Meeting Minutes

TO:	Stephen De Witte Co-Project Manager KYTC Central Office 200 Mero Street Frankfort, KY 40622	Benjamin Hunt Co-Project Manager KYTC District Office #3 900 Morgantown Road Bowling Green, KY 42101

FROM: Dan O'Dea
Project Manager
Stantec Consulting Services Inc.

DATE: May 22, 2020

SUBJECT: Kentucky/Adams Street Improvements Study
US 68X One-Way Couplet Between Old Morgantown Road and Veterans Memorial Lane
(MP 2.118 to MP 3.249)
KYTC Item No. N/A
Project Team Meeting No. 1

The first project team meeting for the subject project was on a BlueJeans Teleconference on April 30, 2020 at 1:30 p.m. EDT. The following individuals were in attendance:

Allen Arnold	KYTC – Right-of-Way
Melissa Cansler	City of Bowling Green
Stephen De Witte	KYTC – Central Office Planning
Tyler Graham	Barren River Area Development District (BRADD)
Matthew Holder	KYTC – District 3 Planning
Barry House	KYTC – Central Office Planning
Benjamin Hunt	KYTC – District 3 Planning
Matt Lawson	KYTC – Central Office Planning
Greg Meredith	City of Bowling Green
Beth Niemann	KYTC – Central Office Planning
Mikael Pelfrey	KYTC – Central Office Planning
Joe Plunk	KYTC – District 3 Chief District Engineer
Clint Puryear	KYTC – District 3 Utilities
Steve Ross	KYTC – Central Office Planning
Scott Schurman	KYTC – Division of Environmental Analysis
Tim Sharp	KYTC – District 3 Project Delivery and Preservation
David Souleyrette	KYTC – Central Office Planning
Wendy Southworth	KYTC – Central Office Highway Design
Andrew Stewart	KYTC – District 3 Project Development Branch Manager
Jennifer Tougas	Western Kentucky University (WKU)
Wes Watt	KYTC – District 3 Public Information Officer
Jon Whitaker	KYTC – District 3 Traffic

Brian Aldridge	Stantec Consulting Services Inc.
Mark Butler	Stantec Consulting Services Inc.
Dan O'Dea	Stantec Consulting Services Inc.
Len Harper	Stantec Consulting Services Inc.
Graham Winchester	Stantec Consulting Services Inc.

Dan O'Dea welcomed everyone and, after introductions, delivered a presentation that highlighted progress to date for the Kentucky/Adams Street Improvements Study.

The following enumerated items were discussed.

1. The purpose of the meeting is to present the results from the existing conditions analysis and to get feedback from the project team on the preliminary traffic forecasts assumptions and potential improvement concepts.

2. This project is federally funded with Statewide Planning and Research (SPR) Chapter 7 funds. Future phases of the project are not funded in *Kentucky's FY 2018 – FY 2024 Highway Plan*.

There are no projects in the immediate vicinity listed in *Kentucky's FY 2018 – 2020 Highway Plan* or in *Kentucky's FY 2020 – 2022 Highway Plan*.

3. The WKU-Community Bikeway Project is a federally funded multimodal project to connect the WKU campus with downtown Bowling Green. The WKU portion connects Creason Street to Center Street, which runs parallel to Kentucky Street.

4. The goal of the study is to identify and evaluate potential traffic operational changes which are compatible with land use and increase safety for all modes of travel.

5. In 2014, Stantec worked with KYTC and the Bowling Green/Warren County Metropolitan Planning Organization (MPO) on the *Downtown Bowling Green Traffic Circulation Study*. This study investigated existing and future traffic needs within the city of Bowling Green and sought to determine how to best facilitate growth in the community. As part of the study, a long-term project was to convert Kentucky and Adams Streets to two-way traffic and to widen Adams Street to accommodate a five-lane section. (2014 Estimated costs: Design = $800,000, Right-of-Way = $12,000,000, Utilities = $4,500,000, Construction = $5,400,000)

6. Highlights from the existing conditions analysis were discussed. Kentucky and Adams Streets are a one-way couplet of two-lane minor arterials. The curb-to-curb width of Adams Street ranges from 27.75' northeast of 14th Avenue to 34' near the RC Beverage Company Building between 10th Avenue and 11th Avenue. Kentucky Street has an average width of 30'. Based on Warren County PVA data, the existing

right-of-way ranges from 42’ to 55’ on Adams Street and 42’ to 50’ on Kentucky Street.

7. The Environmental Overview was briefly discussed. In addition to several water wells on Adams Street, there are two historic districts and four historic properties in the study area.

8. Over the previous three years (January 1, 2017 – December 31, 2019), there were 298 crashes on the study portion of US 68X. Of the 298 crashes, 55 (18 percent) were injury collisions and 243 (82 percent) were property damage only. The most common crash types were angle collisions with 89 (30 percent), sideswipe with 88 (30 percent), and rear end with 69 (23 percent).
    - It was noted that there was a fatality in 2016 at the intersection of Kentucky Street (US 68X) and Veterans Memorial Lane / 6th Avenue (US 68) which was attributed to defective brakes on the collision report.

    Over the past five years (2015 to 2019), there was one collision with a bicyclist, two collisions with a pedestrian in an intersection, and two collisions with a pedestrian not in an intersection.
    - Based on GPS data from social-fitness app Strava, pedestrians are more concentrated on Kentucky Street, particularly on the southern portion close to WKU. Bicyclists are more prevalent on routes to the south of the study area than on Kentucky and Adams Streets.

