	39.3	F	38.0
I75 SB to Mall Road	Ramp 531	E	38.4	E	38.8	F	56.0	F	49.7
I75 NB to KY 18	Ramp 611	E	37.4	E	37.6	F	53.5	F	54.1
I75 SB to KY 18+ (major diverge analysis)	Ramp 631	A	9.3	B	17.4	B	11.6	C	20.9
	Mainline before	F	40.4	F	40.4	F	52.3	F	52.3
	Mainline after	F	45.4	F	40.9	F	59.0	F	59.0
KY 18/US 42 to I75 SB	Ramps 641 & 441	C	23.8	D	30.5	D	29.9	D	34.0
Mall Road/KY 18	Intersection 1	B	15.6	F	123.8	B	18.2	F	197.2
KY 18/I-75 SB Ramps	Intersection 2	F	124.6	F	198.5	F	141.6	F	346.2
KY 18/I-75 NB Ramps	Intersection 3	E	57.4	F	237.2	F	241.4	F	221.6
US 42/I-75 NB Ramps	Intersection 4	F	142.5	E	49.7	F	544.6	F	219.9
US 42/I-75 SB Ramps	Intersection 5	D	43.5	F	163.4	F	108.0	F	229.1
Mall Road/US 42	Intersection 6	C	31.5	F	179.2	E	61.5*	F	289.5*
I-75/Mall Road Ramps	Intersection 7	C	23.2	C	31.9	C	25.5	F	167.5

* Includes Item Numbers 6-3700 and 3700.01 "Construct an additional US 42 left turn lane to Northbound Mall Road"

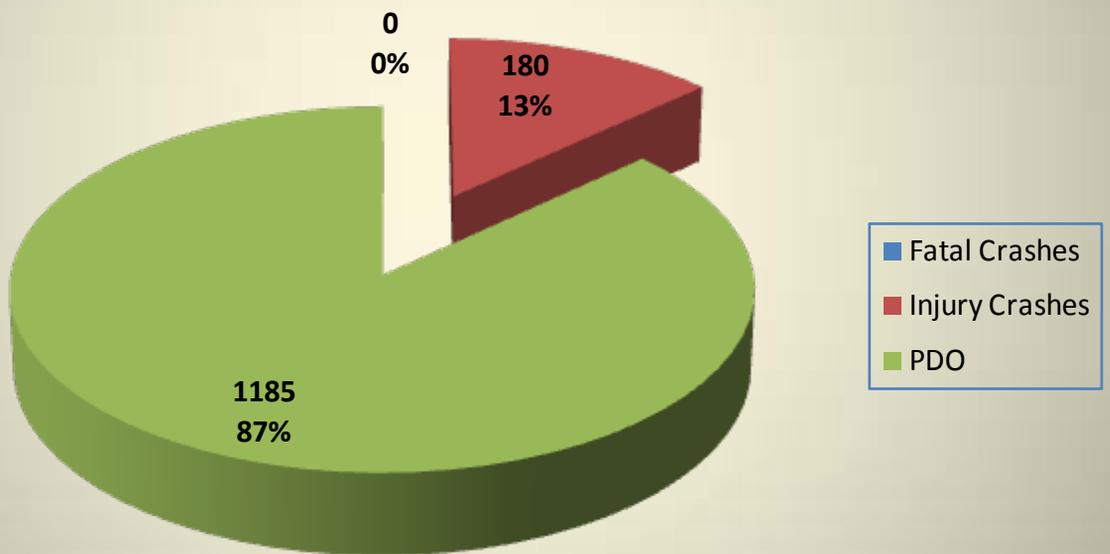
+ The diverge of Ramp 631 is a major diverge area. The procedure in the HCM for analyzing a major diverge area is to check the entering demand and the departing demand of each exit leg against the capacity of the entry leg.

SAFETY

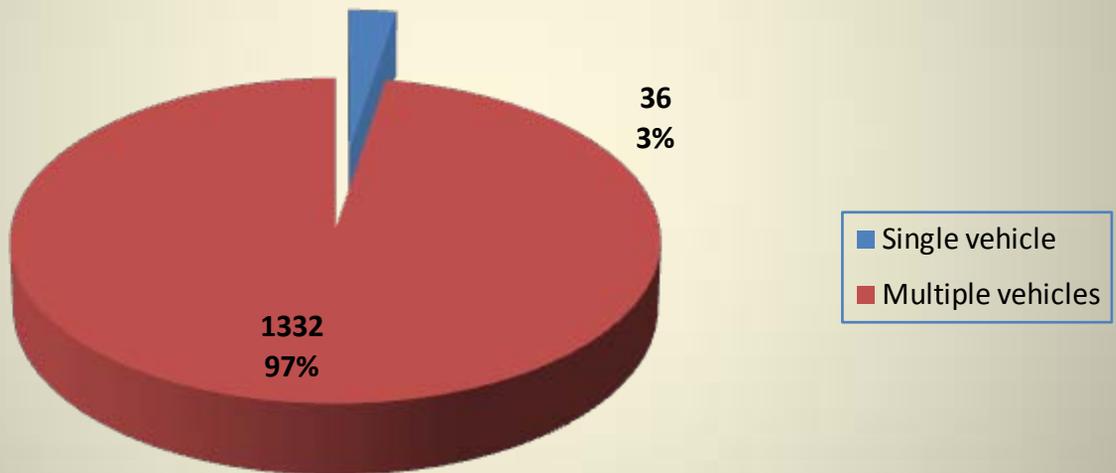
Crash Locations



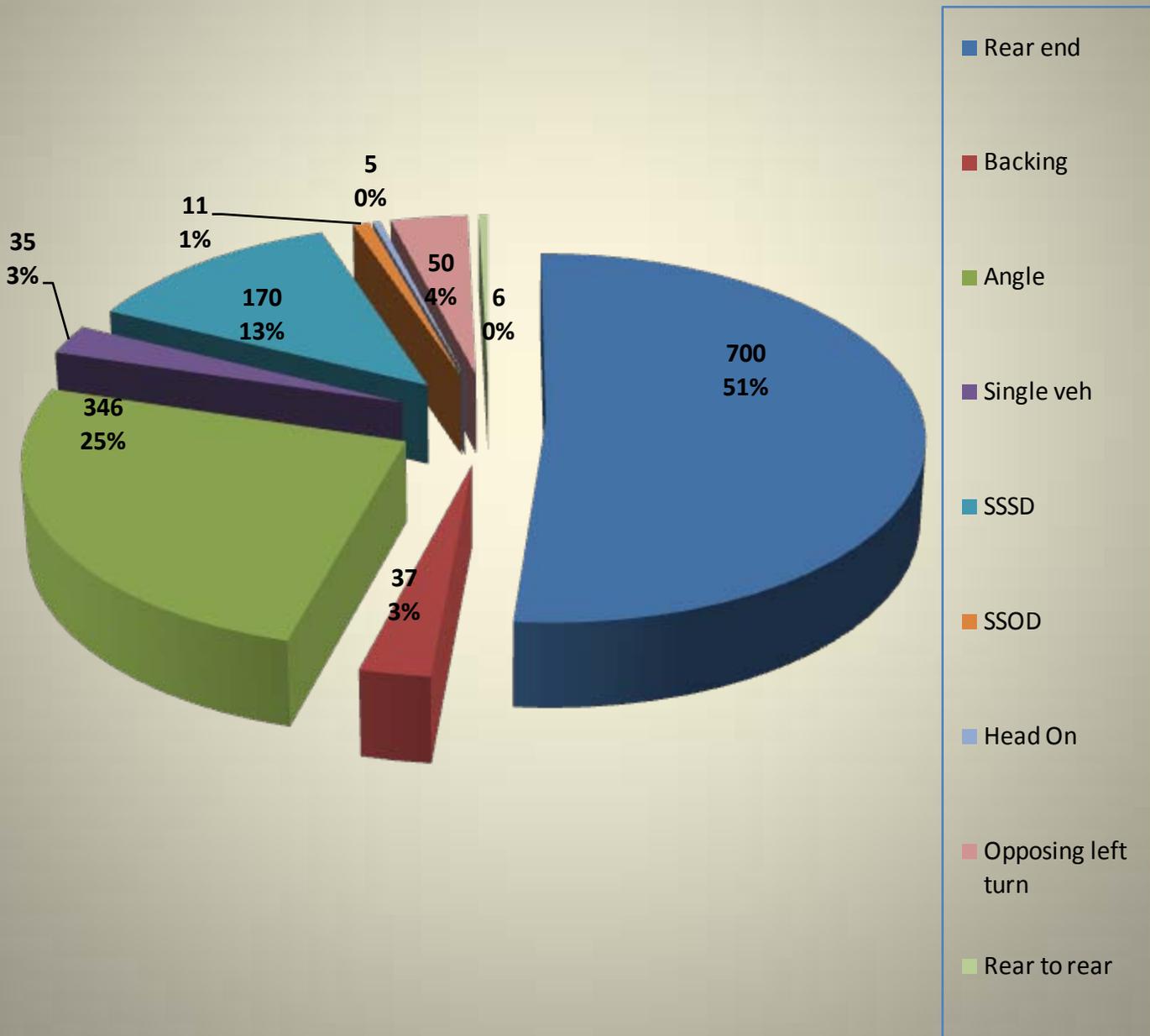
Crash Type



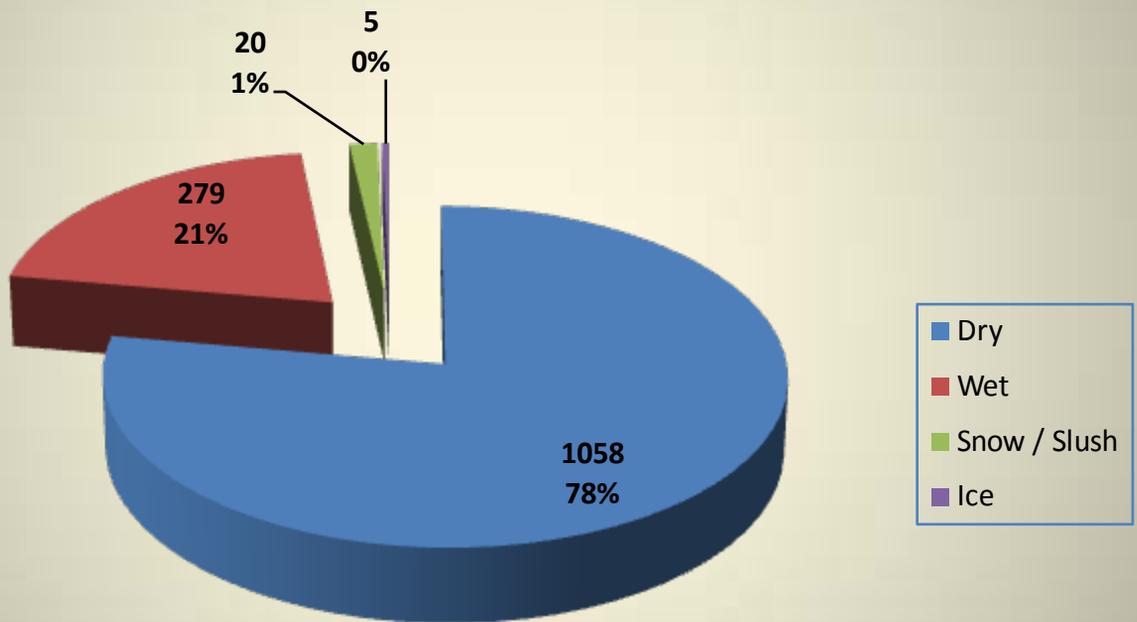
Number of Vehicles



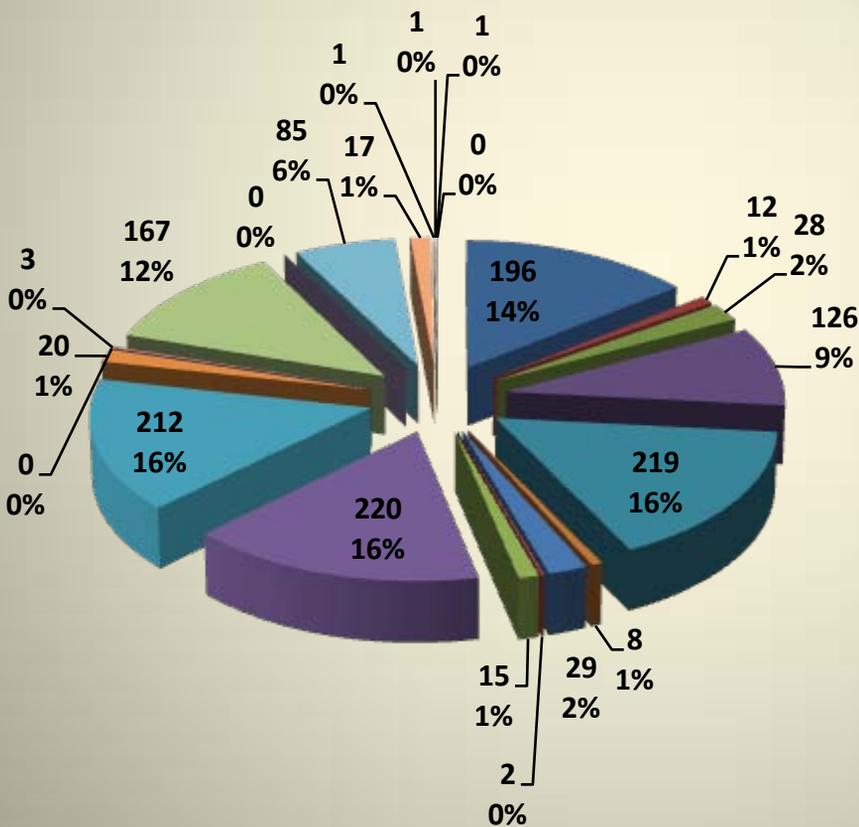
Manner of Collision



Roadway Conditions

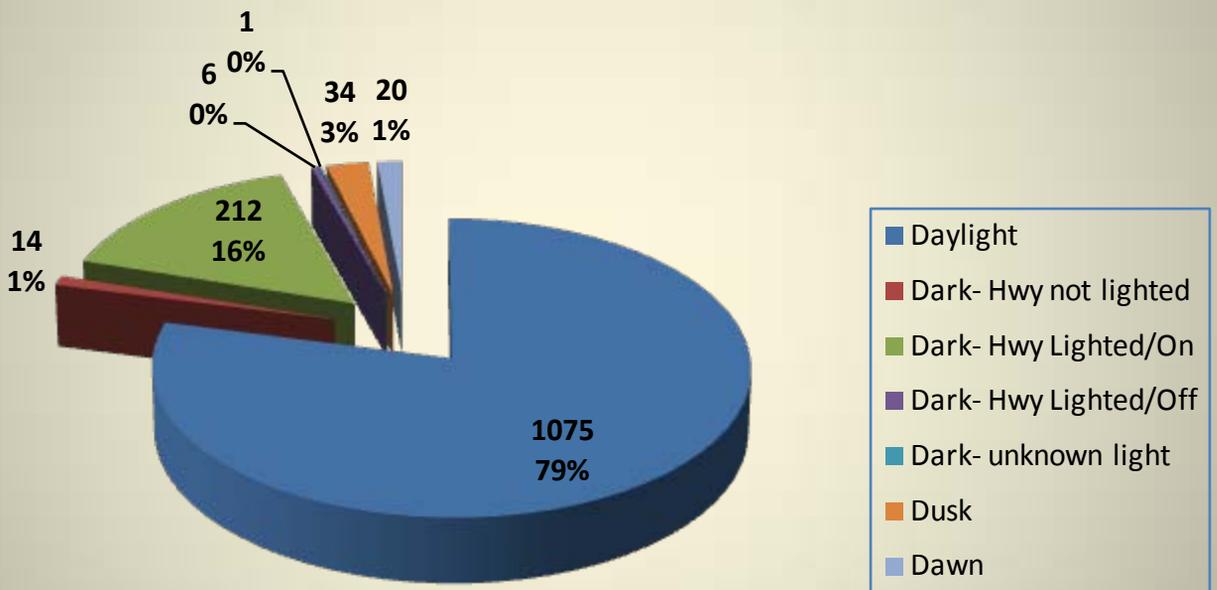


Directional Analysis

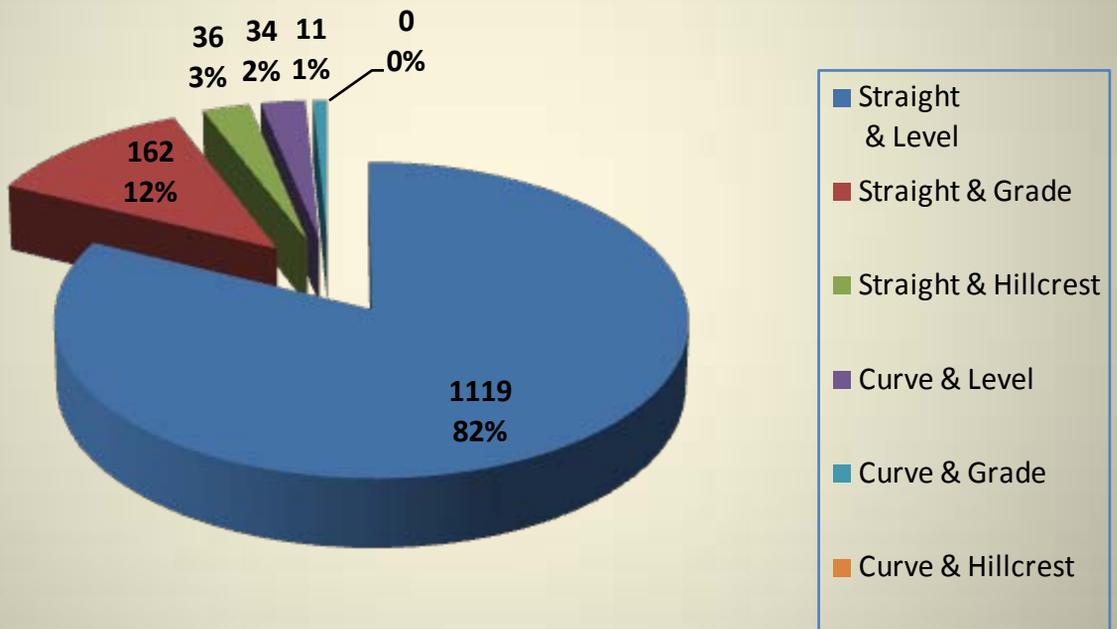


- rear end- other
- rear end- turning
- vehicle backing
- entering /leaving
- **Angle**
- Opposite Direction
- Opposing Left Turn
- Head On
- Collision with fixed object
- Rear End in Traffic, 1 veh stopped
- Rear End in Traffic, both vehicles moving
- Collision with Non-Fixed Object
- Occupant Fell from Moving Vehicle
- Collision with Animal

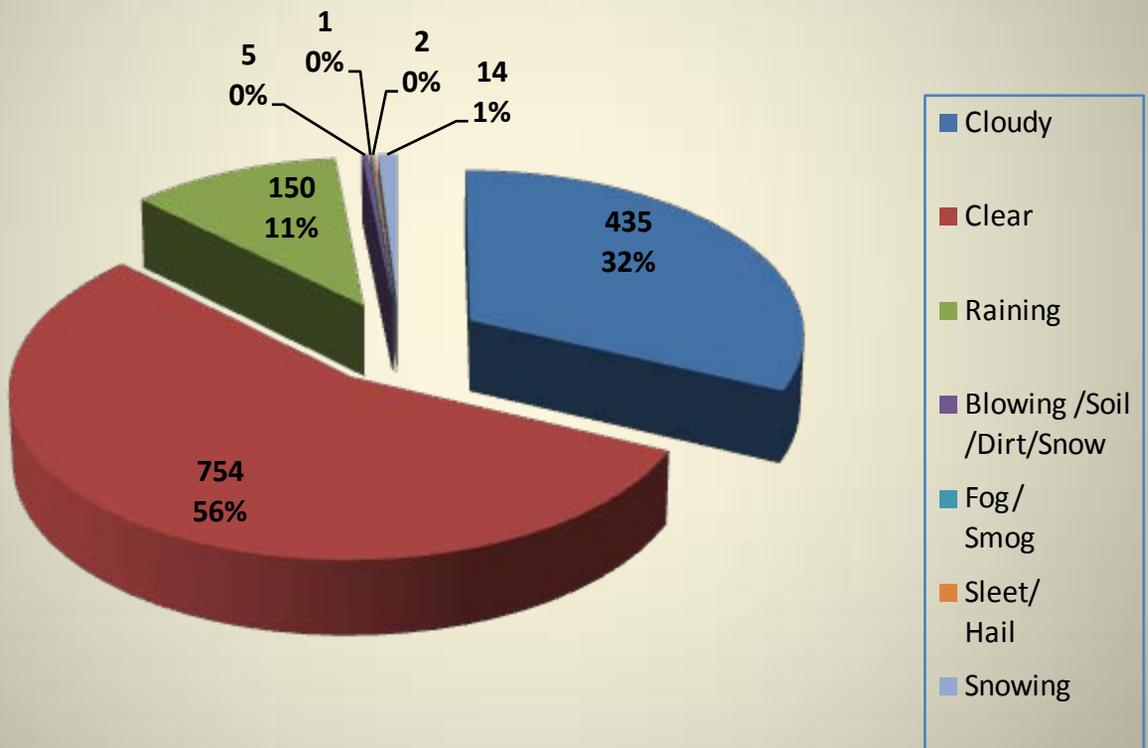
Lighting



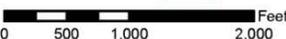
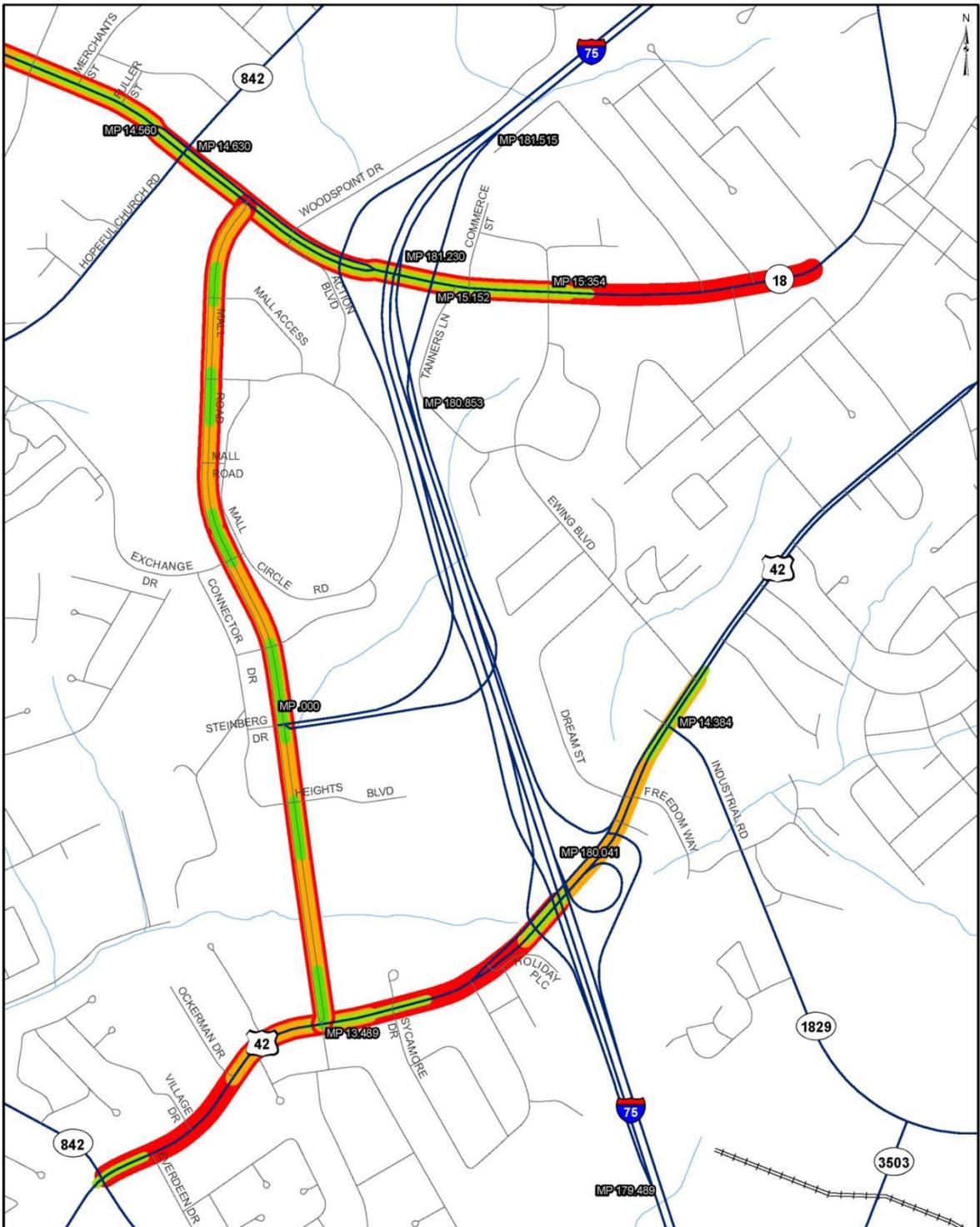
Roadway Characteristics