9. Excess expected crashes (EEC) were calculated by the Kentucky Transportation Center (KTC) for both Kentucky and Adams Streets. EEC is a measure of crash frequency at a given site compared to what is expected based on current conditions (geometrics, traffic, etc.). A positive EEC indicates more crashes are occurring than should be expected. Portions of both Kentucky and Adams Streets have EECs above 1, as shown in **Figure 1**.

10. Historical KYTC traffic volumes show an Annual Average Daily Traffic (AADT) between 6,700 and 10,200 vehicles per day (VPD) on Adams Street and 7,800 VPD on Kentucky Street. South of the southwest split, University Drive (US 68X) carries 19,600 VPD. North of the northeast split, Kentucky Street (US 68) carries 16,500 VPD and Veteran’s Memorial Lane (US 68) carries 17,500 VPD.
    - There are several GO BG (Red Line Route 1, Blue Line Route 2, Yellow Line Route 3) and WKU (Hilltopper Route) bus routes that traverse the study area. Diversion of routes and/or relocation of bus stops will be considered during the development of improvement concepts.

11. The TransModeler simulation model from the Downtown Bowling Green Traffic Circulation Study was updated and used for this study. New turning movement counts were used as inputs for creating the existing AM (7:30 AM – 8:30 AM) and PM (4:30 PM – 5:30 PM) peak hour models. These counts, which included pedestrian counts, were taken at the following locations:

1) University Drive (US 68X) at Old Morgantown Road
2) Kentucky Street (US 68X) at CVS
3) Adams Street (US 68X) at CVS
4) Kentucky Street (US 68X) at Alumni Avenue
5) Adams Street (US 68X) at Alumni Avenue
6) Kentucky Street (US 68X) at 13th Avenue
7) Adams Street (US 68X) at 13th Avenue
8) Kentucky Street (US 68X) at 12th Avenue
9) Adams Street (US 68X) at 12th Avenue
10) Kentucky Street (US 68X) at 11th Avenue
11) Adams Street (US 68X) at 11th Avenue
12) Kentucky Street (US 68X) at 10th Avenue
13) Adams Street (US 68X) at 10th Avenue
14) Kentucky Street (US 68X) at Main Avenue
15) Adams Street (US 68X) at Main Avenue
16) Kentucky Street (US 68X) at 8th Avenue
17) Adams Street (US 68X) at 8th Avenue
18) Kentucky Street (US 68X) at 6th Avenue (US 68)

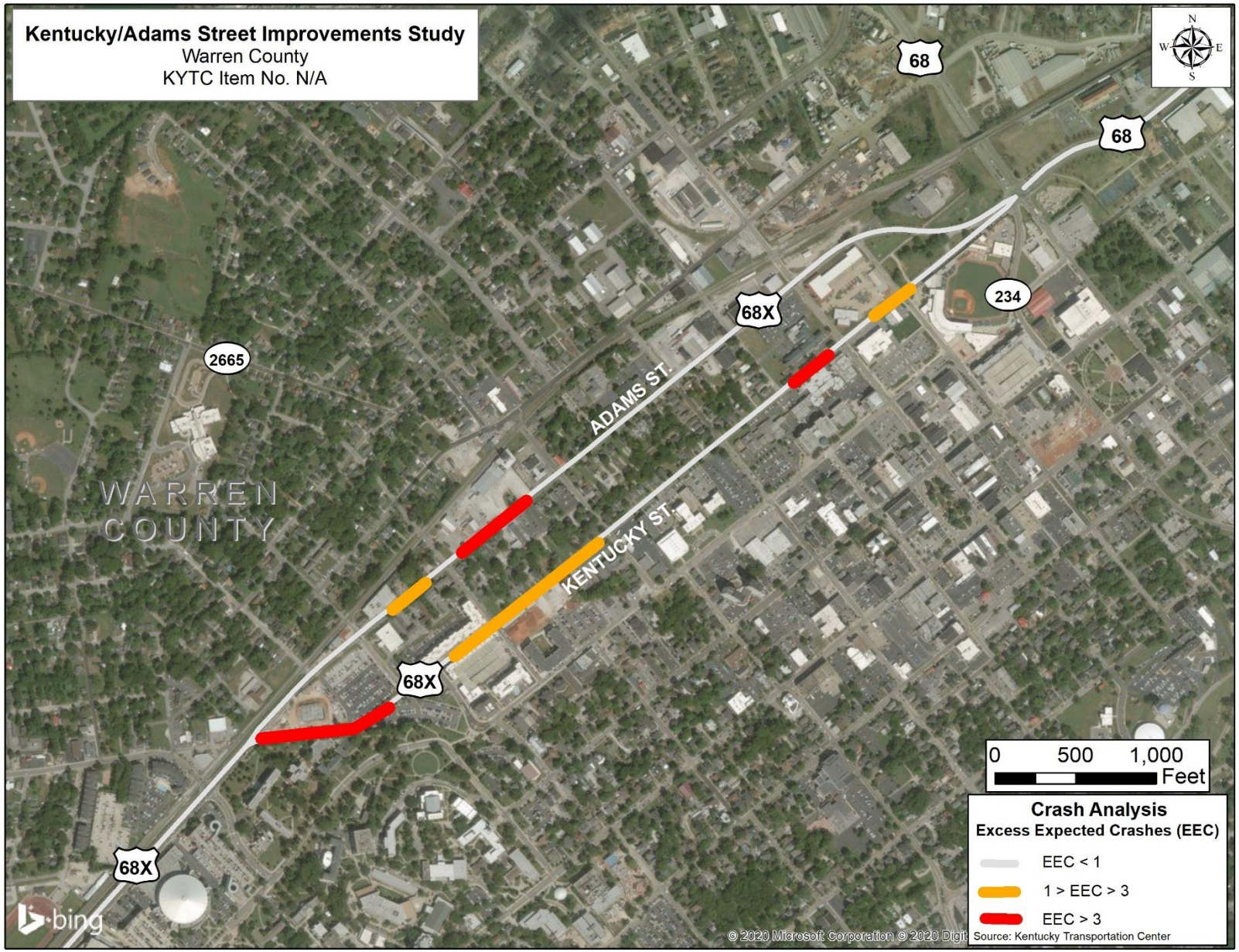

Figure 1: Study Area Excess Expected Crashes (EEC)