Weather



Crash Spots



- Crash Data 2009-2011**
- █ 0.1 Mile Spots with CCRF > 1
 - █ 0.3 Mile Spots with CCRF > 1
 - █ 1 Mile Spots with CCRF > 1
- Railroads
 - Streams

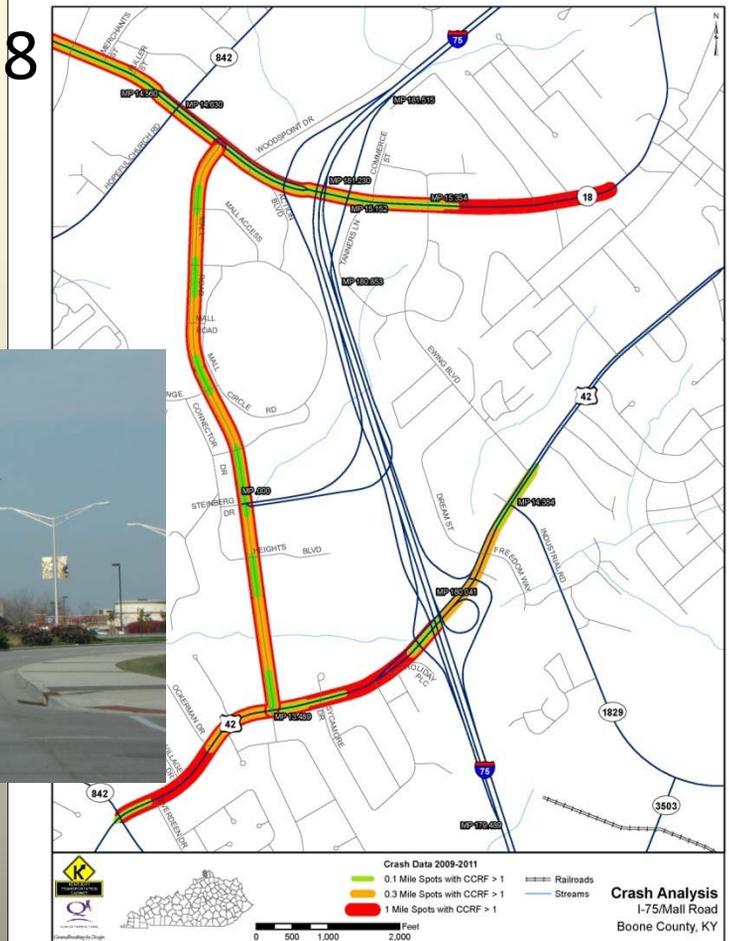
Crash Analysis
 I-75/Mall Road
 Boone County, KY

REVIEW OF SPOTS REVEAL IN GENERAL

- NO CRITICAL SPOTS ON I-75
- MOST ARE REAR END
- ACCESS MANAGEMENT COULD
REDUCE ANGLE CRASHES
- AREAS MAY NEED TO BE
EVALUATED FOR ADDITIONAL
SIGNING

MALL ROAD CRASHES

- Rear ends at Mall Access Road/ Mall Road intersection
- Lefts out of HH Gregg
- Lefts into Mall Access Road
- Lefts from Mall Road into Florence Square at Mall Access Road
- Rear Ends @ US 42
- Rear Ends @ KY 18



US 42 CRASHES

MP 12.951 – 13.051

- Rear Ends at Hopeful Church Road and Weaver Road
- Lane changes near Hopeful Road
- In and out of BP Station

MP 13.463 – 13.563

- Rear ends
- Left into and out of Tire Discounters
- Left into and out of Midas

MP 13.568 - 13.668

- Rear ends (Diane and Sycamore Drives)

MP 13.890 – 13.990

- Rear ends
- Ran red light or failure to yield at light

MP 14.304 – MP 14.404

- Access Management
- Failure to stop at red lights
- Rear Ends

MP 14.405 – 14.505

- Ewing Blvd. left failed to yield to through movement
- Access Management

Tire Discounters and Midas MP 13.463 – 13.563



KY 18 CRASHES

MP 14.298 – 14.398

- Rear Ends (Greenview, Ridge Road), predominantly EB

MP 14.400 – 14.500

- Rear Ends (Merchants St)
- Failure to Yield (lefts to and from Merchants Street predominantly)

MP 14.514 – 14.614

- Rear ends (predominantly EB) at Hopeful Church Road
- Lane changes at Hopeful Church Road

MP 14.616 – 14.716

- Rear Ends (KY 18, Houston Road / Hopeful Church Road)
- Ran Red light at Houston Road / Hopeful Church Road

MP 14.719- 14.819

- Rear ends at Mall Road both directions
- Lane changes (several in the WB left dual turn lanes)
- Ran red light

MP 14.821 – 14.921

- Rear ends Action Blvd, Woodspoint and SB Ent Ramp
- Lane changes
- Illegal lefts from Action Blvd

MP 14.923 – 15.023

- Rear Ends at SB Ramps, Action Blvd.
- Lefts onto Action Blvd.

MP 15.025 – 15.125

- Rear ends in NB left dual left turn lanes

MP 15.227 – 15.327

- Lane changes
- Rear ends (KY 18, TA truck stop, and Speedway)

MP 15.125 – 15.225

- Rear Ends (TA truck stop, Commerce Dr., KY 18 / I-75)
- Left turns into and out of Commerce Drive
- Ran red light at NB exit ramp
- Lane changes in left turn lanes

MP 15.331- 15.431

- Rear Ends at Ewing Drive
- Lefts to and from Swifty Gas Station
- Rear ends on KY 18

Ramp Preliminary Design

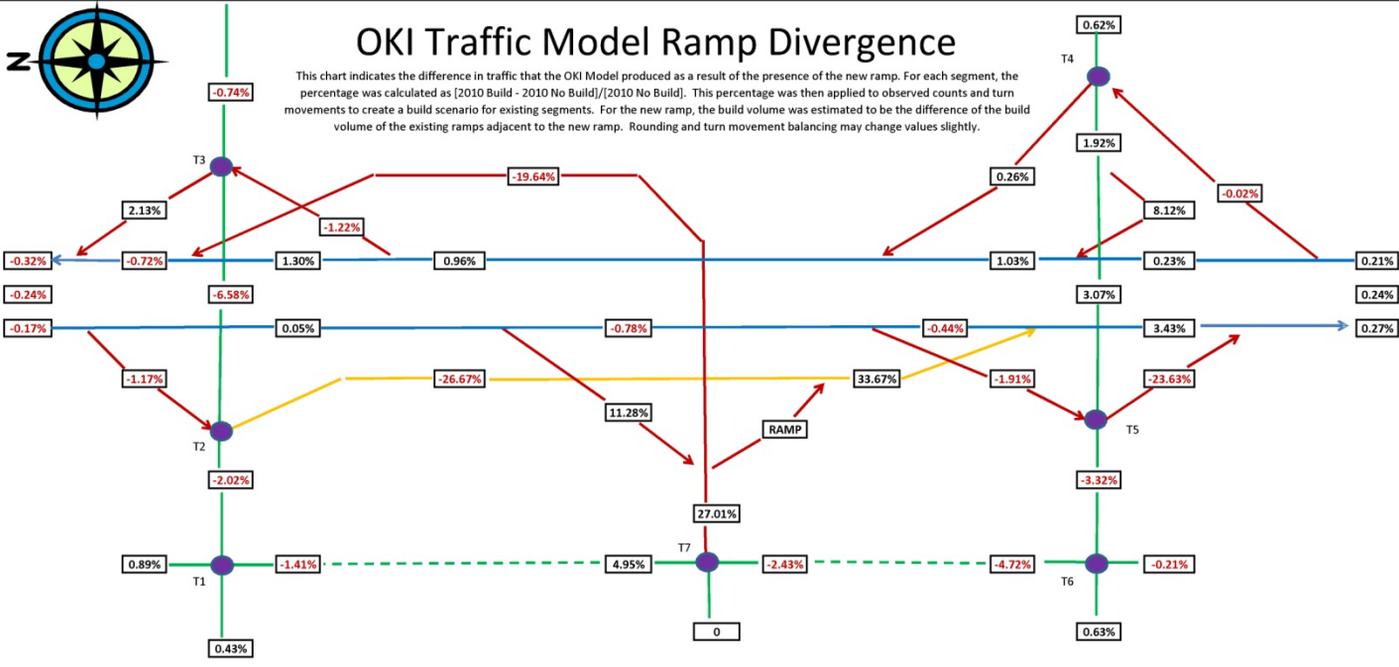
New Ramp Volumes

- 2012 Build – 4,300 vpd
- 2040 Build – 5,700 vpd



OKI Traffic Model Ramp Divergence

This chart indicates the difference in traffic that the OKI Model produced as a result of the presence of the new ramp. For each segment, the percentage was calculated as $\frac{[2010 \text{ Build} - 2010 \text{ No Build}]}{[2010 \text{ No Build}]}$. This percentage was then applied to observed counts and turn movements to create a build scenario for existing segments. For the new ramp, the build volume was estimated to be the difference of the build volume of the existing ramps adjacent to the new ramp. Rounding and turn movement balancing may change values slightly.



New Ramp Summary

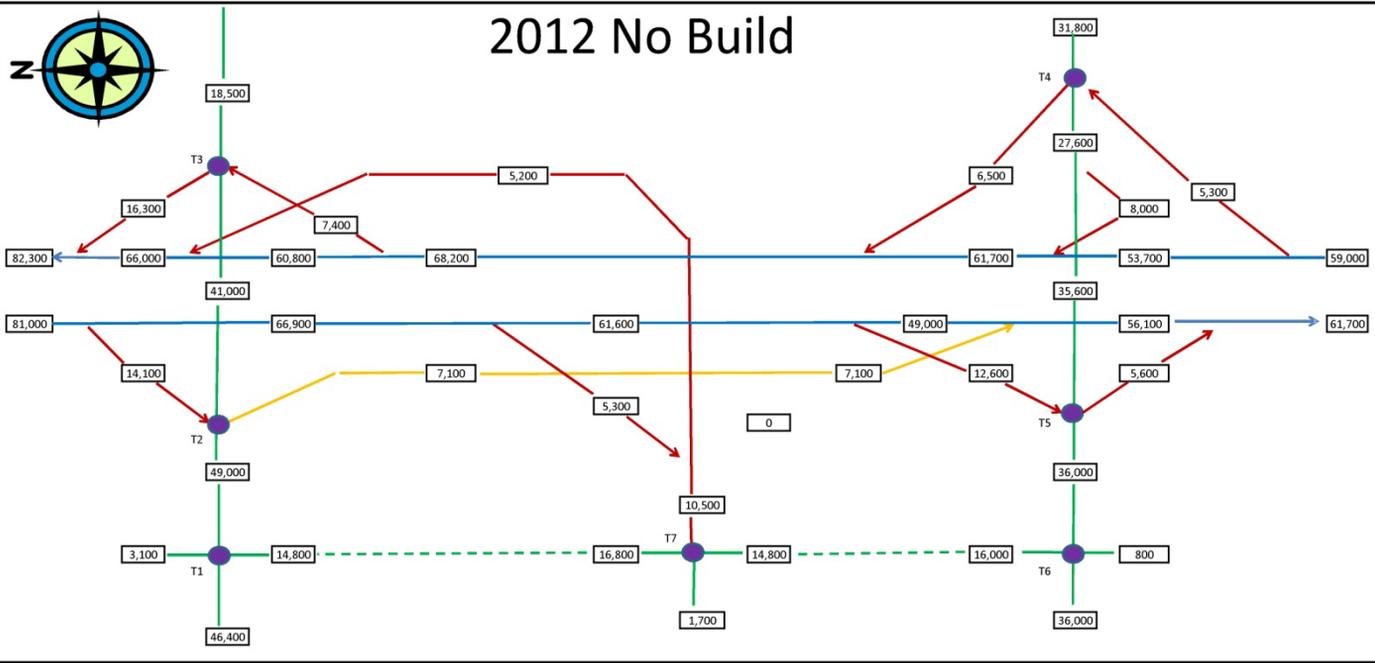
Traffic Forecast Technical Report
 Boone County: Construct New Ramp near Mall Rd.
 Item No. 06-0409.00

Summary Map

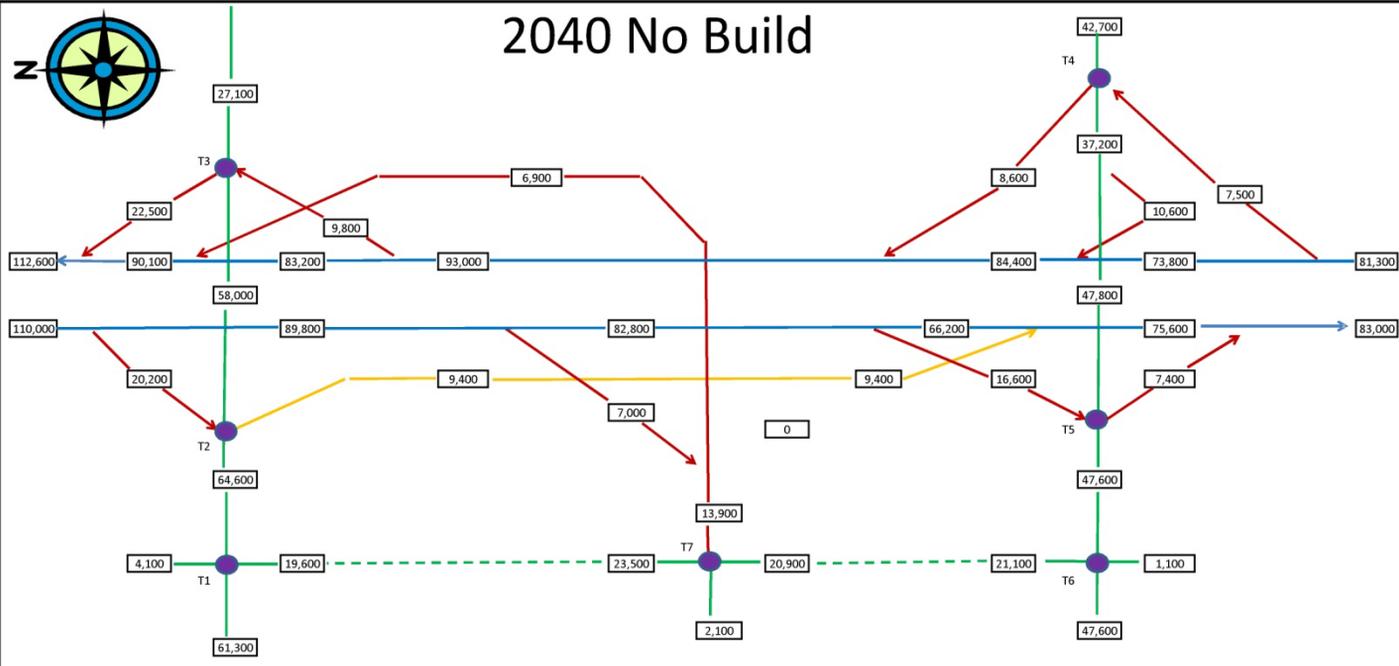


<p>N LEGEND</p>  <p> New Ramp</p>	<p>Boone County Construct additional Ramp on I-75 near Exit 180A Item # 06-0409.00</p>	  <p>0 0.075 0.15 0.3 Miles</p>
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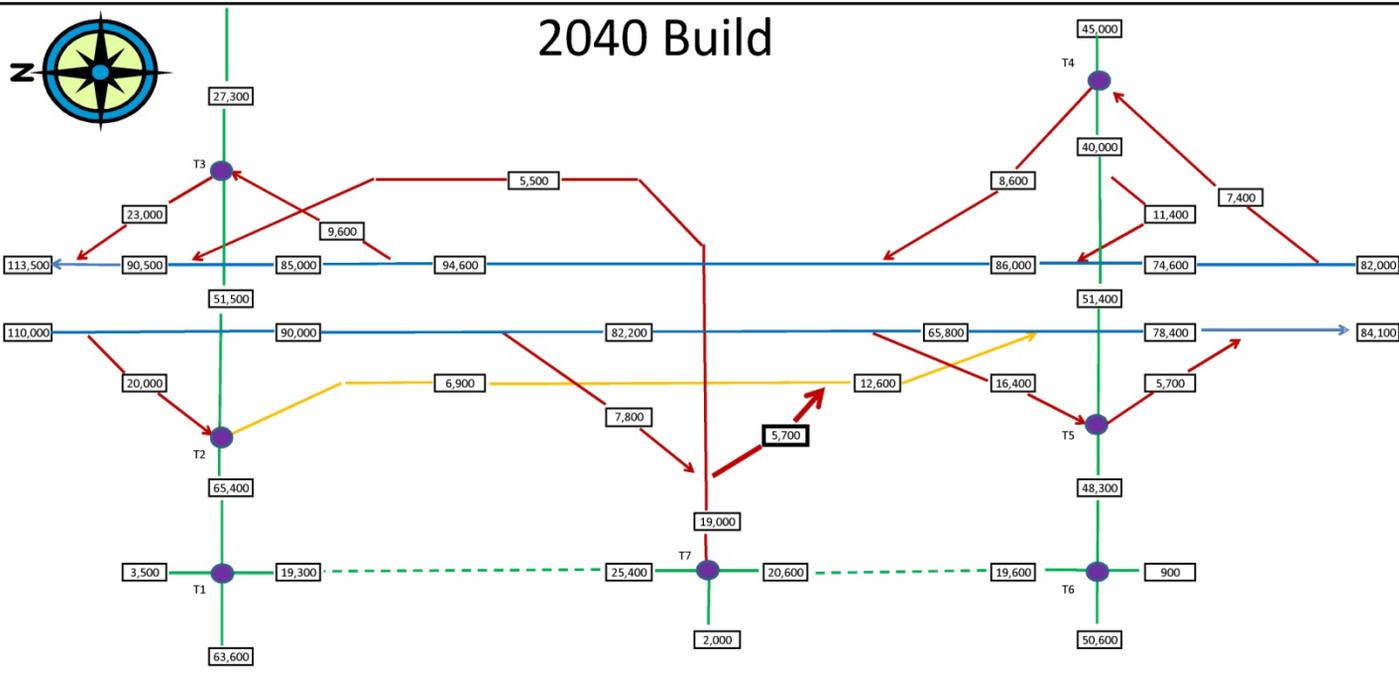
2012 No Build



2040 No Build



2040 Build



ALTERNATIVES

Preliminary Cost Estimates

	Alternative 1	Alternative 2
Design	\$ 150,000	\$ 135,000
Right of Way	\$ 60,000	\$ 80,000
Utilities	\$ 159,900	\$ 64,800
Construction	\$ 849,100	\$ 743,000
Total	\$1,219,000	\$1,028,800

Right of Way and Utilities

	Quantity	Unit	Cost per	Totals
Alternative 1 35 mph				
Right of Way Acreage	1.5	Acres	\$40,000	\$60,000
Light Poles	17	EA	\$2,000	\$34,000
Transmission Poles	3	EA	\$6,000	\$18,000
Transmission Line	720	FT	\$100	\$72,000
Water Line 12"	180	FT	\$120	\$21,600
Sewer Line 8"	130	FT	\$110	\$14,300
		Total		\$219,900
Alternative 2 45 mph				
Right of Way Acreage	2	Acres	\$40,000	\$80,000
Light Poles	15	EA	\$2,000	\$30,000
Transmission Poles	1	EA	\$6,000	\$6,000
Transmission Line	288	FT	\$100	\$28,800
Water Line 12"	0	FT	\$120	\$0
Sewer Line 8"	0	FT	\$110	\$0
		Total		\$144,800
12" water - \$120/LF (per Rob Campbell)				
8" sewer - \$110/LF (per Rob Campbell)				
Power line - \$6000 per pole and \$100/LF of line				
Light Poles - \$2000 per pole				
R/W: \$40,000/acre				

New Ramp Capacity Results

Mainline I-75 Build LOS

Location	Year	Scenario	ADT	Design Hour Volume	Peak Direction DHV	Truck %	Number of Lanes	Capacity (vphpl)	v/c Ratio	LOS
North of KY 18	2012	Build	166500	15,485	8,718	9.5%	10	2400	0.92	E
	2040	Build	218700	20,339	11,451	9.5%	10	2400	1.21	F
Between KY 18 & US 42	2012	Build	131900	12,267	6,906	10.4%	8	2400	0.92	E
	2040	Build	173000	16,089	9,058	10.4%	8	2400	1.21	F
South of Mall Rd	2012	Build	123600	11,495	6,472	20.5%	8	2400	0.98	E
	2040	Build	162300	15,094	8,498	20.5%	8	2400	1.03	F