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Additional counts from the 2019 Russellville Road (US 68X and US 231X) Planning Study and the Warren County Metropolitan Planning Organization (MPO) US 31W Bypass Study were used to update model counts at the following locations:

- University Drive (US 68X) at Russellville Road (US 231X)
- University Drive (US 68X) at Creason Street
- University Drive (US 68X) at Normal Street
- University Drive (US 68X) at Nashville Road (US 31W)
- Nashville Road (US 31W) at Chestnut Street
- Nashville Road (US 31W) at Cabell Drive
- Nashville Road (US 31W) at Broadway Avenue (US 231X)
- Nashville Road (US 31W) at 10th Avenue

Letter-based "Level of service" (LOS) grades provide a qualitative framework for describing the operational conditions and evaluating the adequacy of the existing roadway. In in urban areas such as this, LOS "D" or better is desirable. During the AM peak hour, all signalized intersections in the study area operate at LOS C or better except for the Veterans Memorial Lane intersection which operates at LOS D, as shown in **Figure 2**. During the PM peak hour, the Veterans Memorial Lane and Old Morgantown Road intersections both operate at LOS D, as shown in **Figure 3**.

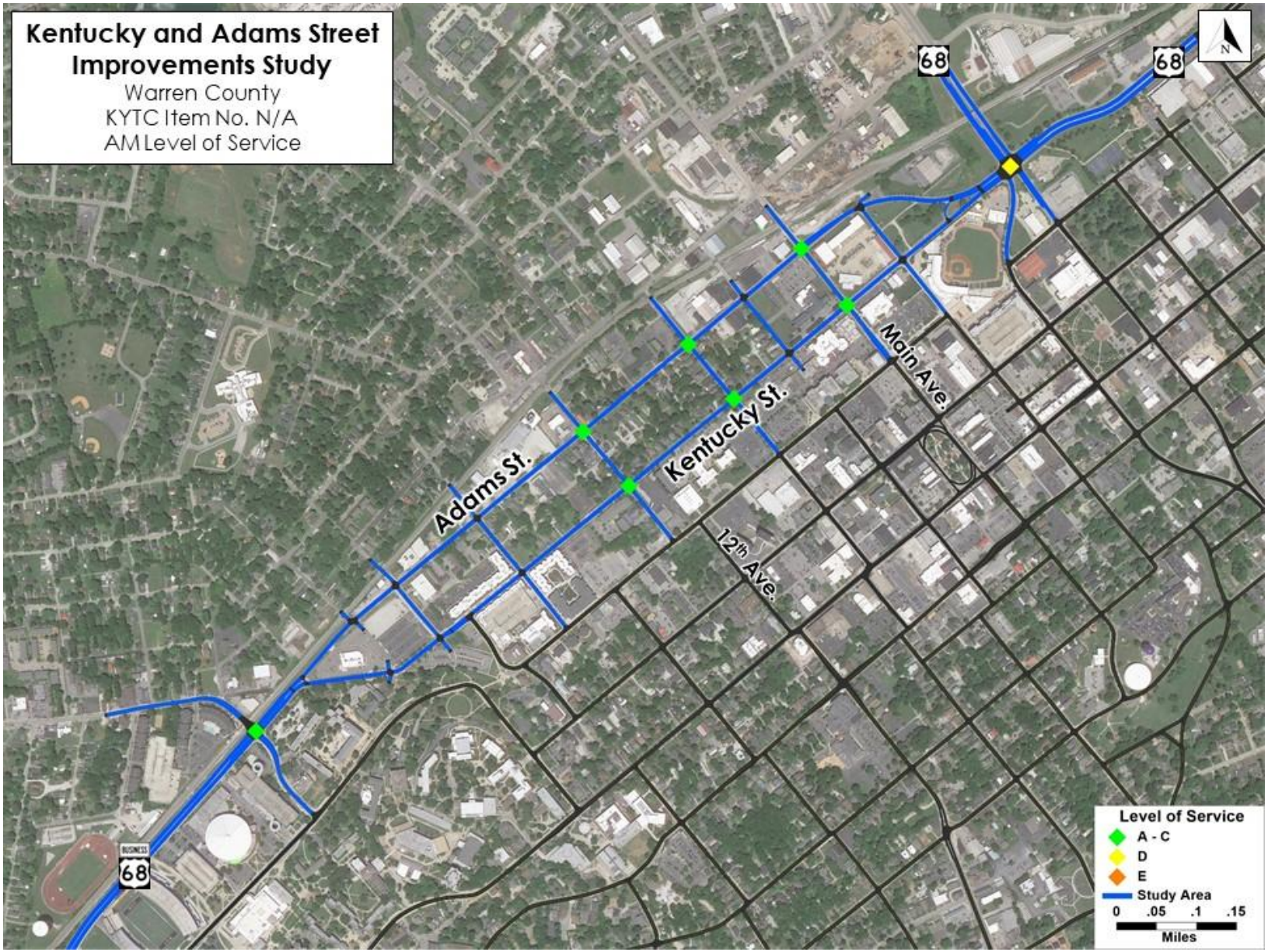

Figure 2: Existing AM Peak Hour Level of Service

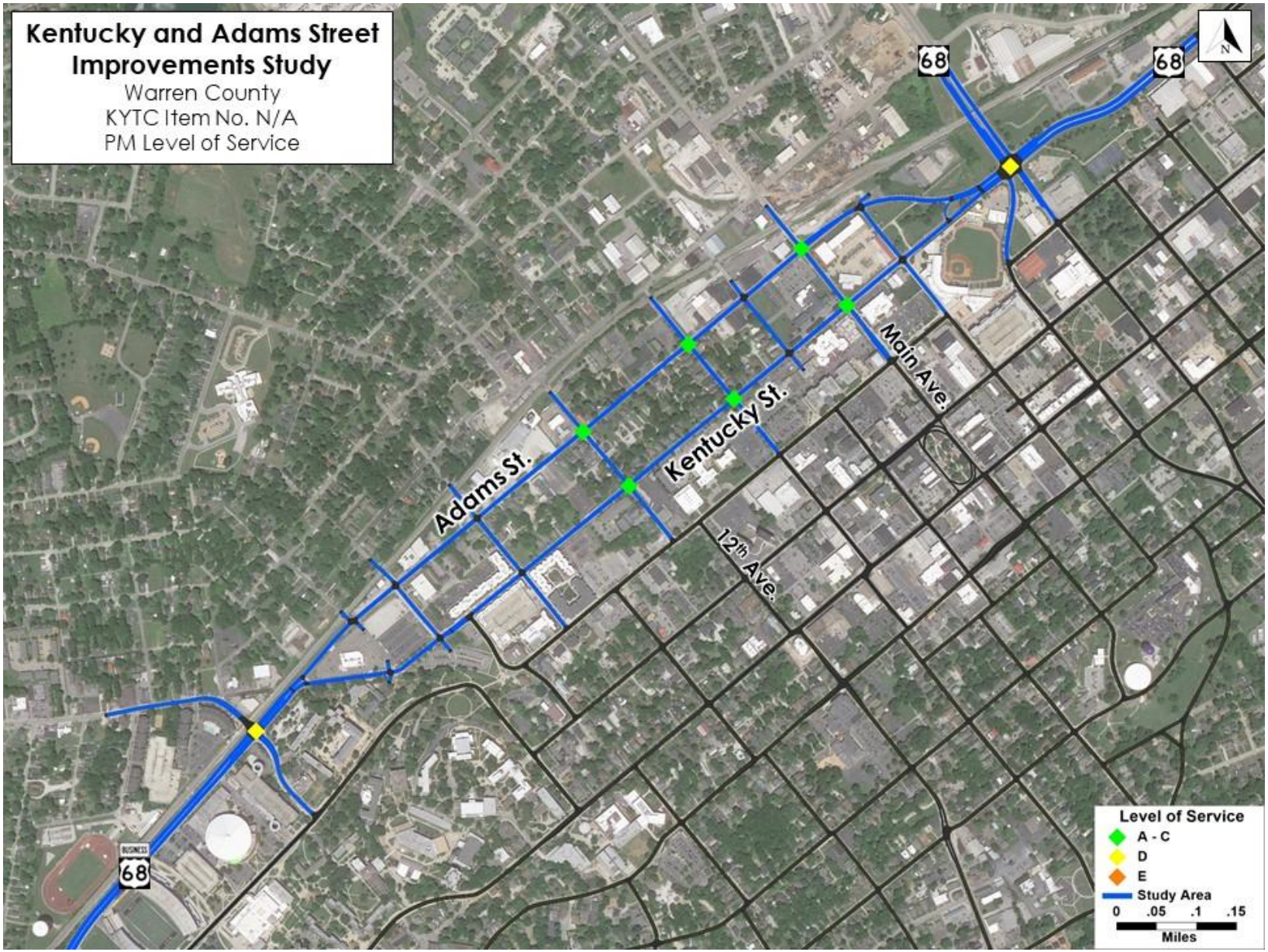

Figure 3: Existing PM Peak Hour Level of Service

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12. Dan led a discussion of preliminary improvement concepts. Stantec will develop the design and construction cost estimates. KYTC District 3 will provide right-of-way and utility cost estimates for each improvement concept. The following improvement concepts were discussed:
    - **No-Build**
    - **Conversion of Kentucky and Adams Streets to Two-Way with No Left-Turn Lanes** – This concept involves converting Kentucky and Adams Streets to two-way, removing traffic from the southwestern portion of Kentucky Street to create a friendlier bike/ped area near WKU's campus, and forcing US 68X through traffic to use Adams Street. **Figure 4** shows an example of two-way traffic on Adams street with single-lane approaches at the Main Avenue intersection.
        - Question: Should we eliminate the single-lane approach concept for the two-way conversion?

          Answer: No, this concept will be used as a starting point and basis of comparison for two-way conversion concepts with turn lanes.

Figure 4: Adams Street Two-Way Conversion with Single-Lane Approaches

- **Conversion of Kentucky and Adams Streets to Two-Way with Left-Turn Lanes at Signalized Intersections on Adams Street** – This concept involves converting Kentucky and Adams Streets to two-way with left-turn lanes at signalized intersections, removing traffic from the southwestern portion of Kentucky Street to create a friendlier bike/ped area near WKU's campus, and forcing US 68X through traffic to use Adams Street. **Figure 5** shows an example of two-way traffic on Adams street with left-turn lanes at the Main Avenue intersection. The number and location of turn lanes may change based on results from the simulation model. It is envisioned that this concept would require acquisition of Right of Way.