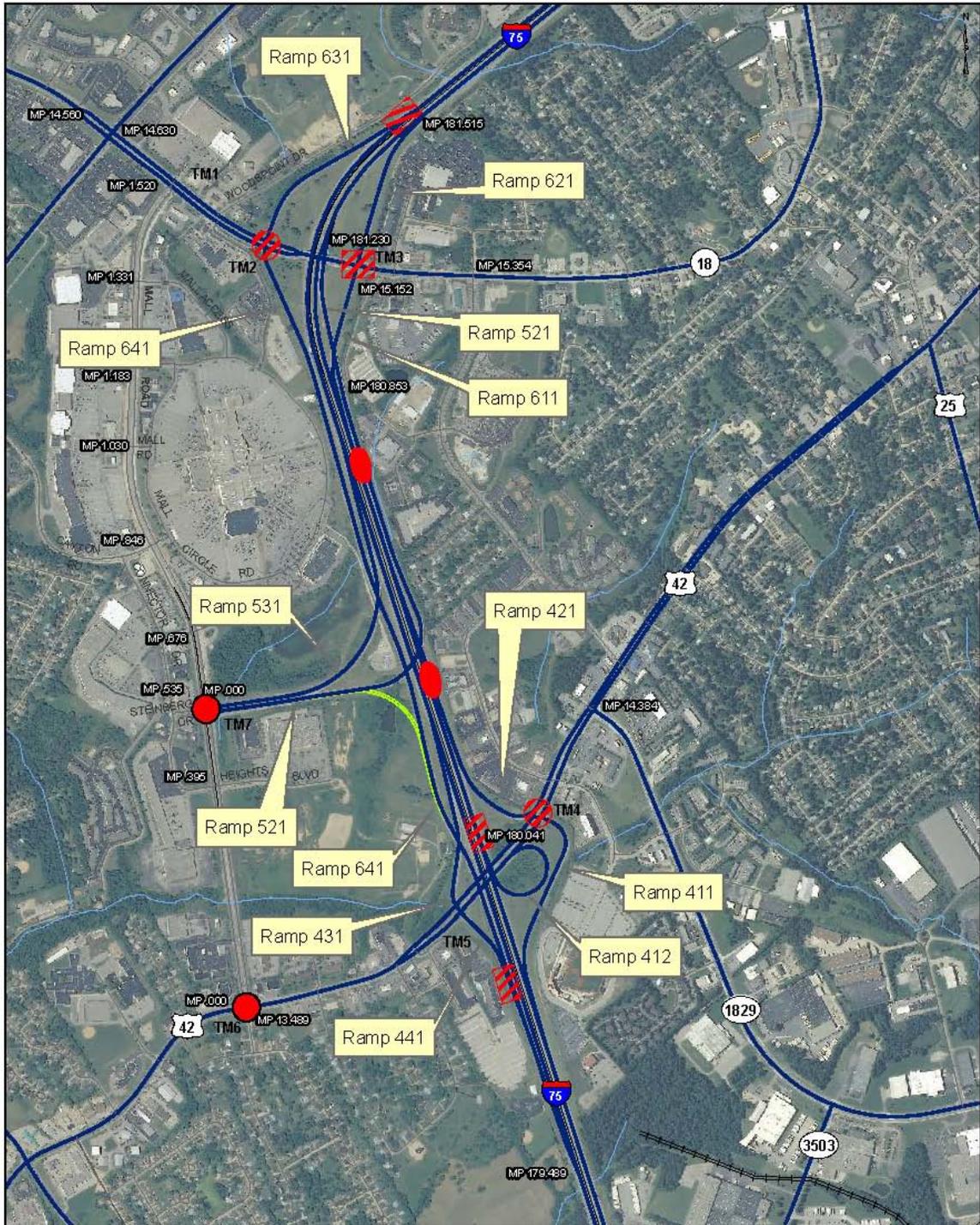
2012 and 2040 Build LOS

Description	Roadway Section	2012 AM Build LOS	2012 AM Build Delay (sec) or Density (pc/mi/ln)	2012 PM Build LOS	2012 PM Build Delay (sec) or Density (pc/mi/ln)	2040 AM Build LOS	2040 AM Build Delay (sec) or Density (pc/mi/ln)	2040 PM Build LOS	2040 PM Build Delay (sec) or Density (pc/mi/ln)
I75 NB to US 42	Ramp 411	D	31.3	D	31.3	F	40.9	F	40.8
US 42 EB to I75 NB	Ramp 412	D	29.8	C	27.1	F	37.3	F	34.1
US 42 WB to I75 NB	Ramp 421	D	30.5	D	33.9	F	39.7	F	44.0
I75 SB to US 42	Ramp 431	D	33.4	D	33.7	E	43.9	E	44.1
Mall Road to I75 NB	Ramp 521	D	29.6	D	29.0	F	37.0	F	36.9
I75 SB to Mall Road	Ramp 531	E	37.0	E	38.6	F	55.7	F	50.2
I75 NB to KY 18	Ramp 611	E	37.7	E	37.7	F	51.0	F	51.6
I75 SB to KY 18+ (major diverge analysis)	Ramp 631	B	10.0	B	15.7	B	11.0	C	22.1
	Mainline before	F	39.5	F	39.5	F	51.7	F	51.7
	Mainline after	F	43.8	F	40.7	F	58.5	F	52.4
KY 18/US 42 to I75 SB	Ramps 641 & 441	C	25.1	D	29.0	D	30.9	E	37.7
Mall Road/KY 18	Intersection 1	B	15.2	F	94.0	C	20.4	F	203.5
KY 18/I-75 SB Ramps	Intersection 2	F	111.7	F	227.6	F	98.0	F	380.3
KY 18/I-75 NB Ramps	Intersection 3	E	58.7	F	89.6	F	169.1	F	209.6
US 42/I-75 NB Ramps	Intersection 4	F	107.4	F	69.6	F	197.8	F	254.0
US 42/I-75 SB Ramps	Intersection 5	D	42.2	F	154.8	E	70.4	F	209.0
Mall Road/US 42	Intersection 6	C	32.2	F	192.2	E	64.3*	F	197.2*
I-75/Mall Road Ramps	Intersection 7	C	24.6	F	168.3	C	25.1	F	262.4

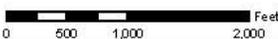
* Includes Item Numbers 6-3700 and 3700.01 "Construct an additional US 42 left turn lane to Northbound Mall Road"

+The diverge of Ramp 631 is a major diverge area. The procedure in the HCM for analyzing a major diverge area is to check the entering demand and the departing demand of each exit leg against the capacity of the entry leg.

2012 Build versus No-Build Increased Delay or Density



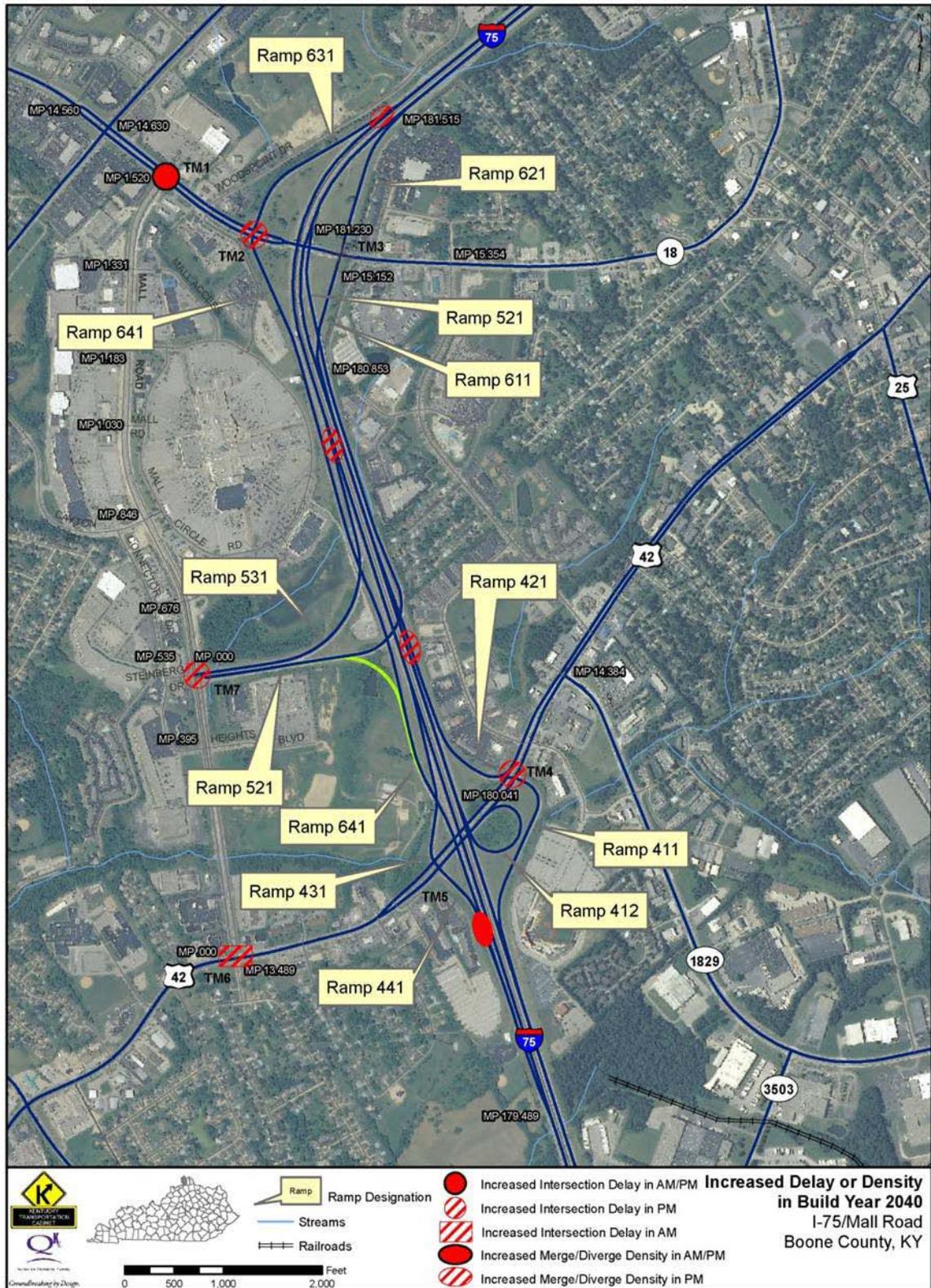




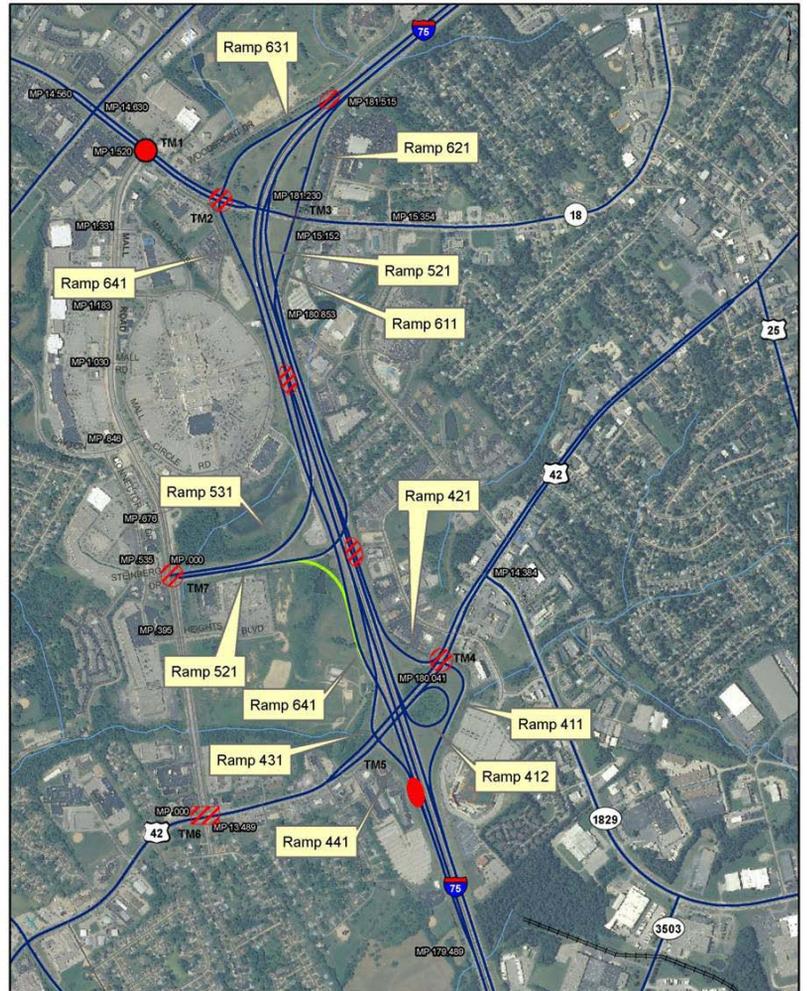
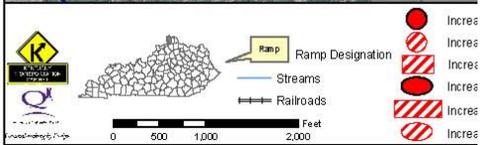
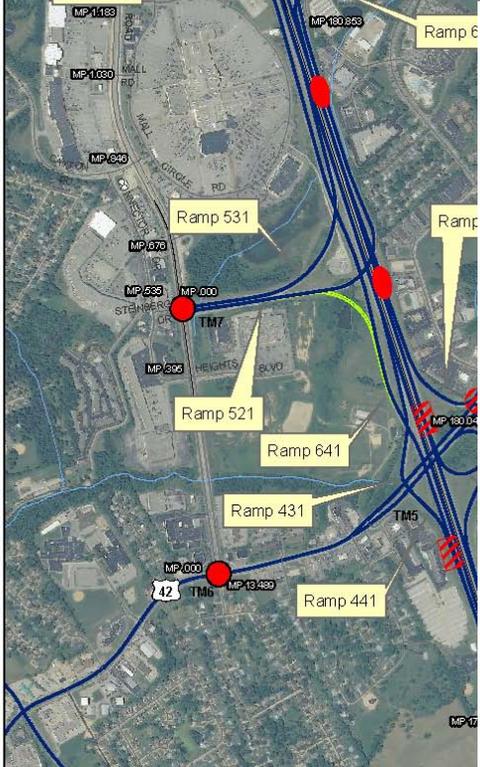
<ul style="list-style-type: none"> Ramp Designation Streams Railroads 	<ul style="list-style-type: none"> Increased Intersection Delay in AM/PM Increased Intersection Delay in PM Increased Intersection Delay in AM Increased Merge/Diverge Density in AM/PM Increased Merge/Diverge Density in AM Increased Merge/Diverge Density in PM
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**Increased Delay or Density
in Build Year 2012**
I-75/Mall Road
Boone County, KY

2040 Build versus No-Build Increased Delay or Density



Comparison of No Build and Build



Increased Delay or Density in Build Year 2040
 I-75/Mall Road
 Boone County, KY

Draft Purpose and Need of the Project

The purpose of this project is to improve safety and congestion along KY 18 and US 42 from Mall Road to I-75.

Currently the total intersection delays range from 22 seconds (LOS C) to 233 seconds (LOS F) and crash rates are above the average crash rates for similar type roadways in Kentucky for KY 18, US 42, and Mall Road. There are also many access points along these roadway segments contributing to the crashes and congestion.

Suggested Purpose and Need

The purpose of this project is to improve connectivity between a major regional development area and the interstate system.

Currently, motorists travelling I-75 in Boone County can access Mall Road development to and from the north. However, there is not access to and from the south to Mall Road. Motorists that are leaving Mall Road to travel south on I-75 must turn south on Mall Road to US 42, then east to the I-75 entrance ramp at the I-75/US 42 interchange through congested intersections and signals. The second option is to travel north on Mall Road, turn east onto KY 18 and enter I-75 the southbound entrance ramp through congested intersections and signals. This proposed project would provide access to I-75 via a collector distributor road directly from Mall Road.

Existing intersection delays range from 22 seconds (LOS C) to 233 seconds (LOS F) and crash rates are above the average crash rates for similar type roadways in Kentucky for KY 18, US 42, and Mall Road. There are also many access points along these roadway segments contributing to the crashes and congestion.

FHWA 8 Considerations and Requirements

1. Existing network with reasonable improvements cannot satisfactorily address the need
2. Consideration of all reasonable alternatives
3. No significant adverse impact on safety and operations
4. Connects to a public road and provides for all movements
5. Consistent with local and regional land use and transportation plans
6. Need for systematic study of effects
7. Coordination with related development
8. Coordination with environmental evaluation and approval process

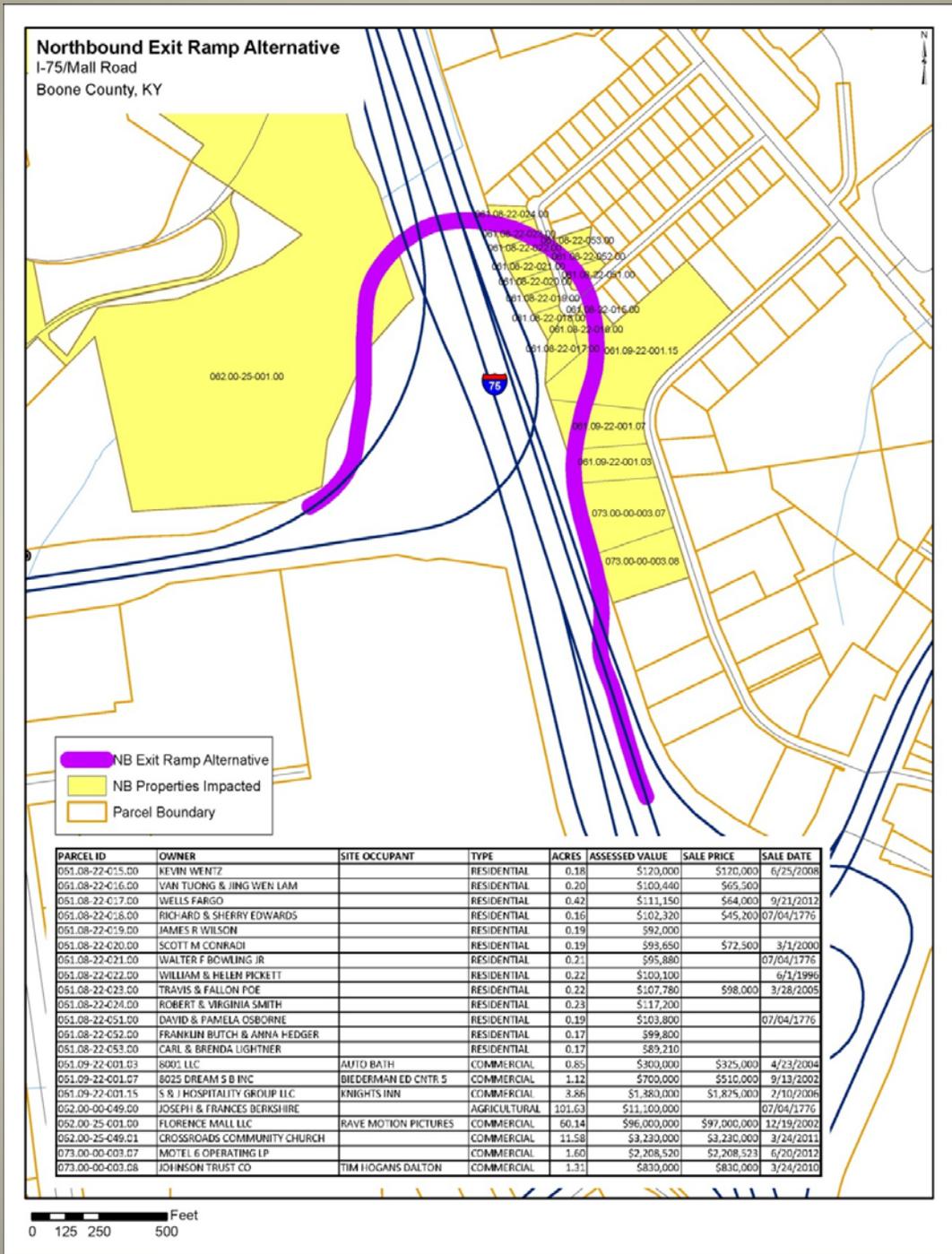
Next Steps

- TSM suggestions where appropriate
- Report Documentation

Milestones

Milestones	Milestone Dates	Actual Dates
Notice to Proceed	June 25, 2012	July 3, 2012
Assessment of Existing Conditions	August 31, 2012	
Development of Alternative Concepts	October 15, 2012	*Received Revised Traffic December 7, 2012
First Project Team Meeting	October 31, 2012	January 8, 2013
Second Project Team Meeting	February 15, 2013	
Submission of Draft Report	April 1, 2013	
Address Comments/ Resubmit	June 15, 2013	
After Approval of Final Report	July 5, 2013	

Q: Why not a NB On Ramp?



A: Very costly impacts.



Groundbreaking by Design.

Project: I-75/Mall Road Interchange Modification Report
Item Number 6-409.00

Purpose: Project Team Meeting #2

Place: District 6 – Boone County

Meeting Date: July 8, 2013

Prepared By: Annette Coffey

Present:

Bob Yeager	KYTC – D6
Mike Bezold	KYTC – D6
Carol Callan-Ramler	KYTC – D6
Scott Gabbard	KYTC – D6
Thomas Witt	KYTC – CO Planning
Mikael Pelfrey	KYTC – CO Planning
Albert Zimmerman	Qk4
Jeremy Lukat	Qk4
Bruce Siria	Qk4
Annette Coffey	Qk4

The objective of the meeting was to review Project Team Meeting #1, discuss the findings of the KYTC Traffic Forecast Revision dated March 29, 2013, and determine the next steps for an interchange modification to the existing Mall Road Interchange with I-75 in Boone County. The presentation, which includes much of the details discussed, is included with these minutes. Qk4 was to provide a comparison of increase/decrease in delay for the intersections contained within the area of influence, and provide in tabular form, the changes in delays in build versus no build scenarios for 2012 and 2040 for AM and PM peak hours.

The meeting opened with a project review to date. To summarize, I-75 does not have crash issues, it only has one merge deficiency which is the eastbound I-75 on ramp at US 42; however, there is no crash issue so there are no recommendations for improvement. A southbound on ramp that ties to the collector distributor road parallel to I-75 at the Mall Road/I-75 interchange is recommended. The new ramp would carry 2012 volumes of 4300 vehicles per day (vpd) with 18.7% trucks. The new ramp diverts 2500 vpd, from KY 18, 1700 vpd from US 42, and is expected to generate 1500 new trips. In the design year 2040, the ramp is expected to carry 5700 vehicles per day (25% trucks).

Alternative 2, a 45 mph design was recommended for advancement because of the minor increase in cost, minimal right of way takings, and the 45 mph speed that matches the I-75 northbound on and southbound off ramp design speeds at Mall Road. An I-75 northbound on ramp at Mall Road was not recommended due to the right of way impacts. Project Team Meeting #1 resulted in a reevaluation of the traffic by KYTC.

This project team centered on the discussion of the KYTC Traffic Forecast Revision dated March 29, 2013 and the packet of information provided.

Revised Traffic Analysis Summary

Utilizing the KYTC Traffic Forecast dated March 29, 2013, in summary, while the individual area of influence intersection delays yielded varying results, the overall delay for the area of influence's intersection network everyone agreed was reasonable. The overall average delay in seconds per vehicle for Build vs. No Build delays were as follows:

2012 AM -0.4%
2012 PM -3.4%
2040 AM -1.0%
2040 PM +2.0%

Purpose and Need

The Purpose and Need for the project was improved upon and refined to the following:

"The purpose of this project is to improve connectivity and safety between a major regional development area and the interstate system.

Currently, motorists travelling I-75 in Boone County can access Mall Road development to and from the north. However, there is no access to and from the south to Mall Road. Motorists that are leaving Mall Road to travel south on I-75 must turn south on Mall Road to US 42, then east to the I-75 entrance ramp at the I-75/US 42 interchange through congested intersections and signals. The second option is to travel north on Mall Road, turn east onto KY 18 and enter I-75 the southbound entrance ramp through congested intersections and signals. This proposed project would provide access to I-75 via a collector distributor road directly from Mall Road.