Figure 5: Adams Street Two-Way Conversion with Left-Turn Lanes

- **Conversion of Kentucky and Adams Streets to Two-Way with a Center TWTL on Adams Street** – This concept involves converting Kentucky and Adams Streets to two-way, removing traffic from the southwestern portion of Kentucky Street, and widening Adams Street to three lanes, including one lane in each direction and a two-way left-turn lane (TWLTL), as shown on **Figure 6**. Kentucky Street will have one lane in each direction with left-turn lanes at signalized intersections. It is envisioned that this concept would require acquisition of Right of Way.

Figure 6: Adams Street Three-Lane Widening

- **Road Diets on Kentucky and Adams Streets** – This concept involves maintaining the existing one-way couplet and restriping Kentucky and Adams Streets from two lanes to one lane in each direction. Dedicated bike lanes could be added to both routes as well as left turn lanes at the signals.
    - There is an upcoming resurfacing project on Kentucky and Adams Streets. The one-lane restriping could be implemented during the resurfacing.
    - This concept would provide shorter and safer crossings for pedestrians.
    - This concept would not shift traffic from Kentucky Street onto Adams Street.
    - Kentucky Street would remain open to traffic in the vicinity of WKU.

13. Mark Butler led a discussion of future conditions in the study area. Based on the recently updated Warren County Travel Demand Model, traffic volumes are expected to grow approximately 1.5 percent per year along Kentucky and Adams Streets. **Table 1** presents the projected 2030 and 2045 ADT based on this annual growth rate.

Table 1: Preliminary 2030 and 2045 Daily Traffic Forecasts

Route	2019 ADT	Ann. Growth Rate	2030 ADT	2045 ADT
Kentucky St.	8,000	1.5%	9,200	11,500
Adams St.	7,000	1.5%	7,900	9,900

It was noted, however, that growth is expected to be higher over the next 10 years before slowing down between 2030 and 2045. Additionally, Adams Street is expected to see slightly lower growth than Kentucky Street based on model outputs. These factors will be taken into consideration during traffic forecast development.

- Question: Are these growth rates consistent with the recent Russellville Road Study?

  Answer: Yes, annual growth rates for the Russellville Road Study ranged from 1.2 – 1.6 percent for through trips, 0.6 – 1.1 percent for WKU on-campus trips, and 0.5 – 0.7 percent for off-campus trips.

- Question: Why have historical traffic volumes declined so severely on Kentucky Street over the past 20 years?

  Answer: The opening of the Veterans Memorial Lane diverted traffic away from Kentucky Street.

14. Origin-Destination (O-D) data from Streetlight was used to better understand traffic patterns in the study area. External zones (shown on **Figure 7**) were set up at the major arterials around Bowling Green including Old Morgantown Road, Russellville Road, Nashville Road, Broadway Avenue, Fairview Avenue, Louisville Road, and Veterans Memorial Lane. Two additional zones were created, one in the southwestern portion of the study area to capture WKU traffic and another in the northeastern portion of the study area to capture downtown traffic. A "middle filter" was placed on Kentucky and Adams Streets to ensure that all trips counted to/from the external zones traveled on Kentucky and Adams Streets. **Figure 7** shows the percentages of trips passing through the Kentucky and Adams Streets middle filter coming from the external zones and **Figure 8** shows the percentages of trips going to the zones.

- Of the trips that originate at the Louisville Road zone and travel through the middle filter on Kentucky and Adams Streets, 75 percent are through trips traveling to Old Morgantown Road or Russellville Road. An additional 16 percent travel to the southwest WKU zone.
- Of the trips that originate at the Russellville Road zone and travel through the middle filter on Kentucky and Adams Streets, 56 percent travel through to Louisville Road and Veterans Memorial Lane. Additionally, 36 percent travel to the northeast downtown Bowling Green zone.