Existing intersection delays range from 15.5 seconds (LOS C) in the AM peak hour to 237 seconds (LOS F) in the PM peak hour and crash rates are above the average crash rates for similar type roadways in Kentucky for KY 18, US 42, and Mall Road. There are also many access points along these roadway segments contributing to the crashes and congestion."

I-75

I-75 in the project area of influence has one geometric deficiency as it relates to the eastbound merge to I-75 north. However, there is not a crash history related to that merge that is statistically significant, therefore, there are no recommendations for that location.

Utilizing the KYTC Traffic Forecast dated March 29, 2013, within the project area of influence, I-75 mainline is operating at Level of Service (LOS) E and F in year 2012 with and without the addition of the proposed ramp. With the addition of the southbound at Mall Road, I-75 will improve to LOS E. In the design year 2040, I-75 is expected to operate at LOS F for both the No Build and Build Year 2040 scenarios.

After a review of the attached merge and diverge analysis, the following conclusions were drawn from the comparisons of Build vs. No Build Scenarios (see attached):

2012 AM

- All movements remained the same LOS except I75 southbound diverge to US 42 improved from E to D
- Minor increases in density for 5 movements, two of which still operate at LOS B and C.

2012 PM

- Six movements have minor improvements in density, two have very minor increases in density. The resultant is improvement one letter grade for Mall Road to I-75 northbound (LOS F to LOS D) and I-75 southbound to US 42 (LOS E to LOS D).

2040 AM

- Improvement in all movements except for KY 18/US 42 to I-75 southbound which has a slight increase in density. This ramp will be improved when the auxiliary lanes are added between KY 536 and US 42.

2040 PM

- Six movements show slight improvement in density but no changes in LOS.
- Three increase in density – (US 42WB to I75 NB), I75 southbound to Mall Road, and I75 SB to KY 18 (which is still LOS C). There is no change in LOS from No Build to Build.

After discussion the Project Team determined that none of the increases in density or LOS were significant to warrant consideration of improvements.

It was noted that the I-75 SB off Ramp to Mall Road is will exceed capacity by the design year 2040.

IMR

- Include the 2012 and 2040 Build and No Build scenarios for both AM and PM peaks utilizing the KYTC Traffic Forecast for the project dated March 29, 2013 as backup information in the Appendix, describe results in paragraphs rather than spreadsheet and place the spreadsheets in the Appendix of the IMR.
- Items to be included in the IMR should be delay, LOS and the differences between Build and No Build scenarios. The traffic forecast and any supporting traffic tables should be included in an appendix.
- The commercial value for the affected farm on Alternative 2 should be used to estimate right of way. Initial development plan conversations indicate that the property needed for this project may be donated.
- The illustration of the I-75 Northbound off ramp at Mall Road affected right of way should be expanded to show properties south to US 42. The Project Team felt those would also be impacted. Noise walls could cause the impacted area to expand also.



Groundbreaking by Design.

- The preliminary signing plan should distinguish whether the signs are new or existing signs to be modified as a result of the recommended new ramp.
- The planned projects exhibit should clarify the KY 237 project at the bottom of the exhibit. This project as described has been awarded. In fact it could be removed due to its distance from the area of influence.
- The safety aspect of the Purpose and Need will be addressed in the IMR by describing the existing conditions and the benefit of reducing the number of congested interchanges and conflict points that motorists will travel through with the addition of this SB on ramp from Mall Road.
- The IMR should mention that the project funding uses 100% state funds.
- The Project Team noted that TSM improvements do not meet the purpose and need for the project.

In Conclusion

The Project Team determined that this project was worthy of pursuing to the next phase. Ms. Coffey noted that in the 2012 Mall District Study noted a historic house tucked away in the northwest quadrant of the US 42/I-75 interchange. Everyone was reminded that the project schedule lagged by a few months in order to include traffic forecasts (revised December 7, 2012) in the first Project Team Meeting and then again with subsequent revised traffic forecasts, and the delay of setting the second Project Team Meeting date with the holidays and vacation schedules.. Therefore, a revised project schedule was sent to Mr. Yeager and Mr. Pelfrey and is as follows:

Submission of Draft Report by August 7, 2013
Address Comments and Re-submittal by October 7, 2013
Approval of Final Report by November 7, 2013

End of Meeting Notes



I-75 / Mall Road
Interchange

6-409.00

Boone County

Original Project Schedule

Milestones	Milestone Dates	Actual Dates
Notice to Proceed	June 25, 2012	July 3, 2012
Assessment of Existing Conditions	August 31, 2012	
Development of Alternative Concepts	October 15, 2012	*Received Revised Traffic December 7, 2012
First Project Team Meeting	October 31, 2012	January 8, 2013
Received 5 th traffic revision		March 29, 2013
Second Project Team Meeting	February 15, 2013	July 8, 2013
Submission of Draft Report	April 1, 2013	
Address Comments/ Resubmit	June 15, 2013	
After Approval of Final Report	July 5, 2013	

Traffic Forecasts

October 23, 2012

December 7, 2012

January 10, 2013

January 30, 2013 (found it March 21, 2013)

March 29, 2013

Original Purpose of the Project

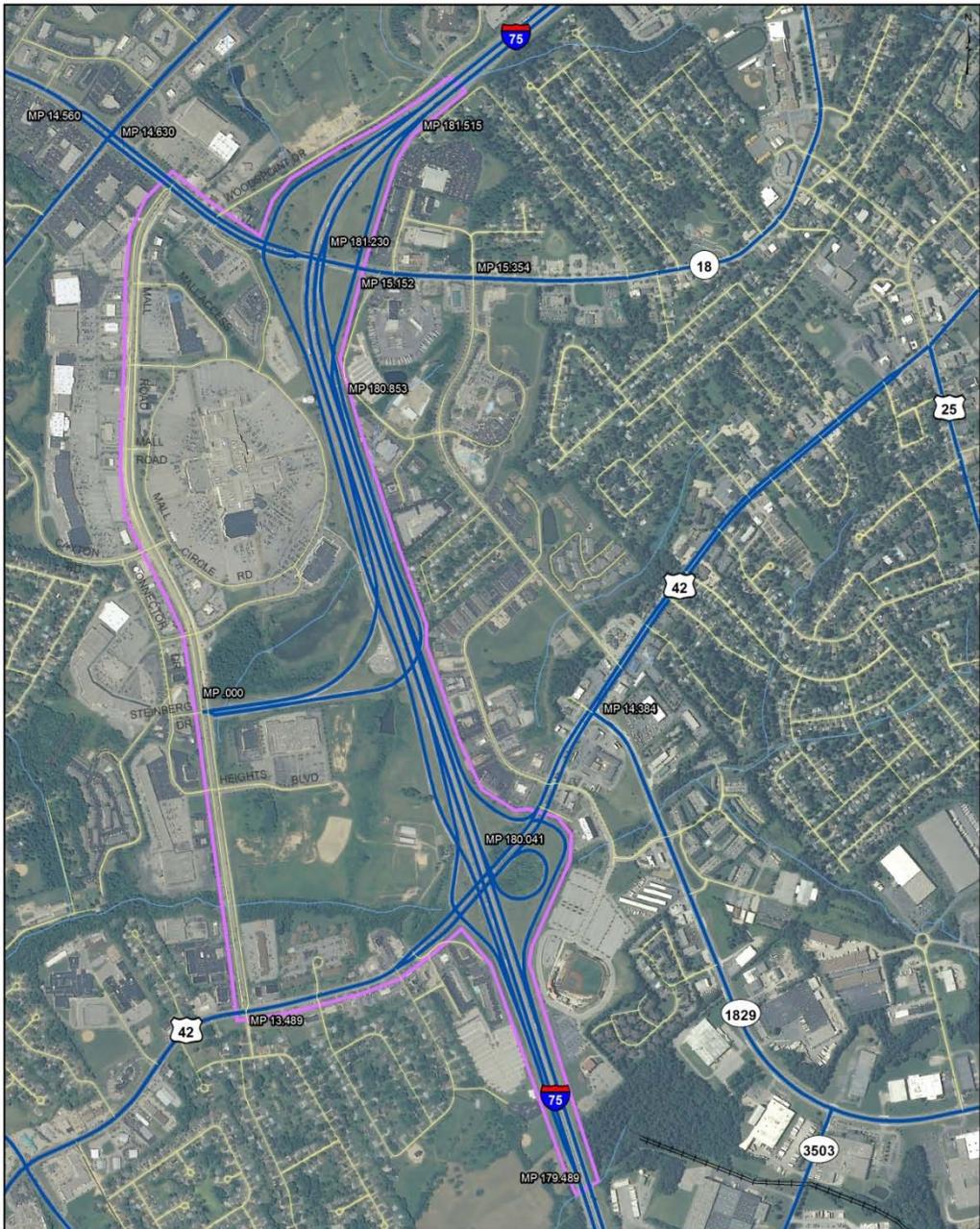
KY 18 in the vicinity of its I-75 interchange is the most congested non-Interstate route in District 6. The existing partial interchange at Mall Road addressed that issue. Congestion on US 42 in the vicinity of its I-75 interchange remains a problem. **One of the purposes of the proposed interchange modification is to address that congestion.** The current project was suggested to KYTC by the City of Florence, and was ranked as the fifth highest priority project in District 6 in the recently completed District Transportation Plan.

First Draft of Purpose and Need for the Project

The purpose of this project is to improve safety and congestion along KY 18 and US 42 from Mall Road to I-75.

Currently the total intersection delays range from 22 seconds (LOS C) to 233 seconds (LOS F) and crash rates are above the average crash rates for similar type roadways in Kentucky for KY 18, US 42, and Mall Road. There are also many access points along these roadway segments contributing to the crashes and congestion.

Area of Influence

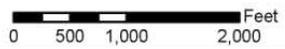
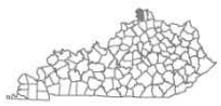
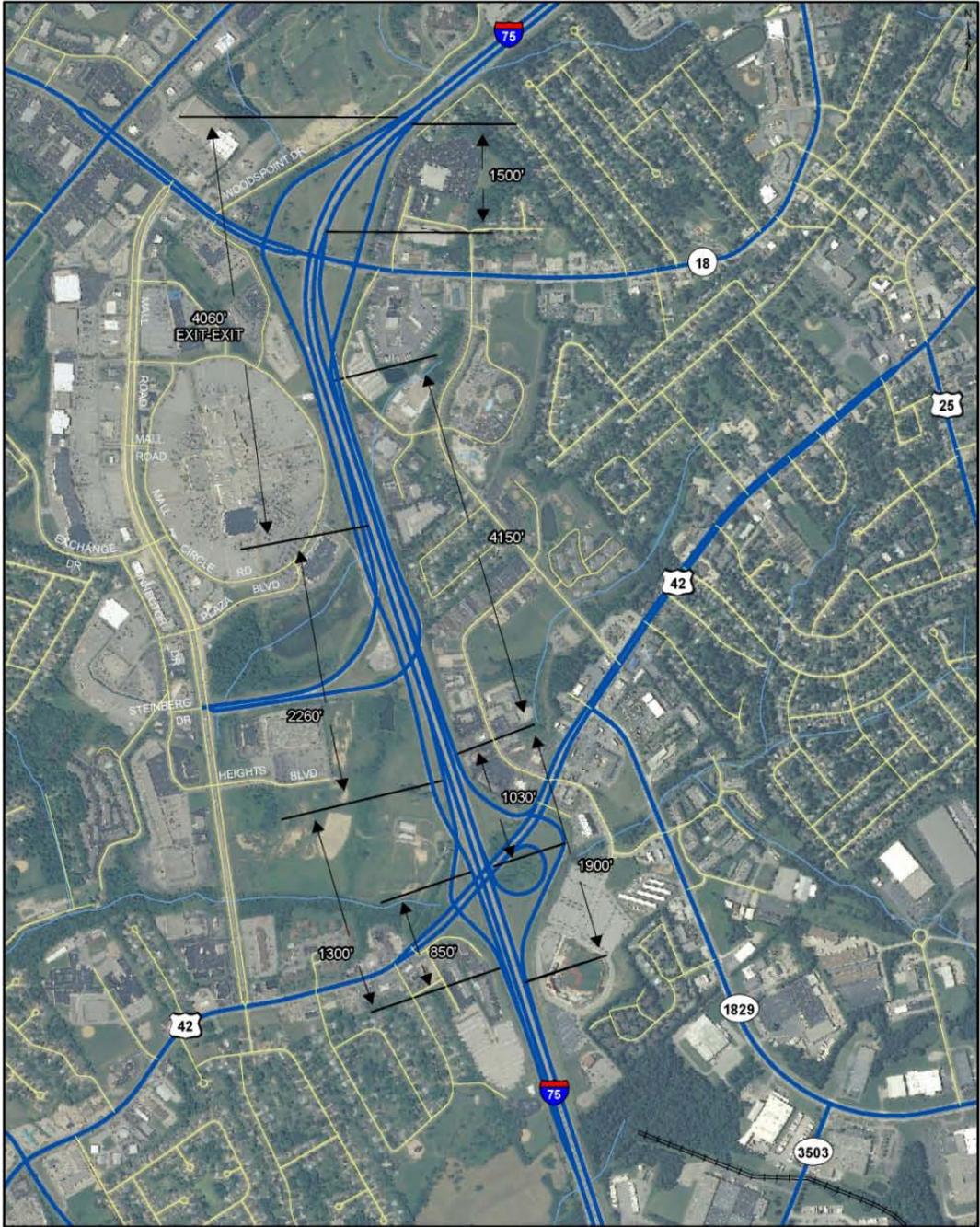


- Area of Influence
- Streams
- Railroads



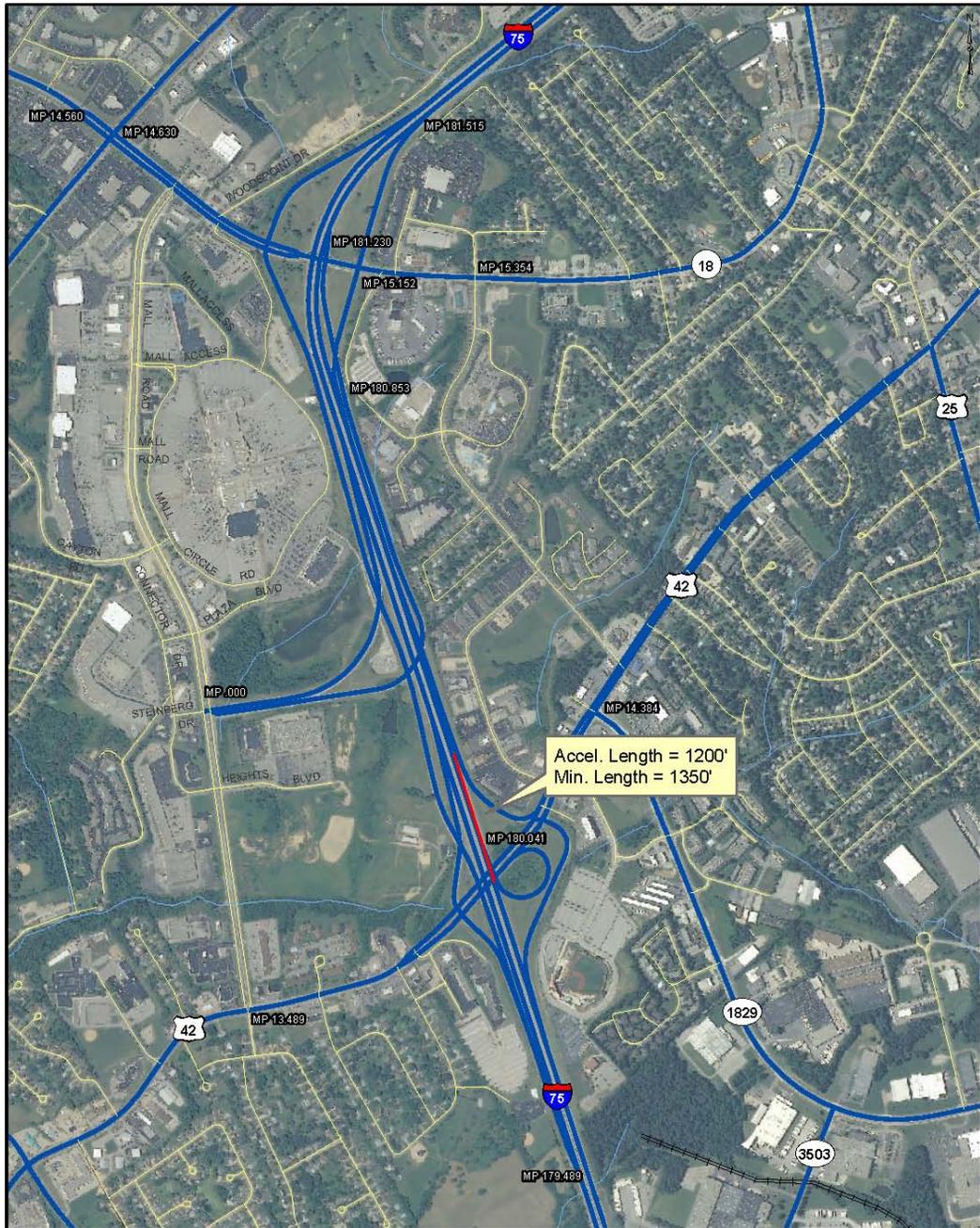
Area of Influence
I-75/Mall Road
Boone County, KY

Ramp Spacing



Ramp Spacing
I-75/Mall Road
Boone County, KY

Geometric Deficiencies



— Interchange Deficiencies

— Streams

— Railroads



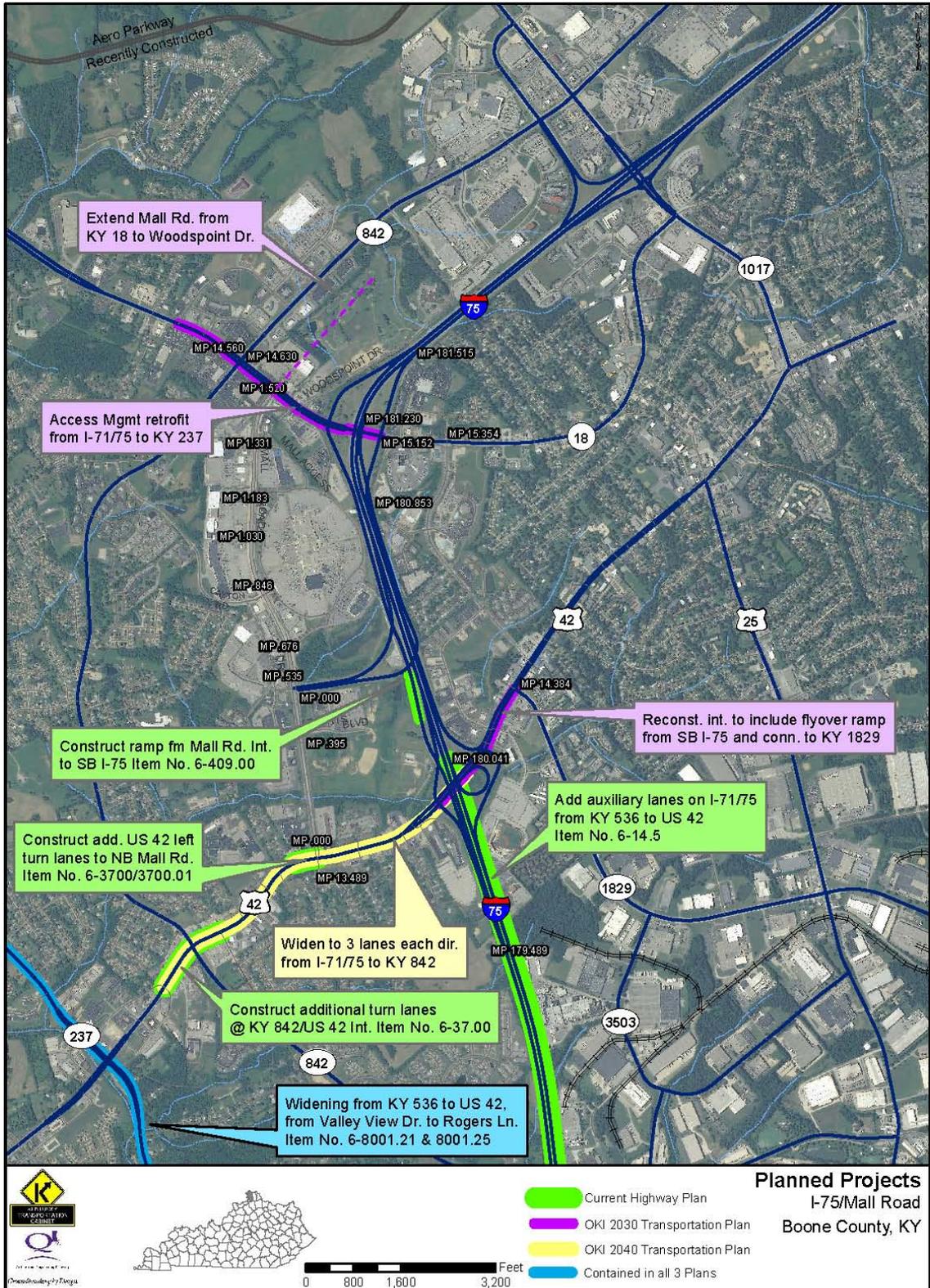
Study Area Deficiencies

I-75/Mall Road

Boone County, KY

EXISTING CONDITIONS

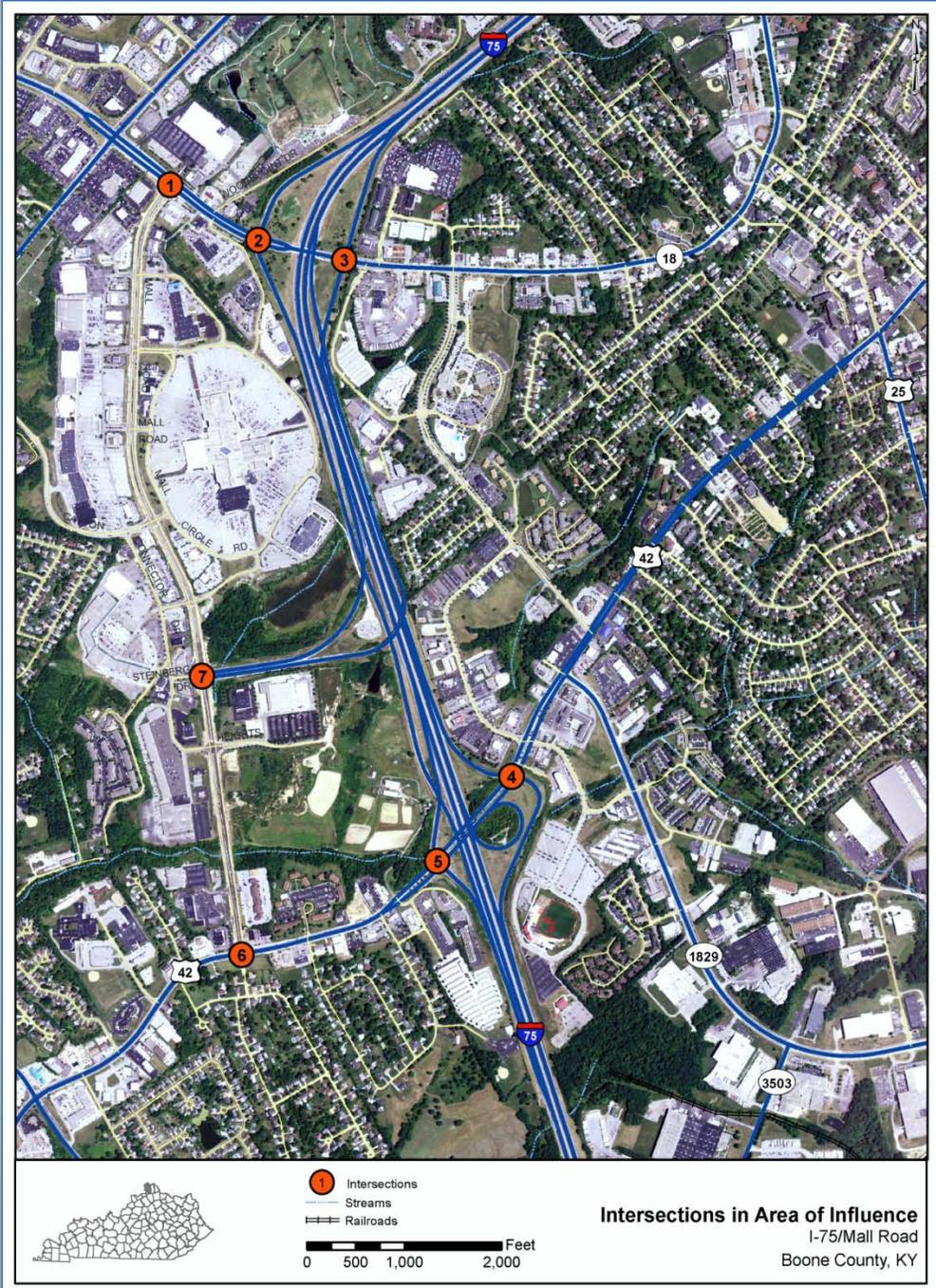
Planned Projects



Mall Road Interchange and Other Plans

- The addition of an I-75 southbound on-ramp at Mall Road was identified as a priority in the
 - Boone County Transportation Plan 2030 (November 30, 2005, Appendix B).
 - OKI 2040 Regional Transportation Plan (June 2012).
 - Highway District 6 Transportation Plan (October 2011), this project was ranked fifth to be considered for the KYTC's next Highway Plan.
 - Current Highway Plan.
 - 2012 Mall Road District Study
 - and is now a part of the 2012 Statewide Transportation Improvement Program identified under the Regionally Significant Air Quality State Funded Projects for FY 2013-FY 2016 approved by the General Assembly.

TRAFFIC COUNTS



Original Mainline I-75 No-Build and Build LOS Did Not Change

Location	Year	Scenario	ADT	Design Hour Volume	Peak Direction DHV	Truck %	Number of Lanes	Capacity (vphpl)	v/c Ratio	LOS
North of KY 18	2012	No Build	168,350	15,657	8,815	9.5%	10	2,400	0.93	E
	2040	No Build	221,300	20,581	11,587	9.5%	10	2,400	1.23	F
Between KY 18 & US 42	2012	No Build	134,850	12,541	7,061	10.4%	8	2,400	0.94	E
	2040	No Build	174,600	16,238	9,142	10.4%	8	2,400	1.22	F
South of US 42	2012	No Build	125,750	11,695	6,584	20.5%	8	2,400	1.00	F
	2040	No Build	163,100	15,168	8,540	20.5%	10	2,400	1.03	F

Build Scenario

Location	Year	Scenario	ADT	Design Hour Volume	Peak Direction DHV	Truck %	Number of Lanes	Capacity (vphpl)	v/c Ratio	LOS
North of KY 18	2012	Build	166500	15,485	8,718	9.5%	10	2400	0.92	E
	2040	Build	218700	20,339	11,451	9.5%	10	2400	1.21	F
Between KY 18 & US 42	2012	Build	131900	12,267	6,906	10.4%	8	2400	0.92	E
	2040	Build	173000	16,089	9,058	10.4%	8	2400	1.21	F
South of Mall Rd	2012	Build	123600	11,495	6,472	20.5%	8	2400	0.98	E
	2040	Build	162300	15,094	8,498	20.5%	8	2400	1.03	F

Build Scenario

2012 and 2040 No Build LOS Ramps and Intersections

Description	Roadway Section	2012 AM Existing LOS	2012 AM Existing Delay (sec) or Density (pc/mi/ln)	2012 PM Existing LOS	2012 PM Existing Delay (sec) or Density (pc/mi/ln)	2040 AM No-Build LOS	2040 AM No-Build Delay (sec) or Density (pc/mi/ln)	2040 PM No-Build LOS	2040 PM No-Build Delay (sec) or Density (pc/mi/ln)
I75 NB to US 42	Ramp 411	D	31.4	D	31.4	F	41.6	F	42.0
US 42 EB to I75 NB	Ramp 412	D	29.2	C	27.1	F	39.7	F	35.6
US 42 WB to I75 NB	Ramp 421	D	30.0	D	33.6	F	39.9	F	39.9
I75 SB to US 42	Ramp 431	E	35.2	E	35.5	E	44.3	E	44.6
Mall Road to I75 NB	Ramp 521	D	31.9	F	33.1	F	39.3	F	38.0
I75 SB to Mall Road	Ramp 531	E	38.4	E	38.8	F	56.0	F	49.7
I75 NB to KY 18	Ramp 611	E	37.4	E	37.6	F	53.5	F	54.1
I75 SB to KY 18+ (major diverge analysis)	Ramp 631	A	9.3	B	17.4	B	11.6	C	20.9
	Mainline before	F	40.4	F	40.4	F	52.3	F	52.3
	Mainline after	F	45.4	F	40.9	F	59.0	F	59.0
KY 18/US 42 to I75 SB	Ramps 641 & 441	C	23.8	D	30.5	D	29.9	D	34.0
Mall Road/KY 18	Intersection 1	B	15.6	F	123.8	B	18.2	F	197.2
KY 18/I-75 SB Ramps	Intersection 2	F	124.6	F	198.5	F	141.6	F	346.2
KY 18/I-75 NB Ramps	Intersection 3	E	57.4	F	237.2	F	241.4	F	221.6
US 42/I-75 NB Ramps	Intersection 4	F	142.5	E	49.7	F	544.6	F	219.9
US 42/I-75 SB Ramps	Intersection 5	D	43.5	F	163.4	F	108.0	F	229.1
Mall Road/US 42	Intersection 6	C	31.5	F	179.2	E	61.5*	F	289.5*
I-75/Mall Road Ramps	Intersection 7	C	23.2	C	31.9	C	25.5	F	167.5

*Includes Item Numbers 6-3700 and 3700.01 "Construct an additional US 42 left turn lane to Northbound Mall Road"

+ The diverge of Ramp 631 is a major diverge area. The procedure in the HCM for analyzing a major diverge area is to check the entering demand and the departing demand of each exit leg against the capacity of the entry leg.

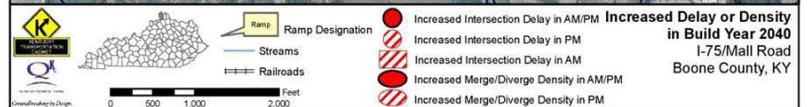
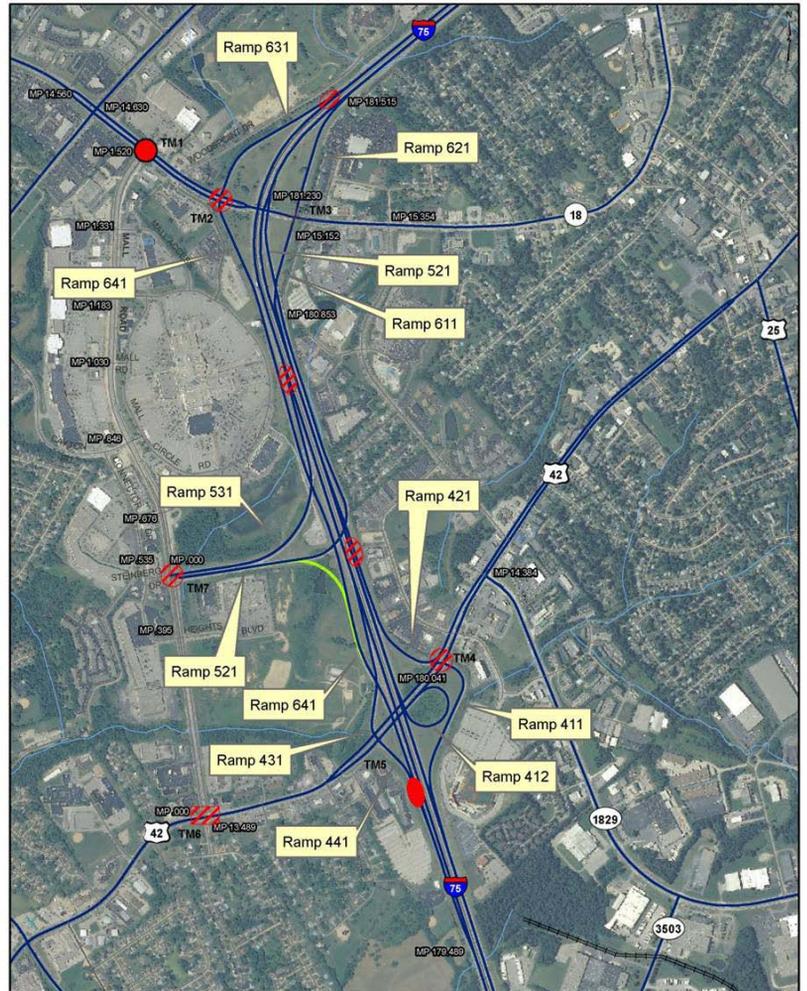
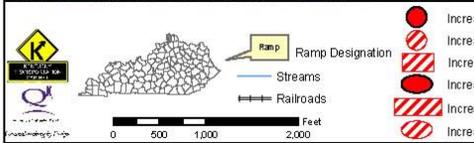
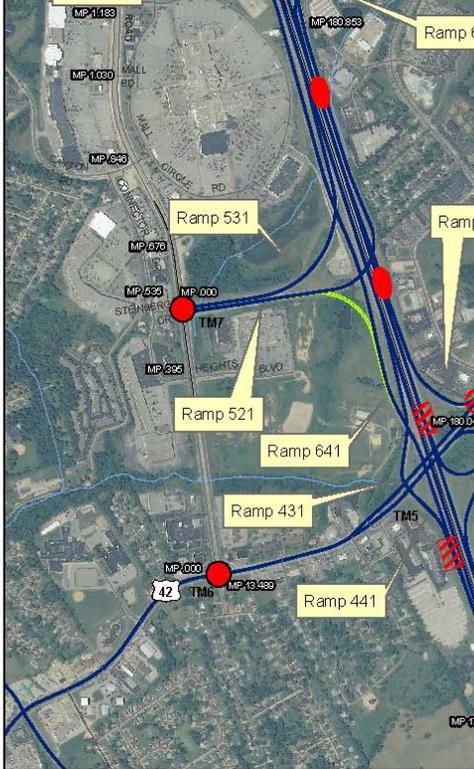
2012 and 2040 Build LOS

Description	Roadway Section	2012 AM Build LOS	2012 AM Build Delay (sec) or Density (pc/mi/ln)	2012 PM Build LOS	2012 PM Build Delay (sec) or Density (pc/mi/ln)	2040 AM Build LOS	2040 AM Build Delay (sec) or Density (pc/mi/ln)	2040 PM Build LOS	2040 PM Build Delay (sec) or Density (pc/mi/ln)
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US 42 WB to I75 NB	Ramp 421	D	30.5	D	33.9	F	39.7	F	44.0
I75 SB to US 42	Ramp 431	D	33.4	D	33.7	E	43.9	E	44.1
Mall Road to I75 NB	Ramp 521	D	29.6	D	29.0	F	37.0	F	36.9
I75 SB to Mall Road	Ramp 531	E	37.0	E	38.6	F	55.7	F	50.2
I75 NB to KY 18	Ramp 611	E	37.7	E	37.7	F	51.0	F	51.6
I75 SB to KY 18+ (major diverge analysis)	Ramp 631	B	10.0	B	15.7	B	11.0	C	22.1
	Mainline before	F	39.5	F	39.5	F	51.7	F	51.7
	Mainline after	F	43.8	F	40.7	F	58.5	F	52.4
KY 18/US 42 to I75 SB	Ramps 641 & 441	C	25.1	D	29.0	D	30.9	E	37.7
Mall Road/KY 18	Intersection 1	B	15.2	F	94.0	C	20.4	F	203.5
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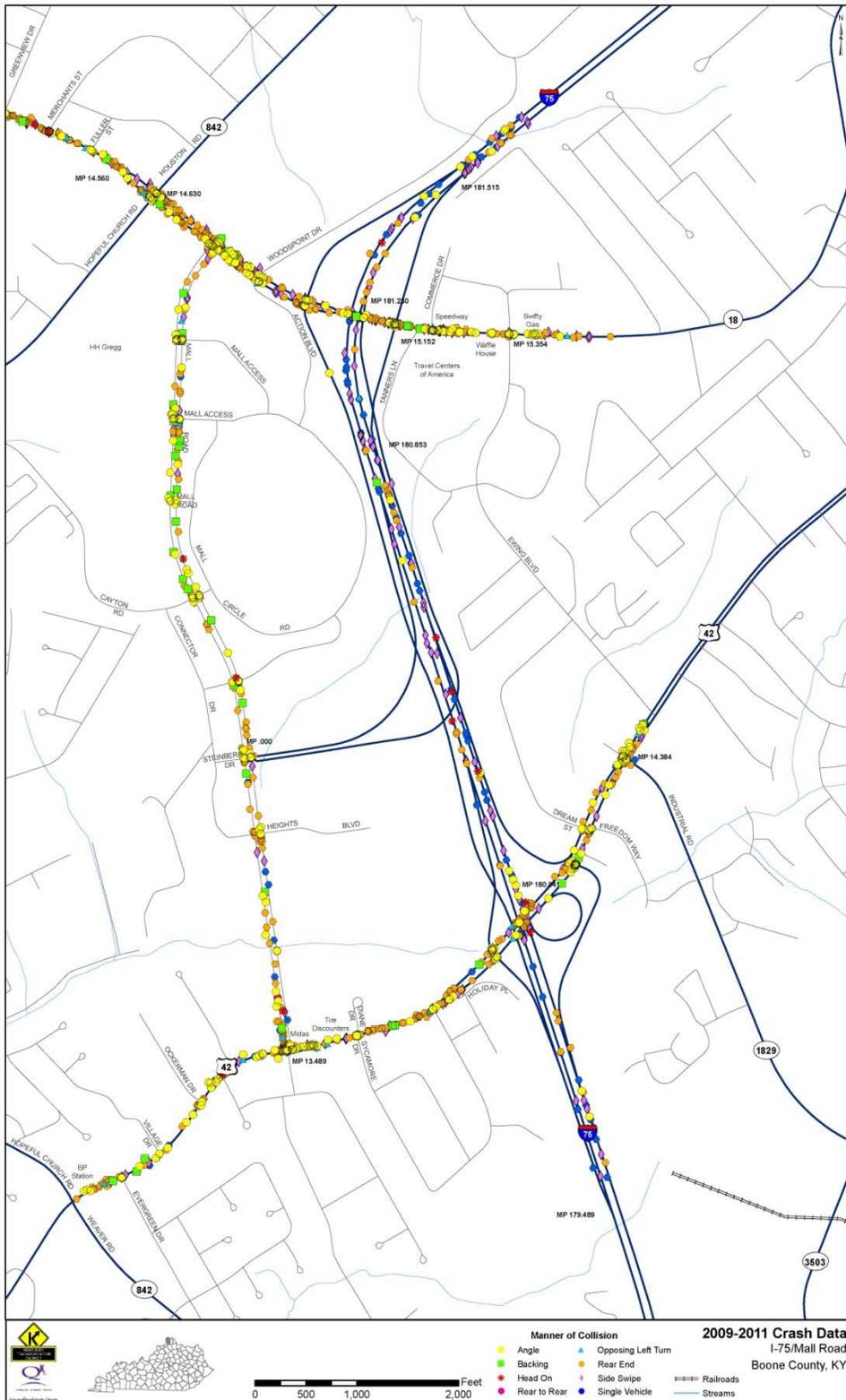
Comparison of No Build and Build



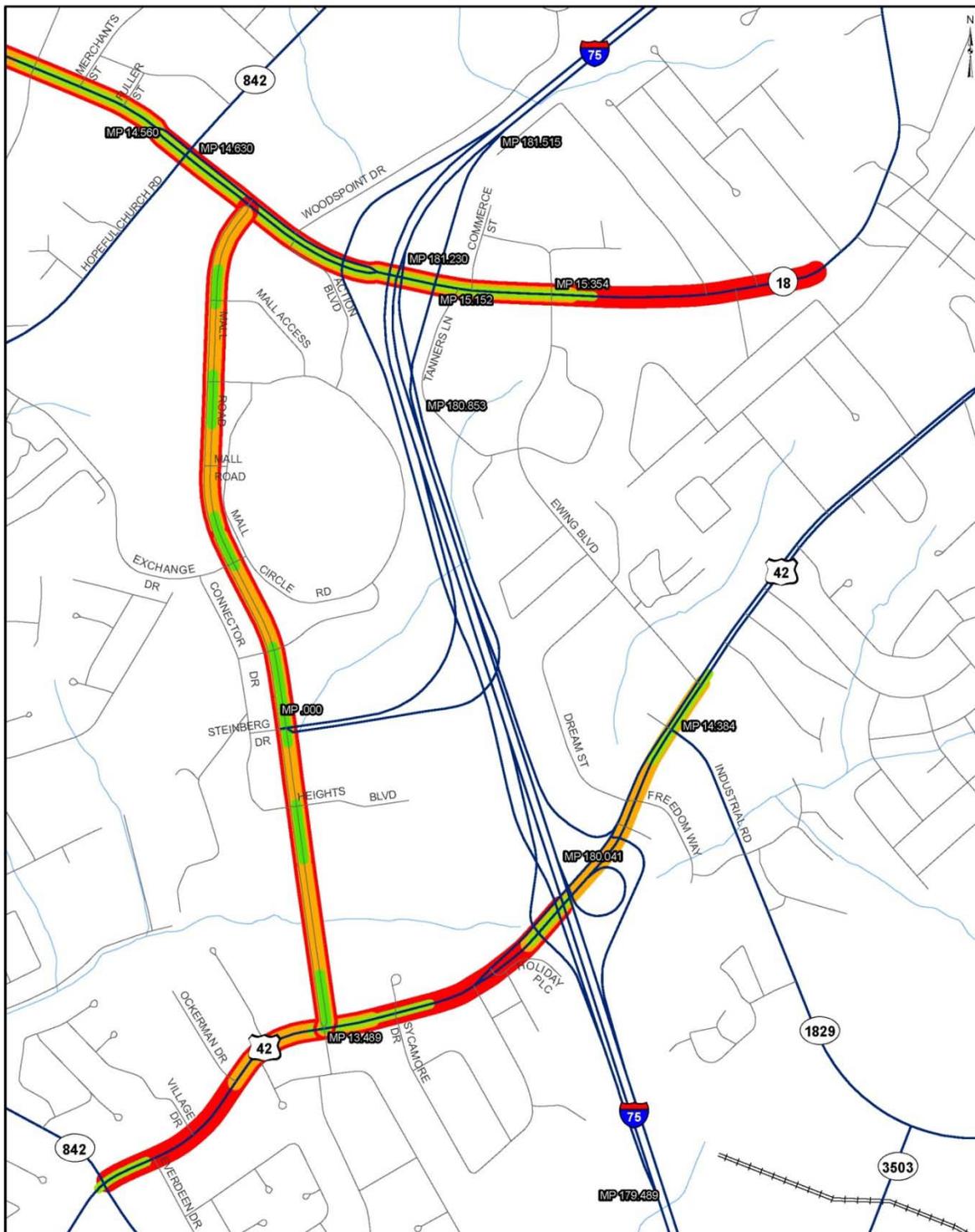
Increased Delay or Density in Build Year 2040
 I-75/Mall Road
 Boone County, KY

SAFETY

Manner of Collisions



Crash Spots






Q
Quality
Guaranteed
by Design



Crash Data 2009-2011

- 0.1 Mile Spots with CCRF > 1
- 0.3 Mile Spots with CCRF > 1
- 1 Mile Spots with CCRF > 1

—+—+—+—+—+—+—+—+—+—+ Railroads

— Stream

Crash Analysis
I-75/Mall Road
Boone County, KY



0 500 1,000 2,000 Feet

REVIEW OF SPOTS REVEAL IN GENERAL

- NO CRITICAL SPOTS ON I-75
- ON CROSSROADS
 - MOST ARE REAR END OR ANGLE
 - DRIVER INATTENTION
 - ACCESS MANAGEMENT COULD REDUCE ANGLE CRASHES
 - AREAS MAY NEED TO BE EVALUATED FOR ADDITIONAL SIGNING

Another Look at Traffic and Capacity

New Ramp Summary

Traffic Forecast Technical Report
 Boone County: Construct New Ramp near Mall Rd.
 Item No. 06-0409.00

Summary Map



<p>N LEGEND</p>  <p> New Ramp</p>	<p>Boone County Construct additional Ramp on I-75 near Exit 180A Item # 06-0409.00</p>	  <p>0 0.075 0.15 0.3 Miles</p>
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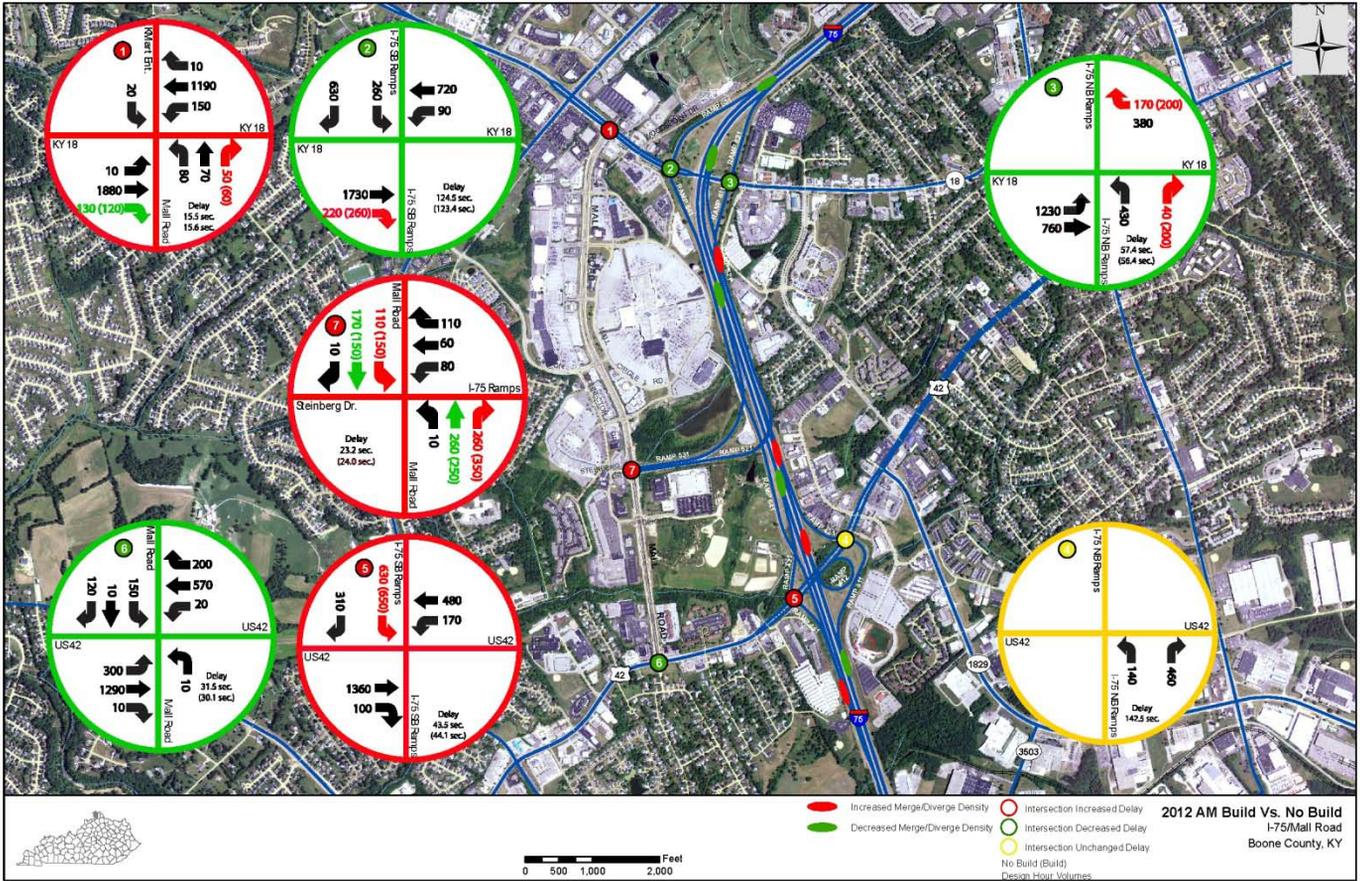
No Build Traffic (ADT)