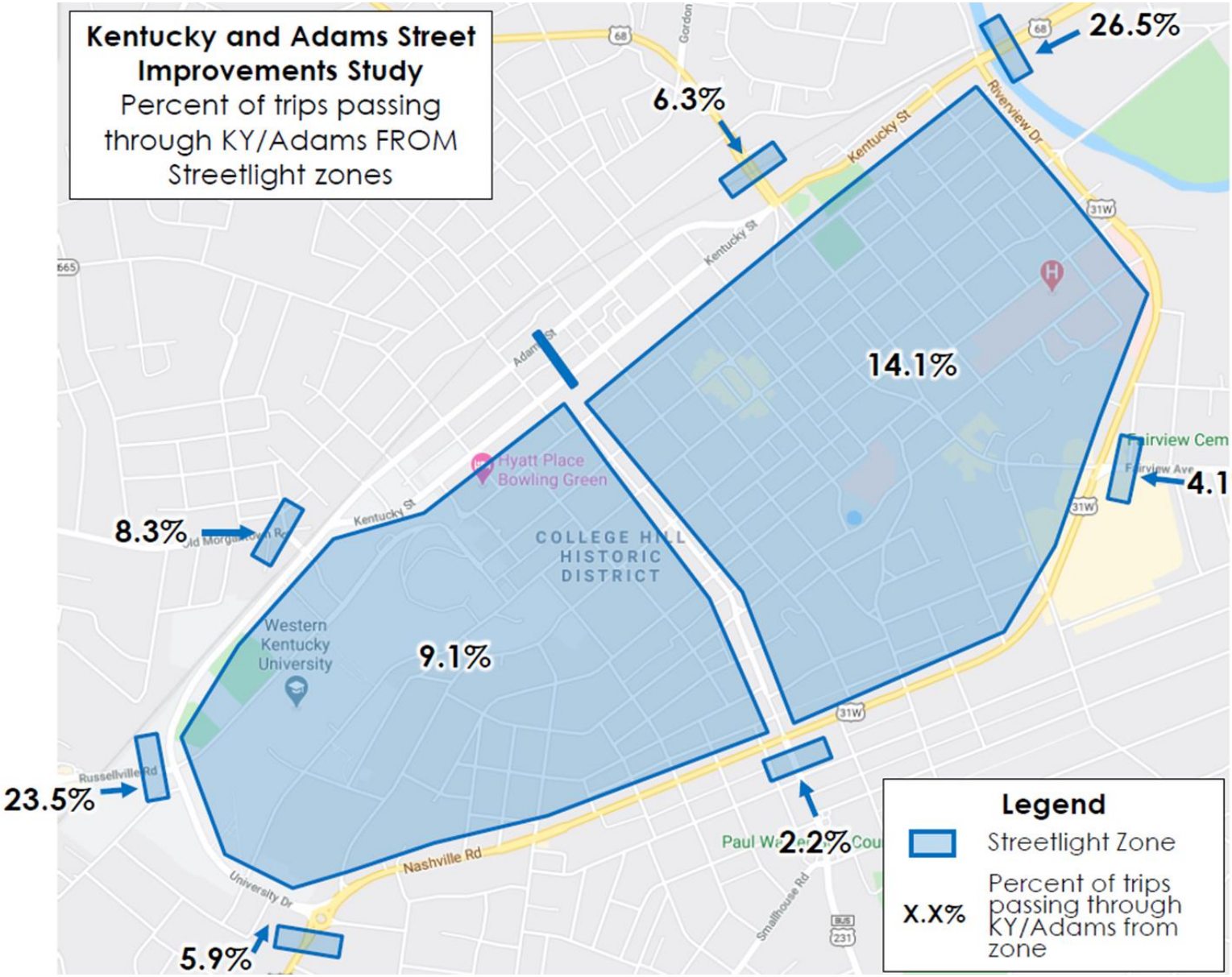

Figure 7: Percent of Streetlight Trips Coming From External Zones

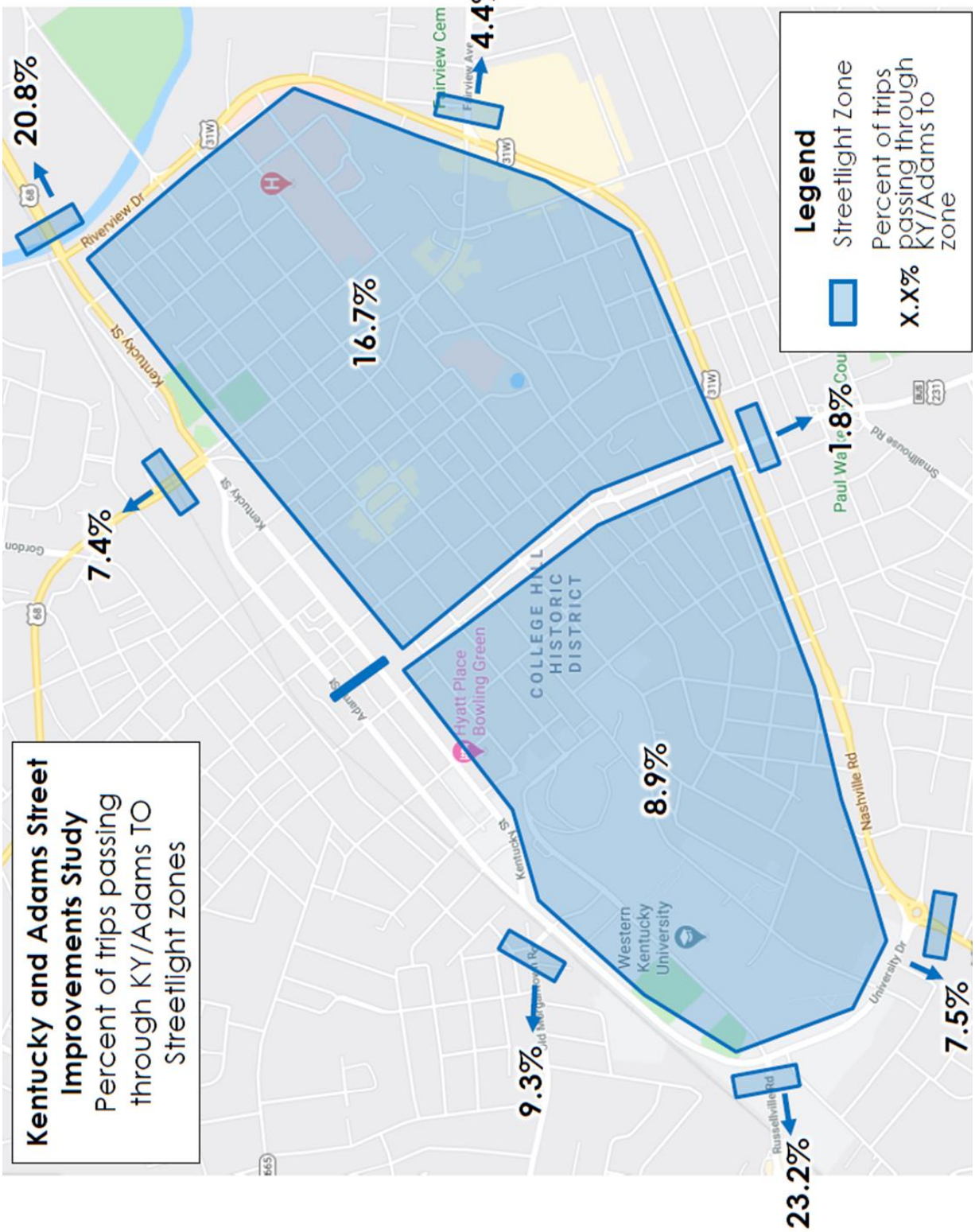

Figure 8: Percent of Streetlight Trips Going To External Zones

15. There was a discussion about future project team and local official/stakeholder meetings. The second project team meeting will be a standalone meeting and will likely be held on Bluejeans. After this meeting, there will be a discussion of when and how to host a local officials/stakeholder meeting.