- I-75
 - 2012 ranges from 120,700 (south) to 163,300 (north)
 - 2040 ranges from 164,300 (south) to 222,600 (north)
- KY 18
 - 2012 ranges from 18,500 (east) to 49,000 (west)
 - 2040 ranges from 27,100 (east) to 64,600 (west)
- US 42
 - 2012 ranges from 31,800 (east) to 36,000 (west)
 - 2040 ranges from 42,700 (east) to 47,600 (west)
- Mall Road
 - 2012 ranges from 14,800 to 16,800
 - 2040 ranges from 19,600 to 23,500
- New Ramp
 - 2012
 - 2040

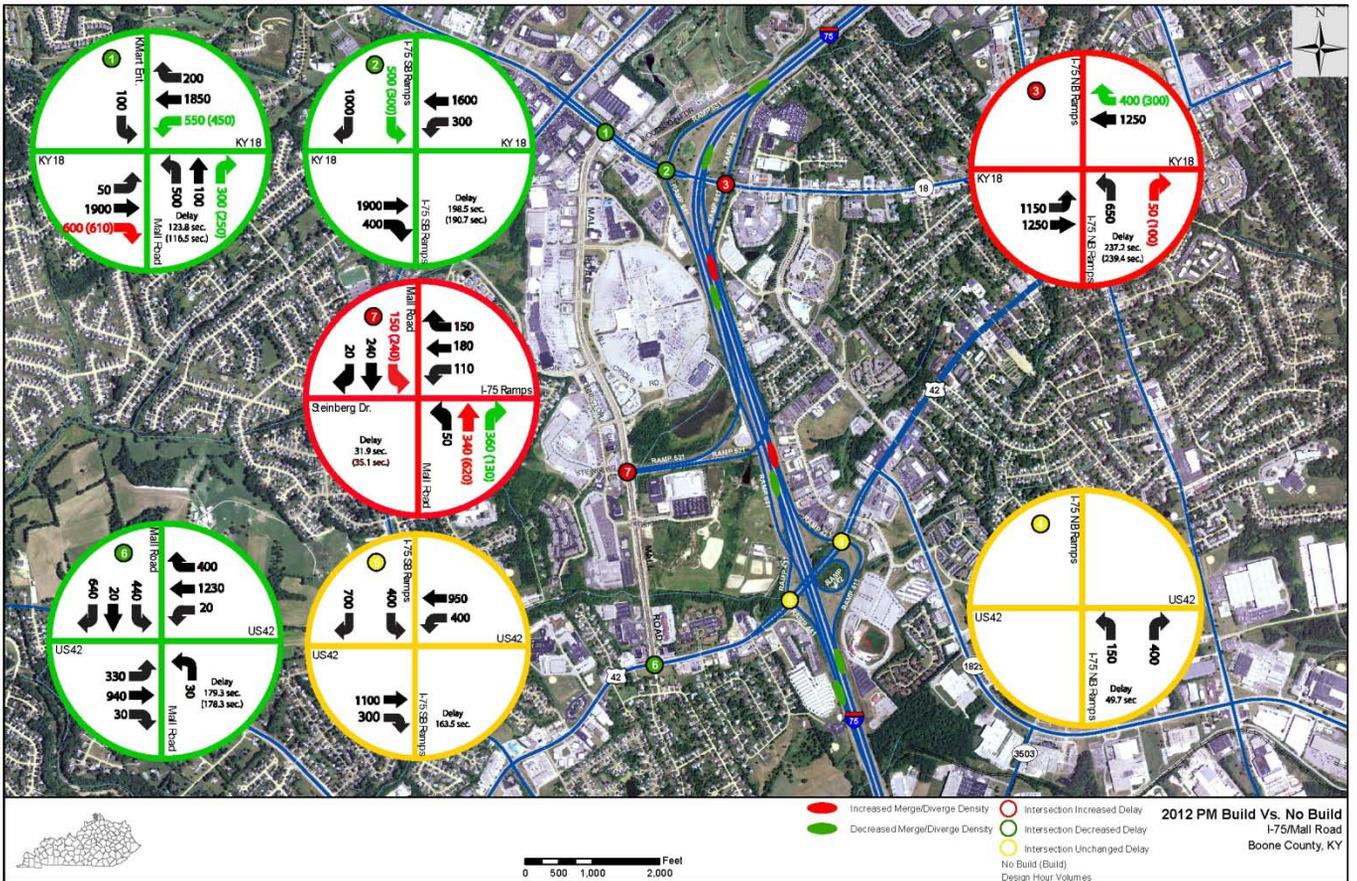
Build Traffic (ADT)

- I-75
 - 2012 ranges from 126,200 (south) to 169,800 (north)
 - 2040 ranges from 164,300 (south) to 222,600 (north)
- KY 18
 - 2012 ranges from 19,800 to 48,000
 - 2040 ranges from 27,100 to 64,600
- US 42
 - 2012 ranges from 42,700 to 47,600
 - 2040 ranges from 45,000 to 48,300
- Mall Road
 - 2012 ranges from 14,600 to 17,600
 - 2040 ranges from 19,300 to 25,400
- New Ramp
 - 2012 – 4,300 vpd
 - 2040 – 5,700 vpd

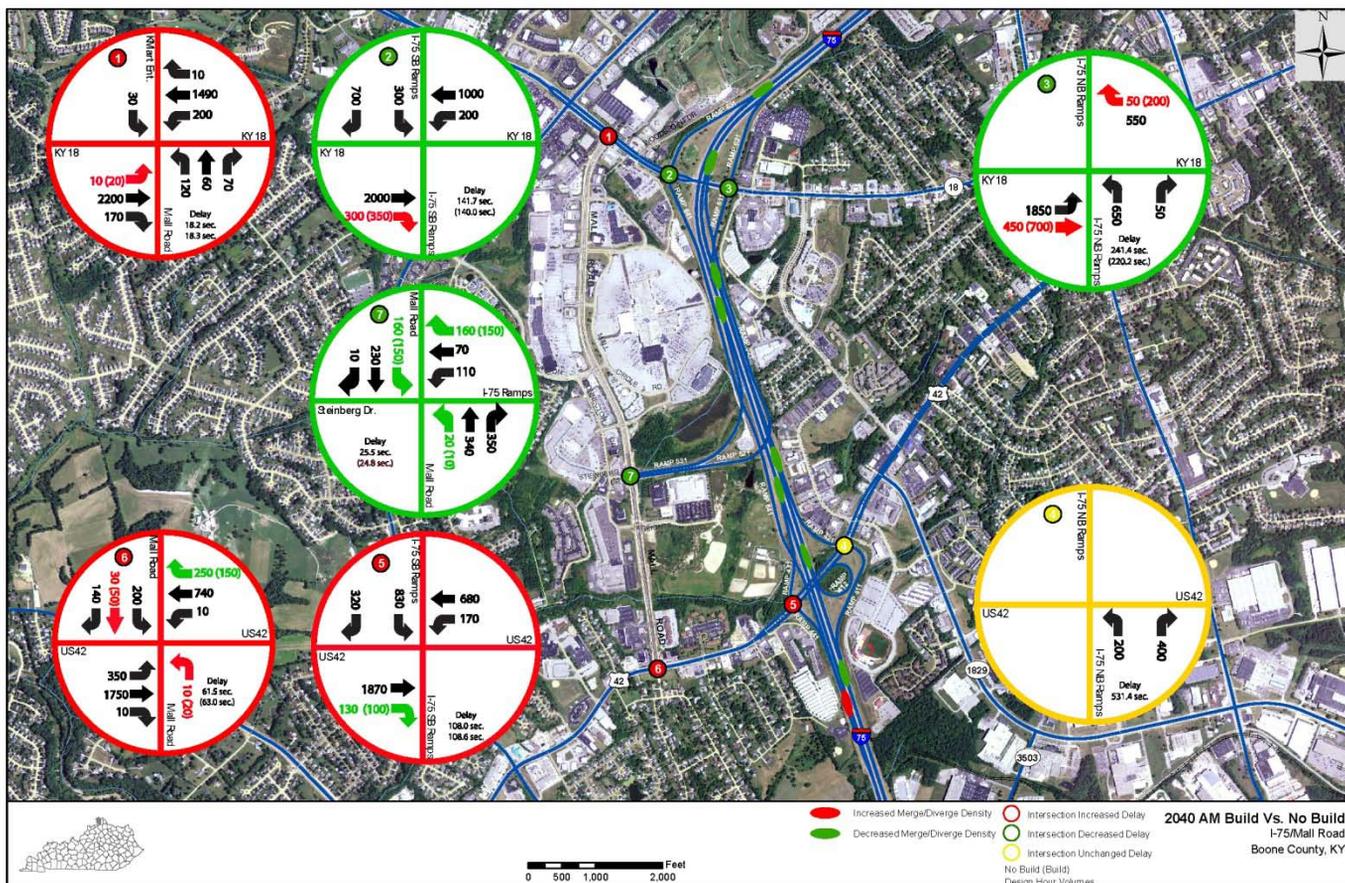
2012 AM Build vs No Build



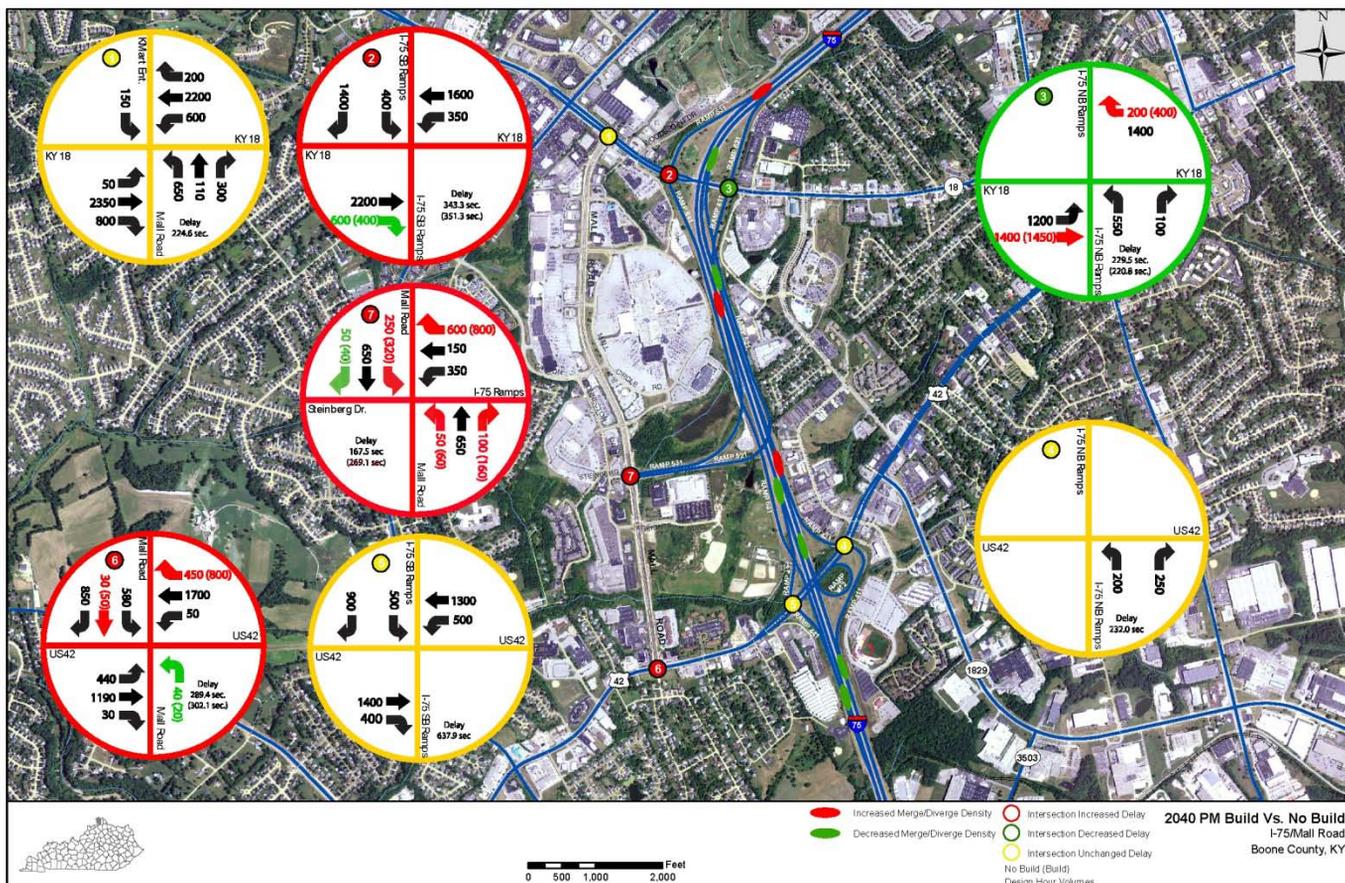
2012 PM Build vs. No Build



2040 AM Build vs. No Build

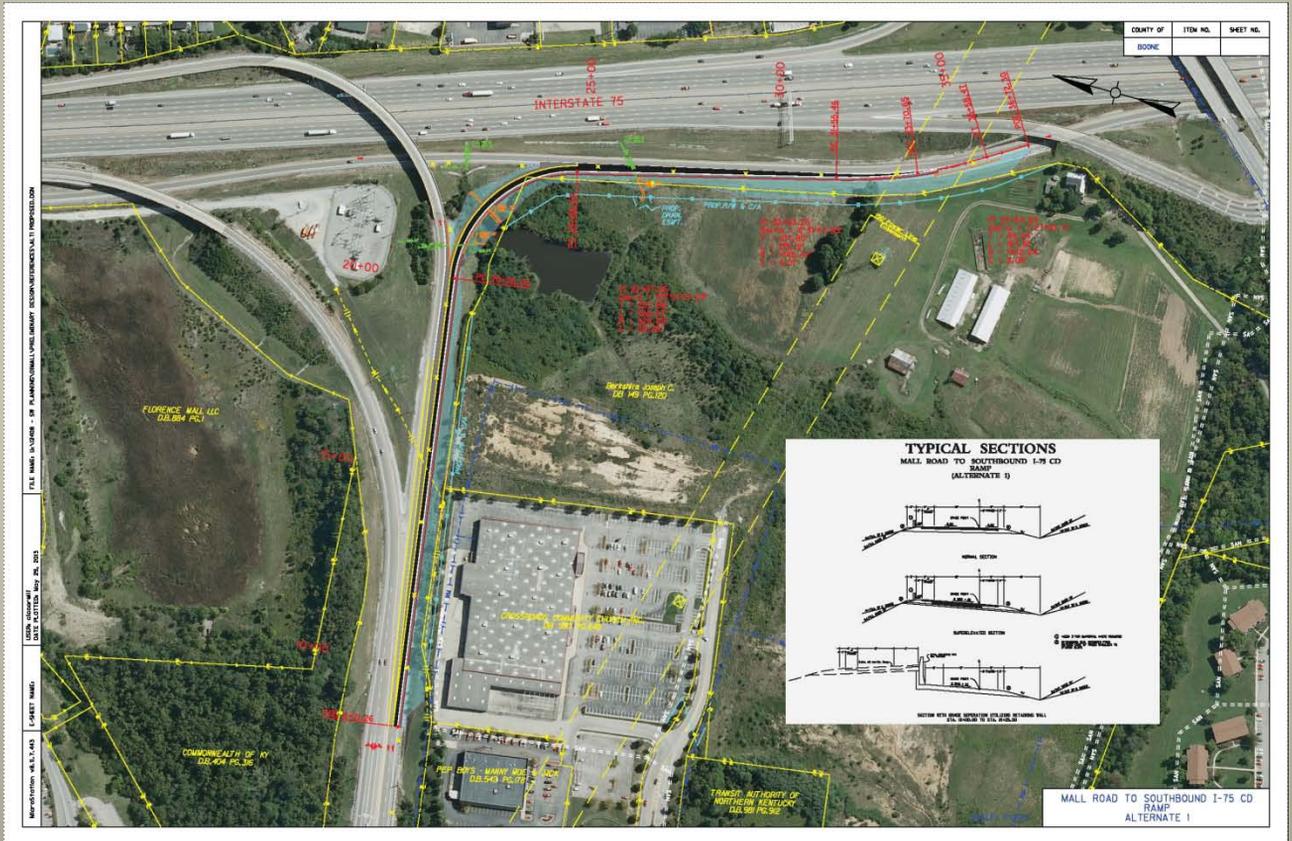


2040 PM Build vs. No Build



ALTERNATIVES

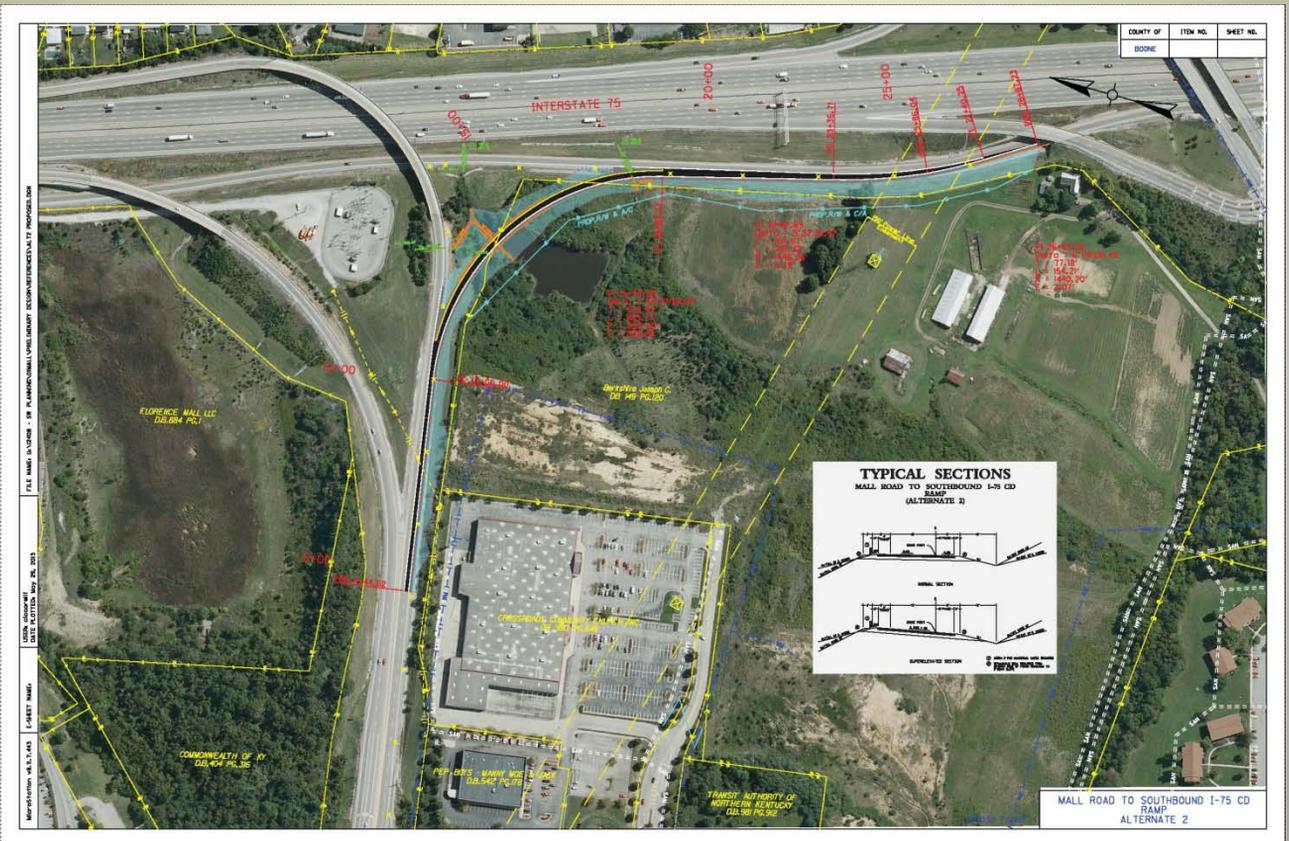
Alternative 1 Ramp Preliminary Layout 35 MPH



Alternative 2

Ramp Preliminary Layout

45 mph



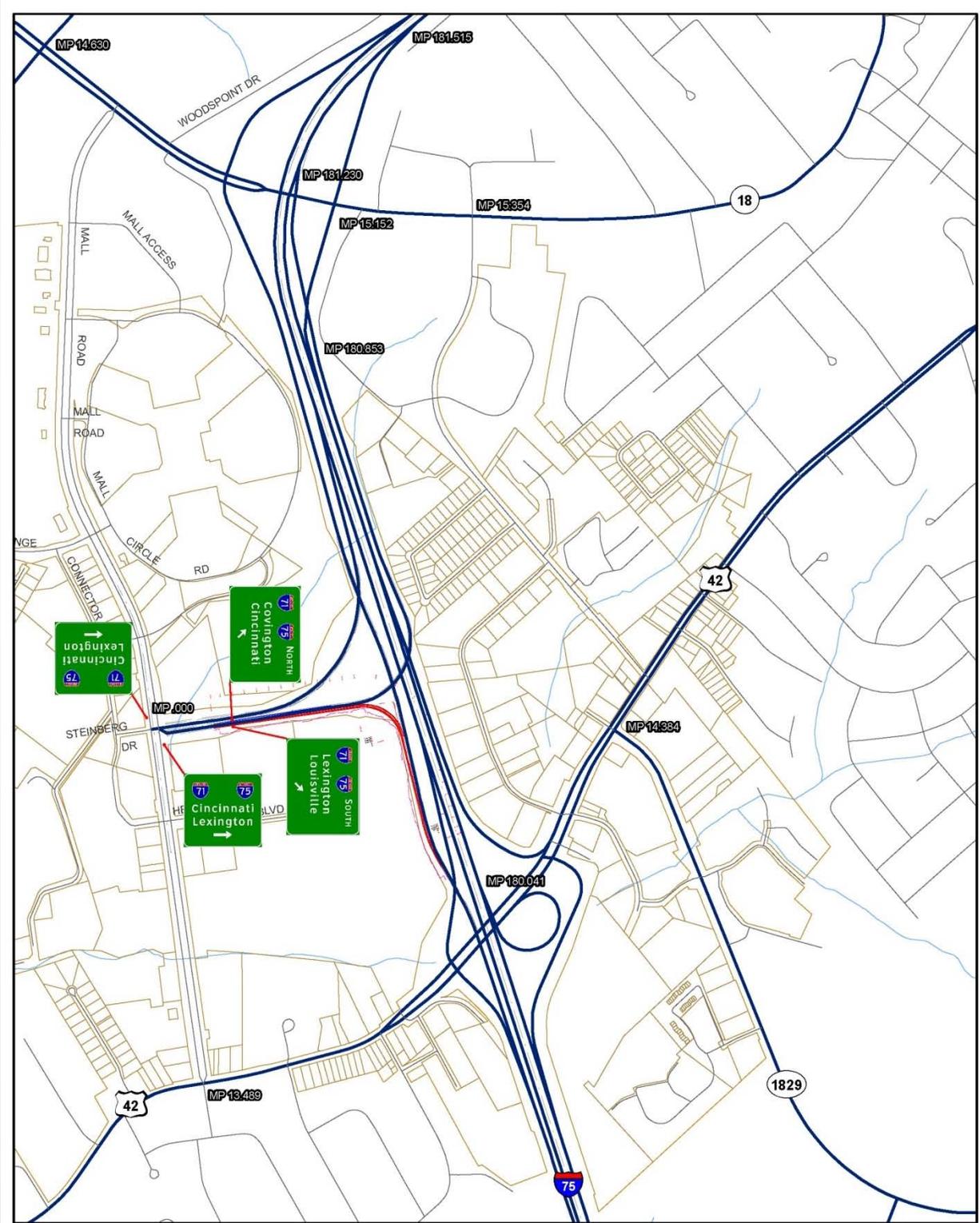
Preliminary Cost Estimates

	Alternative 1	Alternative 2
Design	\$ 150,000	\$ 135,000
Right of Way	\$ 60,000	\$ 80,000
Utilities	\$ 159,900	\$ 64,800
Construction	\$ 849,100	\$ 743,000
Total	\$1,219,000	\$1,028,800

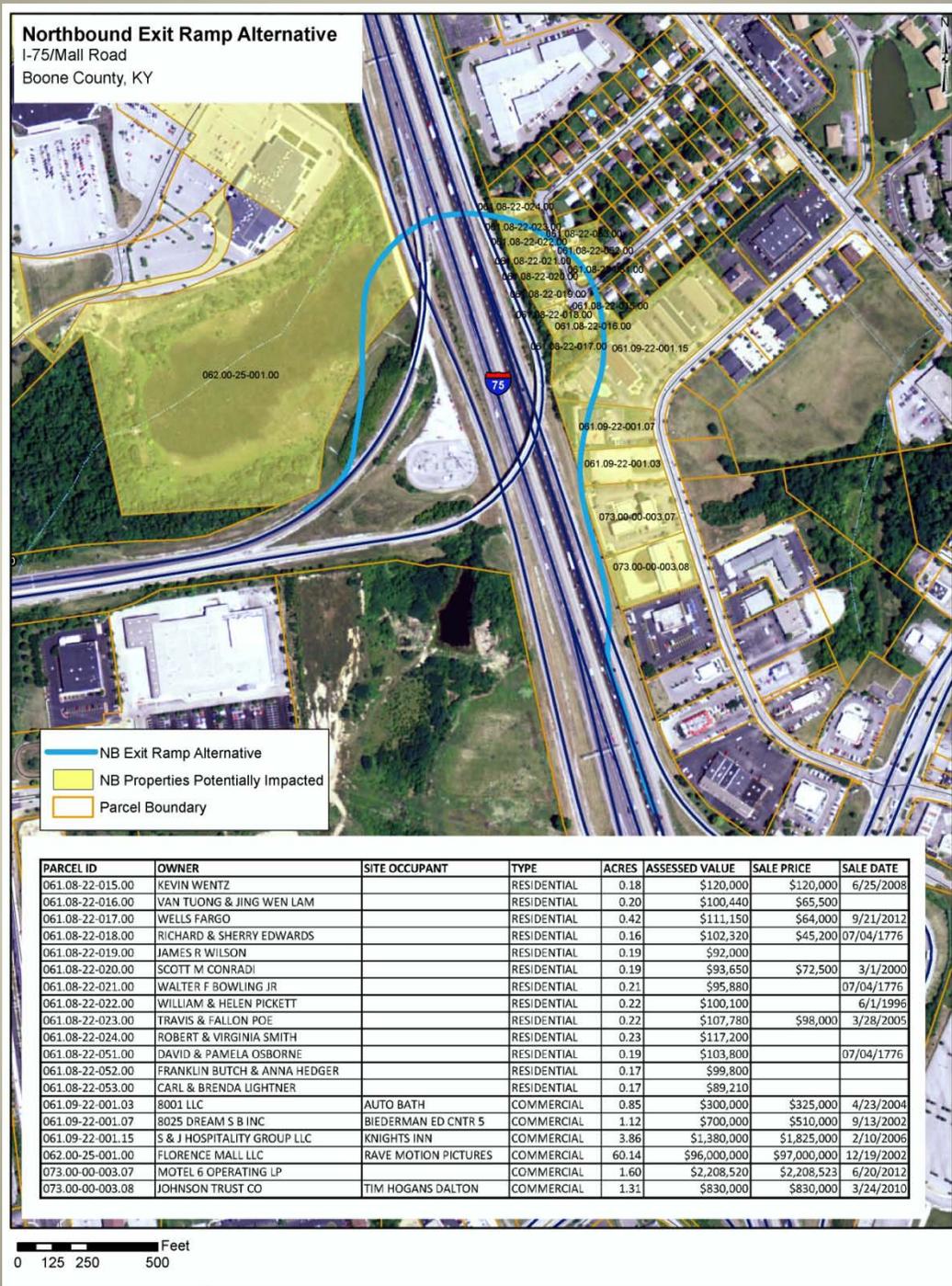
Right of Way and Utilities

	Quantity	Unit	Cost per	Totals
Alternative 1 35 mph				
Right of Way Acreage	1.5	Acres	\$40,000	\$60,000
Light Poles	17	EA	\$2,000	\$34,000
Transmission Poles	3	EA	\$6,000	\$18,000
Transmission Line	720	FT	\$100	\$72,000
Water Line 12"	180	FT	\$120	\$21,600
Sewer Line 8"	130	FT	\$110	\$14,300
		Total		\$219,900
Alternative 2 45 mph				
Right of Way Acreage	2	Acres	\$40,000	\$80,000
Light Poles	15	EA	\$2,000	\$30,000
Transmission Poles	1	EA	\$6,000	\$6,000
Transmission Line	288	FT	\$100	\$28,800
Water Line 12"	0	FT	\$120	\$0
Sewer Line 8"	0	FT	\$110	\$0
		Total		\$144,800
12" water - \$120/LF (per Rob Campbell)				
8" sewer - \$110/LF (per Rob Campbell)				
Power line - \$6000 per pole and \$100/LF of line				
Light Poles - \$2000 per pole				
R/W: \$40,000/acre				

Preliminary Signing Plans



Q: Why not a NB On Ramp?



Costly impacts to very developed area.

Proposed Modified Purpose and Need

The purpose of this project is to improve connectivity and safety between a major regional development area and the interstate system.

Currently, motorists travelling I-75 in Boone County can access Mall Road development to and from the north. However, there is no access to and from the south to Mall Road. Motorists that are leaving Mall Road to travel south on I-75 must turn south on Mall Road to US 42, then east to the I-75 entrance ramp at the I-75/US 42 interchange through congested intersections and signals. The second option is to travel north on Mall Road, turn east onto KY 18 and enter I-75 the southbound entrance ramp through congested intersections and signals. This proposed project would provide access to I-75 via a collector distributor road directly from Mall Road.

Existing intersection delays range from 15.5 seconds (LOS C) in the AM peak hour to 237 seconds (LOS F) in the PM peak hour and crash rates are above the average crash rates for similar type roadways in Kentucky for KY 18, US 42, and Mall Road. There are also many access points along these roadway segments contributing to the crashes and congestion.

TSM Suggestions

- Mall Road/I-75 ramps
 - Coordinate with city of Florence to retime signal for more green time to ramps that will work with progression of signals along Mall Road.
 - Dual rights at SB off ramp
- US 42/Mall Road
 - Dual rights heading westbound

Next Steps

- Report Documentation

Milestones

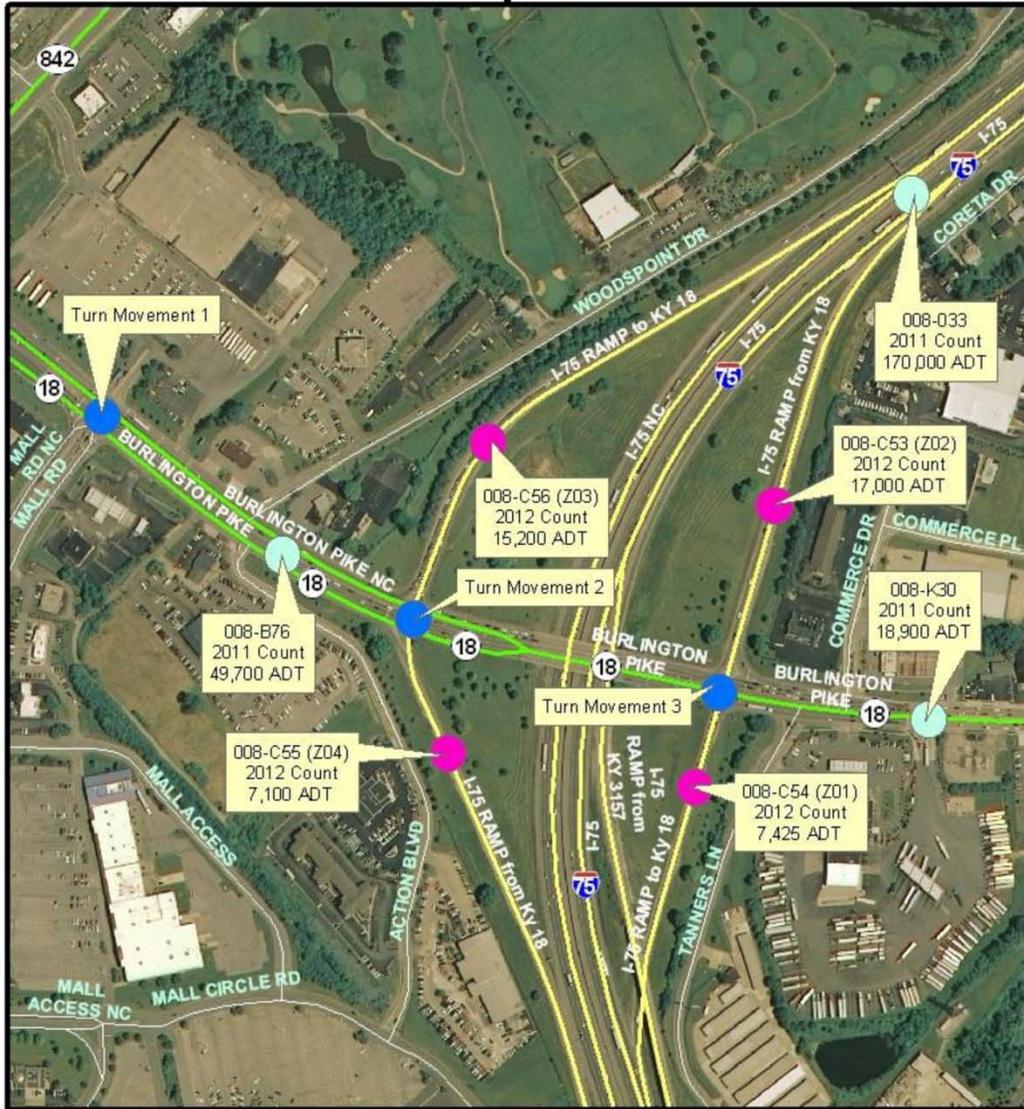
Milestones	Milestone Dates	Actual Dates
Notice to Proceed	June 25, 2012	July 3, 2012
Assessment of Existing Conditions	August 31, 2012	
Development of Alternative Concepts	October 15, 2012	*Received Revised Traffic December 7, 2012
First Project Team Meeting	October 31, 2012	January 8, 2013
Second Project Team Meeting	February 15, 2013	July 8, 2013
Submission of Draft Report	April 1, 2013	August 7, 2013
Address Comments/ Resubmit	June 15, 2013	October 7, 2013
After Approval of Final Report	July 5, 2013	November 7, 2013

Dates were revised for traffic forecasts.

FHWA 8 Considerations and Requirements

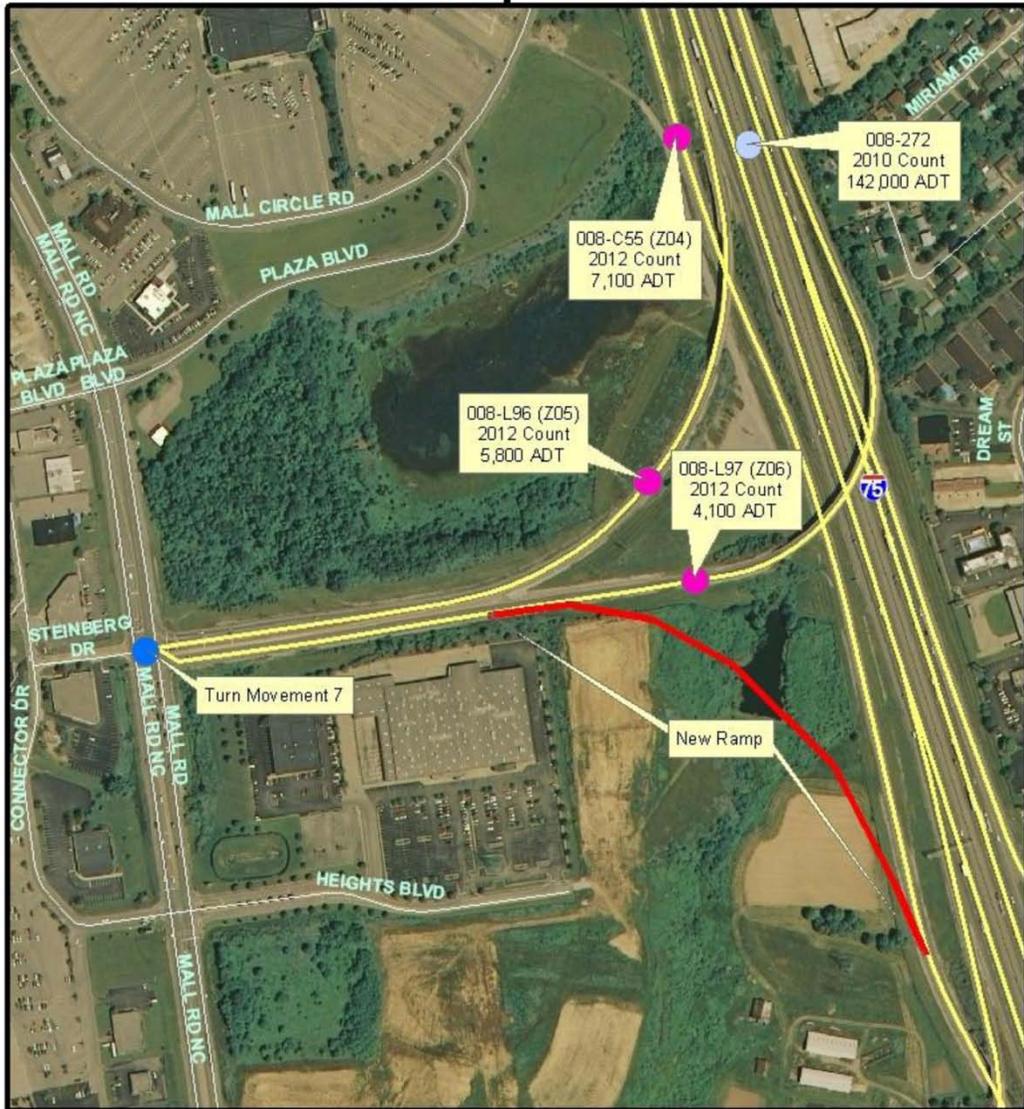
1. Existing network with reasonable improvements cannot satisfactorily address the need
2. Consideration of all reasonable alternatives
3. No significant adverse impact on safety and operations
4. Connects to a public road and provides for all movements
5. Consistent with local and regional land use and transportation plans
6. Need for systematic study of effects
7. Coordination with related development
8. Coordination with environmental evaluation and approval process

Volume and Special Counts 1



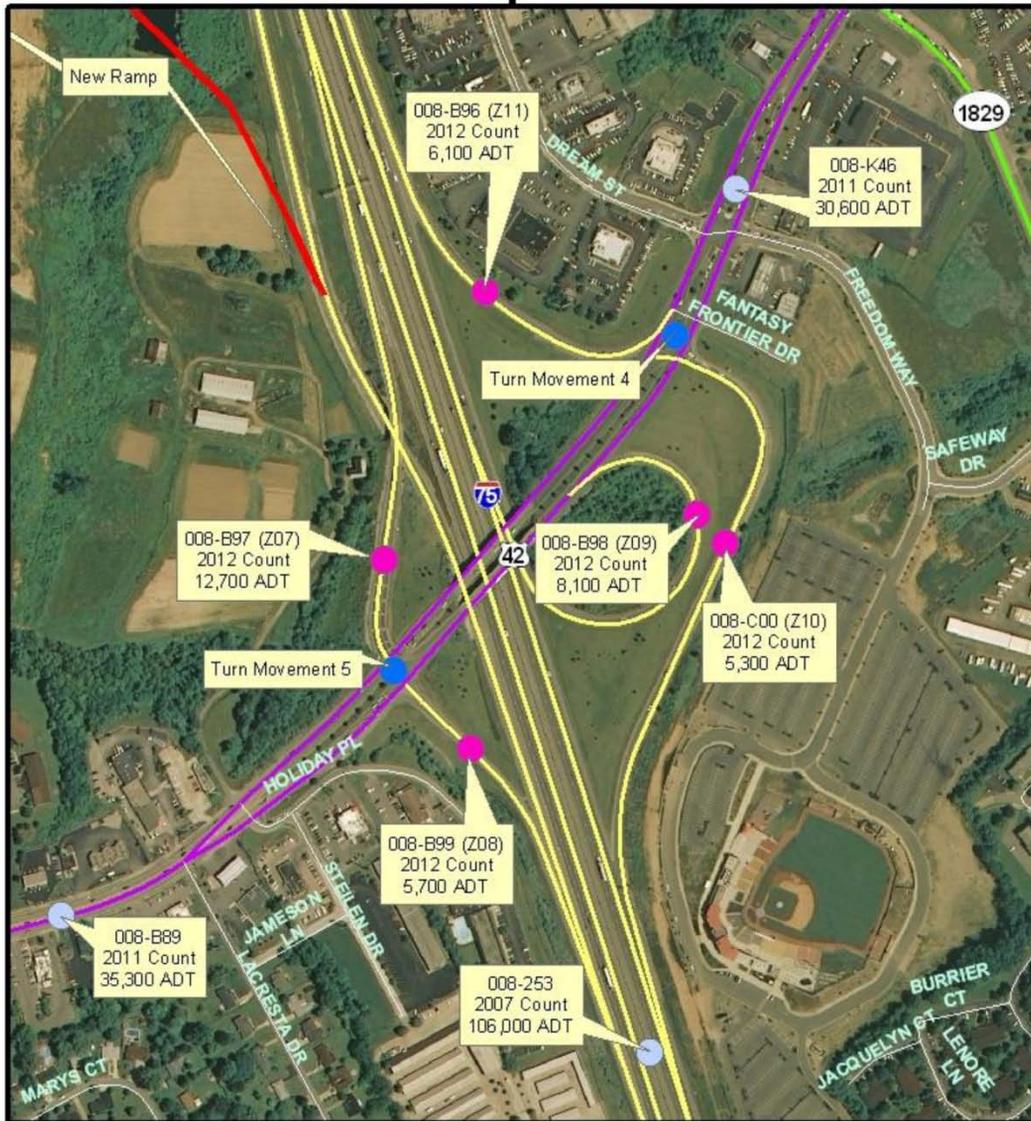
	LEGEND	Boone County Construct additional Ramp on I-75 near Exit 180A Item # 06-0409.00		
	<ul style="list-style-type: none"> — New Ramp ● Turn Movement ● Volume Counts ● Ramp Counts 			

Volume and Special Counts 2



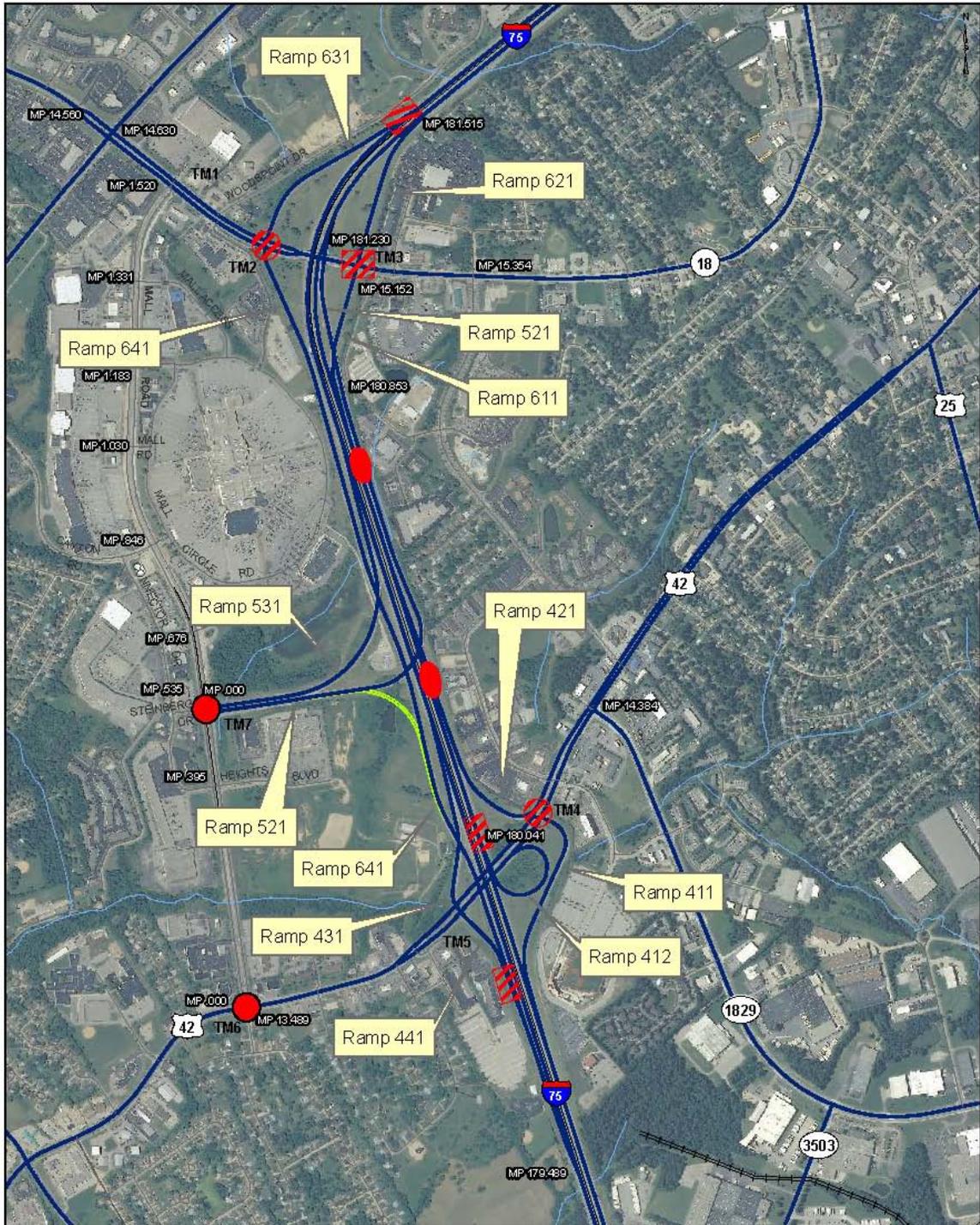
<p>N</p>	<p>LEGEND</p> <ul style="list-style-type: none"> New Ramp Turn Movement Volume Counts Ramp Counts 	<p>Boone County Construct additional Ramp on I-75 near Exit 180A Item # 06-0409.00</p>	
	<p>0 0.05 0.1 0.2 Miles</p>		