16. The next steps for Stantec are to finalize the traffic forecasts and to develop a future year simulation model to evaluate improvement concepts before the second project team meeting.

The meeting ended at approximately 2:30 p.m. EDT.

Meeting Minutes

TO:	Stephen De Witte Co-Project Manager KYTC Central Office 200 Mero Street Frankfort, KY 40622	Benjamin Hunt Co-Project Manager KYTC District Office #3 900 Morgantown Road Bowling Green, KY 42101

FROM: Dan O'Dea
Project Manager
Stantec Consulting Services Inc.

DATE: July 7, 2020

SUBJECT: Kentucky/Adams Street Improvements Study
US 68X One-Way Couplet Between Old Morgantown Road and Veterans Memorial Lane
(MP 2.118 to MP 3.249)
KYTC Item No. N/A
Project Team Meeting No. 2

The second project team meeting for the subject project was on a BlueJeans Teleconference on June 25, 2020 at 2:00 p.m. EDT. The following individuals were in attendance:

Allen Arnold	KYTC – District 3 Right-of-Way
Jay Balaji	KYTC – Central Office Planning
Stephen De Witte	KYTC – Central Office Planning
Emily Hathcock	Barren River Area Development District
Gavin Hodges	KYTC – District 3
Matthew Holder	KYTC – District 3 Planning
Barry House	KYTC – Central Office Planning
Benjamin Hunt	KYTC – District 3 Planning
Matt Lawson	KYTC – Central Office Planning
Karissa Lemon	Bowling Green – Warren County MPO
Greg Meredith	City of Bowling Green
Sadie Middleton	KYTC – Central Office Planning
Joe Plunk	KYTC – District 3 Chief District Engineer
Daryl Price	KYTC – District 3
Clint Puryear	KYTC – District 3 Utilities
Steve Ross	KYTC – Central Office Planning
Tim Sharp	KYTC – District 3 Project Delivery and Preservation
David Souleyrette	KYTC – Central Office Planning
Wendy Southworth	KYTC – Central Office Highway Design
Andrew Stewart	KYTC – District 3 Project Development Branch Manager
Scott Thomson	KYTC – Central Office Planning
Jennifer Tougas	Western Kentucky University (WKU)

Wes Watt	KYTC – District 3 Public Information Officer
Brian Aldridge	Stantec Consulting Services Inc.
Mark Butler	Stantec Consulting Services Inc.
Dan O'Dea	Stantec Consulting Services Inc.
Len Harper	Stantec Consulting Services Inc.
Ashley Williamson	Stantec Consulting Services Inc.
Graham Winchester	Stantec Consulting Services Inc.

Preface

This project is federally funded with Statewide Planning and Research (SPR) Chapter 7 funds. Future phases of the project are not funded in *Kentucky's FY 2020 – FY 2026 Highway Plan*. There are no projects in the immediate vicinity listed in *Kentucky's FY 2020 – 2026 Highway Plan*. The only projects within the downtown area include widening US 31W between Campbell Lane and University Boulevard (Item No. 3-8857, construction scheduled in 2025) and widening US 31W from Park Avenue to Fairview Avenue (Item No. 3-8904.10, scheduled for construction in 2025).

The WKU-Community Bikeway Project is a federally funded multimodal project to better connect the WKU campus with downtown Bowling Green. The WKU portion connects Creason Street to Center Street, a two-way street which runs parallel to Kentucky Street.

The goal of the Kentucky and Adams Street Improvement Study is to identify and evaluate potential traffic operational changes which are compatible with land use and increase safety for all modes of travel.

In 2014, Stantec worked with KYTC and the Bowling Green/Warren County Metropolitan Planning Organization (MPO) on the *Downtown Bowling Green Traffic Circulation Study*. This study investigated existing and future traffic needs within the city of Bowling Green and sought to determine how to best facilitate growth in the community. As part of the study, a long-term project was to convert Kentucky and Adams Streets to two-way traffic and to widen Adams Street to accommodate a five-lane section. (2014 Estimated Costs: Design = $800,000, Right-of-Way = $12,000,000, Utilities = $4,500,000, Construction = $5,400,000)

Meeting

Dan O'Dea welcomed everyone and, after introductions, said the purpose of the meeting was to discuss the progress to date for the Kentucky/Adams Street Improvements Study.

The following enumerated items were discussed.

1. The purpose of the meeting is to present the results from the 2030 simulation model and get feedback from the project team on the improvement concepts.

2. Highlights from the existing conditions analysis were briefly discussed. Kentucky and Adams Streets are a one-way couplet of two-lane minor arterials. The curb-to-curb width of Adams Street ranges from 27.75' northeast of 14th Avenue to 34' near the RC Beverage Company Building between 10th Avenue and 11th Avenue. Kentucky Street has an average width of 30'. Based on Warren County PVA data, the existing right-of-way ranges from 42' to 55' on Adams Street and 42' to 50' on Kentucky Street.