Volume and Special Counts 3

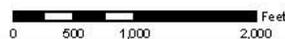


<p>N</p> <p>LEGEND</p> <ul style="list-style-type: none"> — New Ramp ● Turn Movement ● Volume Counts ● Ramp Counts 	<p>Boone County Construct additional Ramp on I-75 near Exit 180A Item # 06-0409.00</p>	 <p>0 0.05 0.1 0.2 Miles</p>
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2012 Build versus No-Build Increased Delay or Density



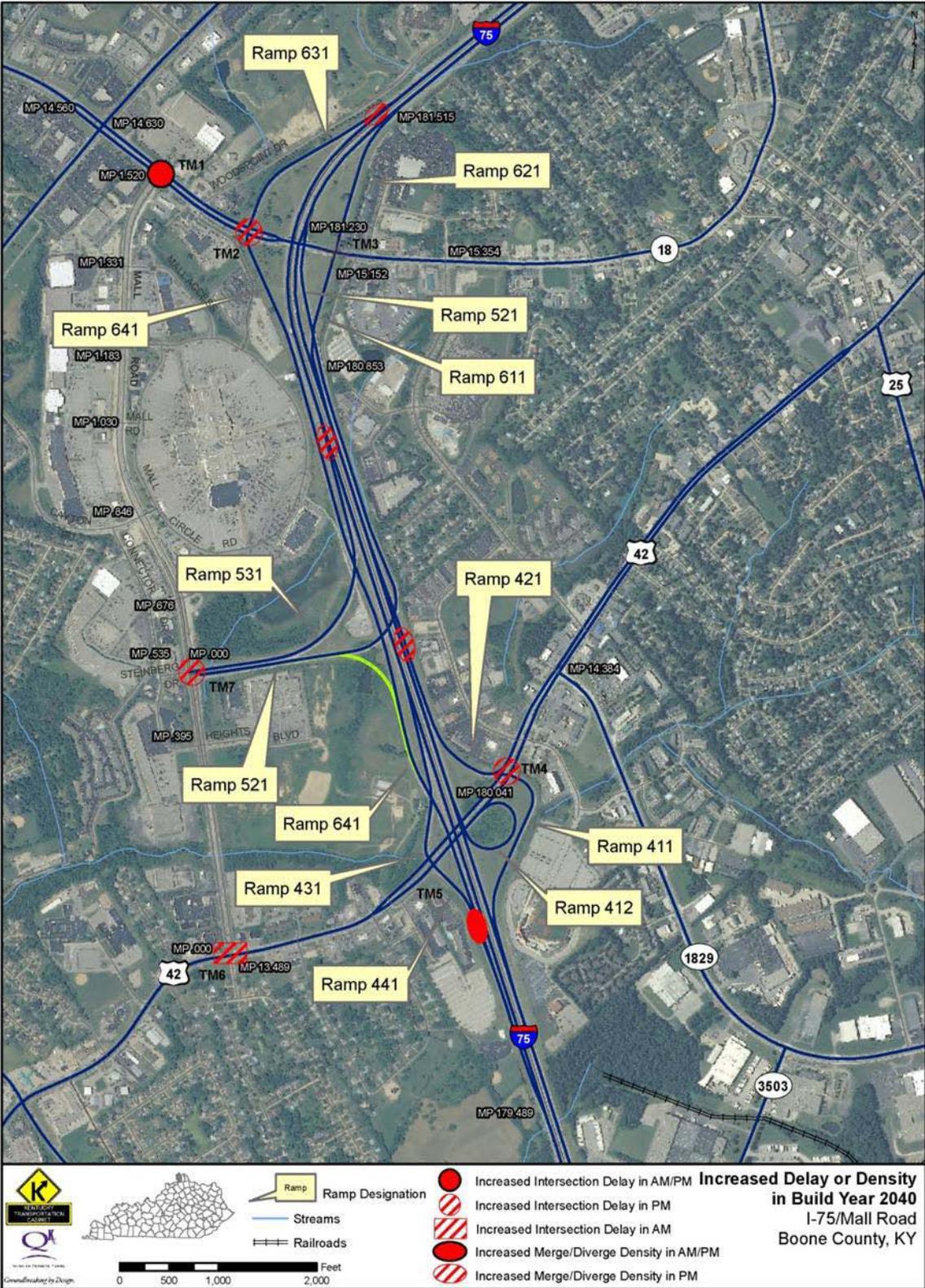




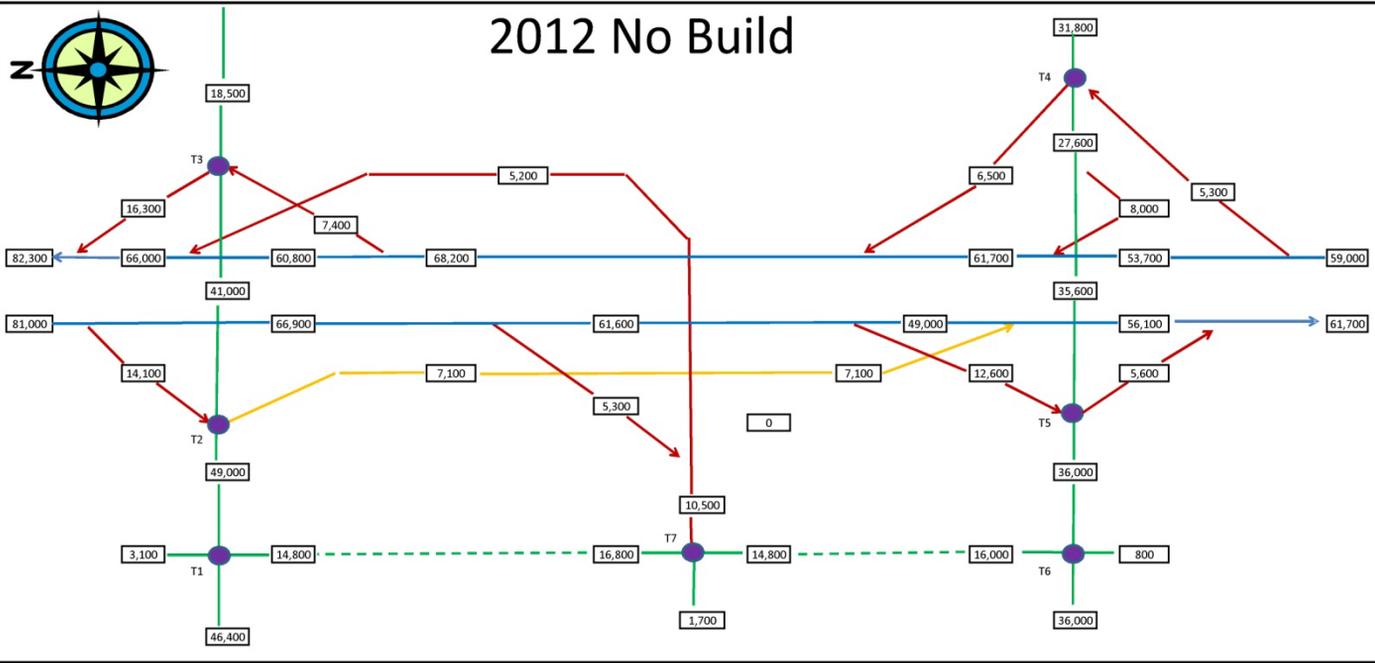
<ul style="list-style-type: none"> Ramp Designation Streams Railroads 	<ul style="list-style-type: none"> Increased Intersection Delay in AM/PM Increased Intersection Delay in PM Increased Intersection Delay in AM Increased Merge/Diverge Density in AM/PM Increased Merge/Diverge Density in AM Increased Merge/Diverge Density in PM
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**Increased Delay or Density
in Build Year 2012**
I-75/Mall Road
Boone County, KY

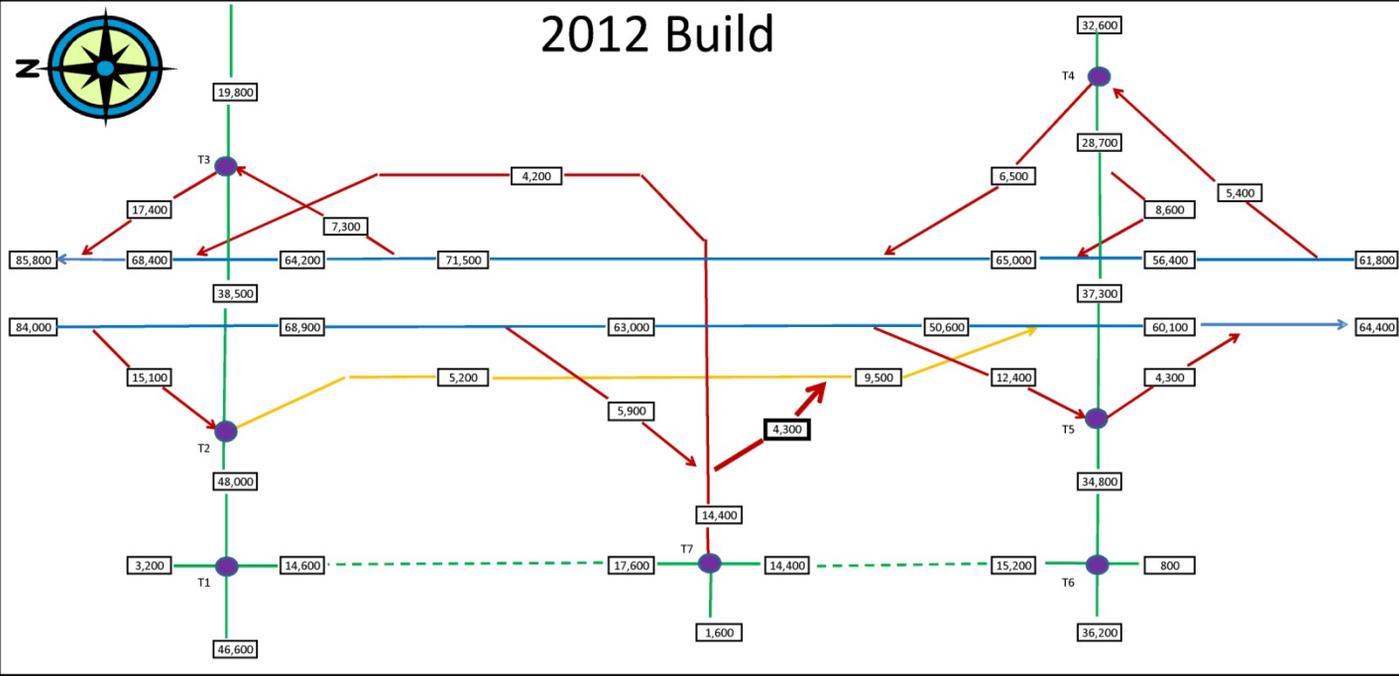
2040 Build versus No-Build Increased Delay or Density



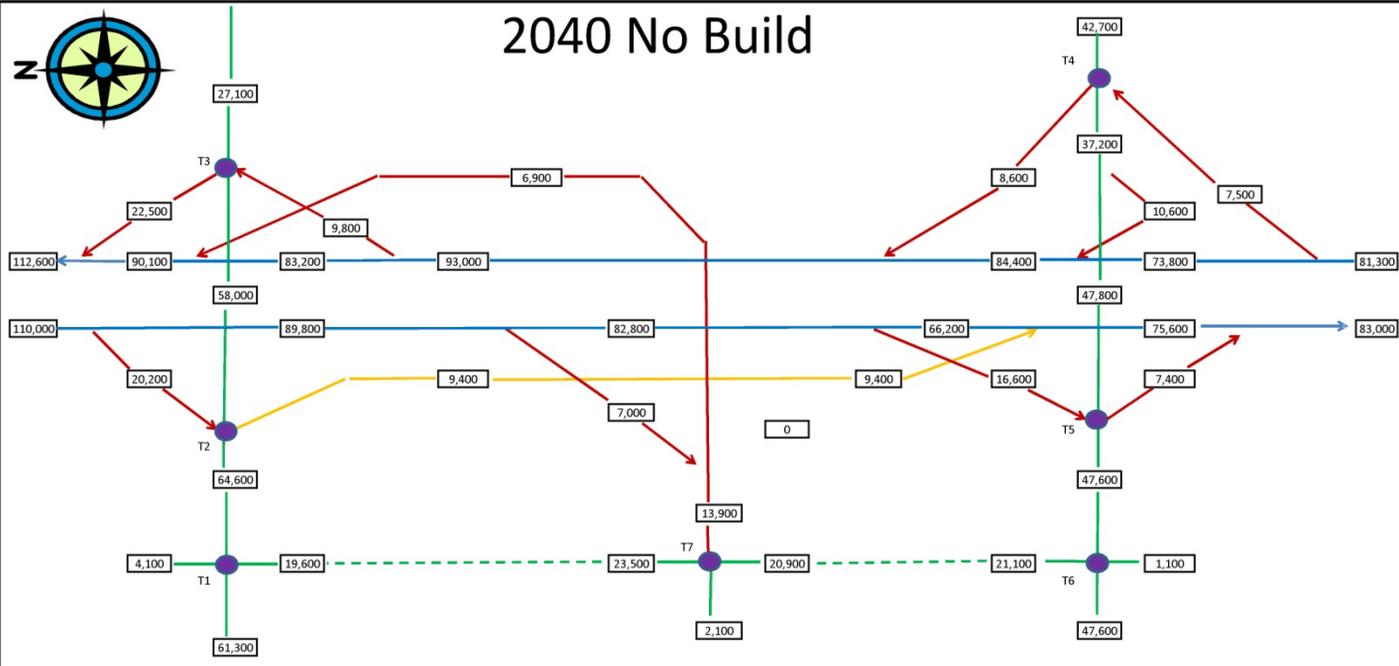
2012 No Build



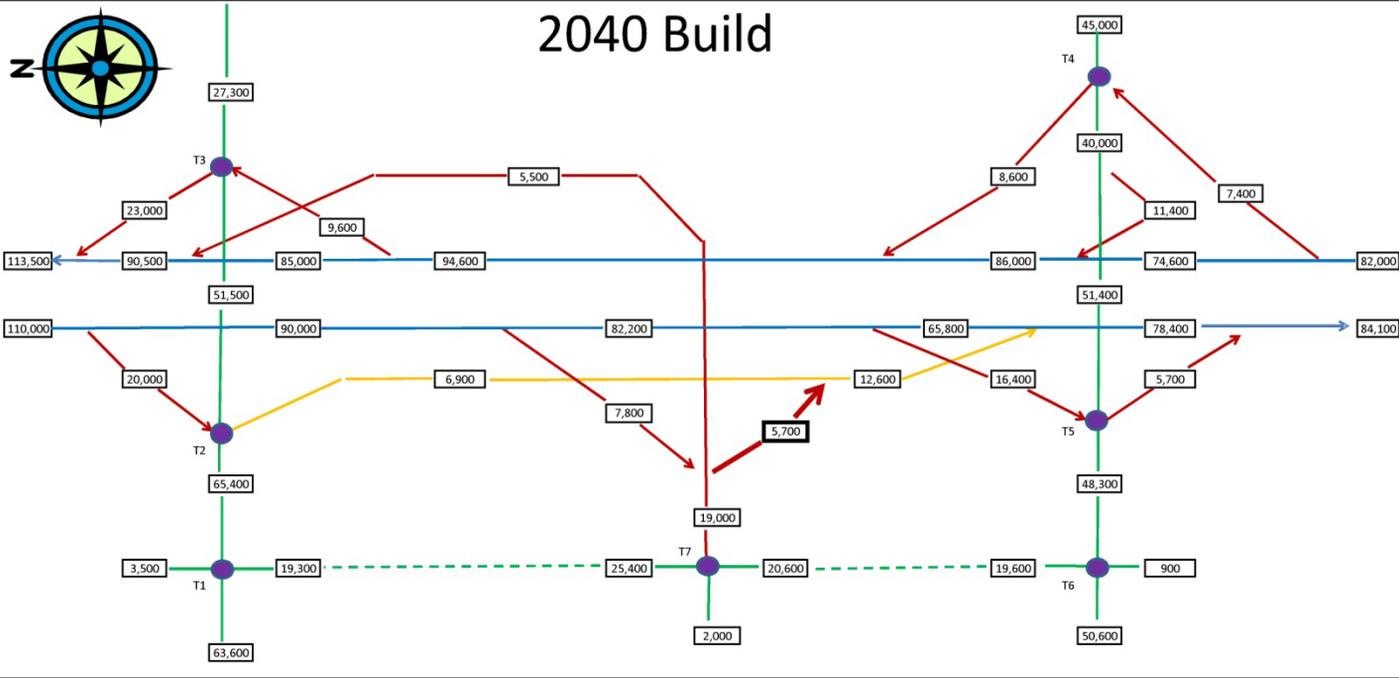
2012 Build



2040 No Build

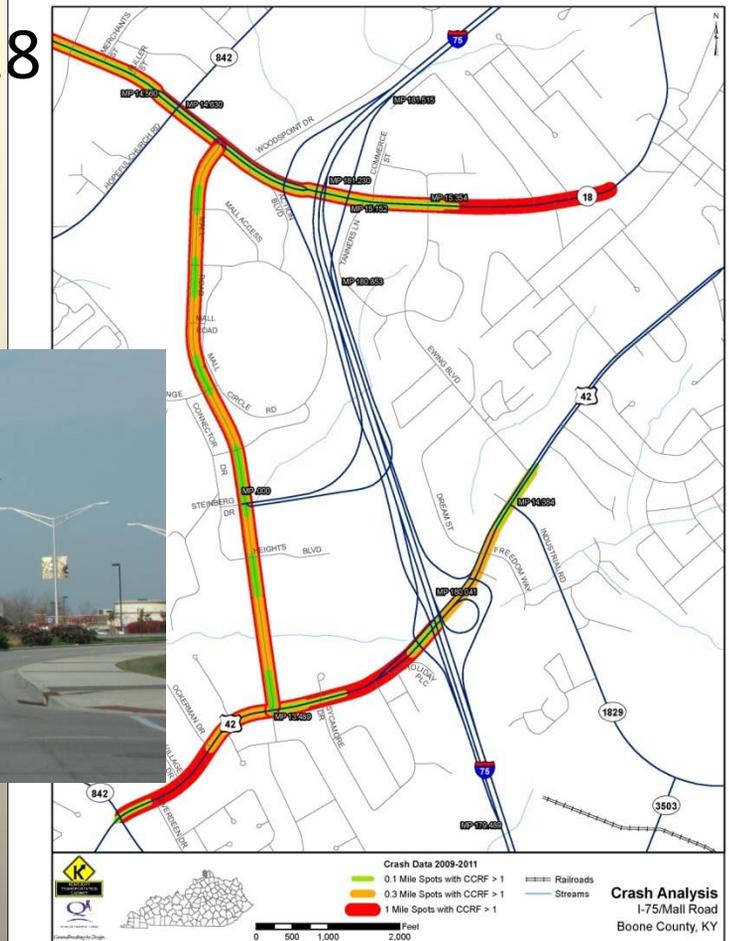


2040 Build



MALL ROAD CRASHES

- Rear ends at Mall Access Road/ Mall Road intersection
- Lefts out of HH Gregg
- Lefts into Mall Access Road
- Lefts from Mall Road into Florence Square at Mall Access Road
- Rear Ends @ US 42
- Rear Ends @ KY 18



US 42 CRASHES

MP 12.951 – 13.051

- Rear Ends at Hopeful Church Road and Weaver Road
- Lane changes near Hopeful Road
- In and out of BP Station

MP 13.463 – 13.563

- Rear ends
- Left into and out of Tire Discounters
- Left into and out of Midas

MP 13.568 - 13.668

- Rear ends (Diane and Sycamore Drives)

MP 13.890 – 13.990

- Rear ends
- Ran red light or failure to yield at light

MP 14.304 – MP 14.404

- Access Management
- Failure to stop at red lights
- Rear Ends

MP 14.405 – 14.505

- Ewing Blvd. left failed to yield to through movement
- Access Management

Tire Discounters and Midas MP 13.463 – 13.563



KY 18 CRASHES

MP 14.298 – 14.398

- Rear Ends (Greenview, Ridge Road), predominantly EB

MP 14.400 – 14.500

- Rear Ends (Merchants St)
- Failure to Yield (lefts to and from Merchants Street predominantly)

MP 14.514 – 14.614

- Rear ends (predominantly EB) at Hopeful Church Road
- Lane changes at Hopeful Church Road

MP 14.616 – 14.716

- Rear Ends (KY 18, Houston Road / Hopeful Church Road)
- Ran Red light at Houston Road / Hopeful Church Road

MP 14.719- 14.819

- Rear ends at Mall Road both directions
- Lane changes (several in the WB left dual turn lanes)
- Ran red light

MP 14.821 – 14.921

- Rear ends Action Blvd, Woodspoint and SB Ent Ramp
- Lane changes
- Illegal lefts from Action Blvd

MP 14.923 – 15.023

- Rear Ends at SB Ramps, Action Blvd.
- Lefts onto Action Blvd.

MP 15.025 – 15.125

- Rear ends in NB left dual left turn lanes

MP 15.227 – 15.327

- Lane changes
- Rear ends (KY 18, TA truck stop, and Speedway)

MP 15.125 – 15.225

- Rear Ends (TA truck stop, Commerce Dr., KY 18 / I-75)
- Left turns into and out of Commerce Drive
- Ran red light at NB exit ramp
- Lane changes in left turn lanes

MP 15.331- 15.431

- Rear Ends at Ewing Drive
- Lefts to and from Swifty Gas Station
- Rear ends on KY 18