3. Based on the recently updated Warren County Travel Demand Model, traffic volumes are expected to grow at approximately 1.5 percent per year along Kentucky and Adams Streets. This is a conservative estimate based on the range of growth rates from the model. **Table 1** presents the projected 2030 and 2045 ADT based on this annual growth rate.

Table 1: Preliminary 2030 and 2045 Daily Traffic Forecasts

Route	2019 ADT	Ann. Growth Rate	2030 ADT	2045 ADT
Kentucky St.	8,000	1.5%	9,200	11,500
Adams St.	7,000	1.5%	7,900	9,900

It was noted that growth is expected to be higher over the next 10 years before slowing down between 2030 and 2045.

4. The TransModeler simulation model from the 2014 *Downtown Bowling Green Circulation Study* was updated and used for this study. The existing network was updated to reflect current roadway conditions and improvements that were constructed since 2014 as shown in yellow in **Figure 1**. A 2030 Existing plus Committed (E+C) network was also created. 2030 E+C projects include intersection improvements at US 231/Russellville Road and a signal at College Street/7th Avenue, as shown in orange in **Figure 1**. Without these two projects congestion at the intersections would meter traffic from entering and exiting the study corridors, which decreases the design hour volumes on Kentucky Street and Adams Street. With these two projects, the traffic forecasts presented in **Table 1** are achieved providing a more realistic traffic analysis.

   The modeled improvements at Russellville Road were based on the recommendations from the recently completed *Russellville Road (US 68X and US 231X) Planning Study*. The results of that study concluded that, without improvement, the Russellville Road intersection would not be capable of serving future demand. The 2030 simulation model developed for this study further confirms this conclusion.

   Installing a traffic signal at the intersection of College Street and 7th Avenue was recommended in the 2014 *Downtown Bowling Green Circulation Study*. Without a signal at this intersection, the simulation modeling showed significant congestion and queuing that affected traffic patterns within the current study area.

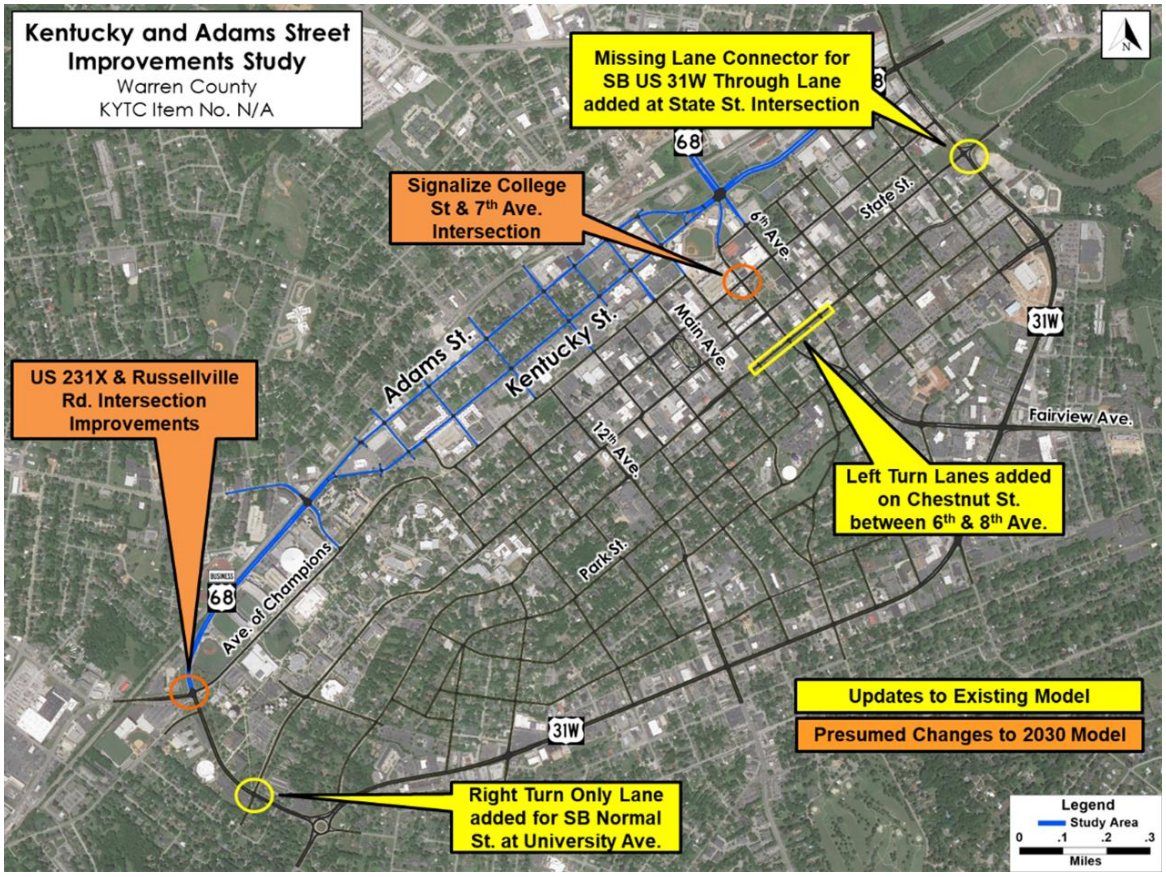

Figure 1: Simulation Model Network Updates

Results from the 2030 E+C simulation model show that capacity will not likely be an issue on Kentucky and Adams Streets. Letter-based "Level of service" (LOS) grades provide a qualitative framework for describing the operational conditions and evaluating the adequacy of the existing roadway. In urban areas, LOS "D" or better is desirable. During both peak periods, the larger intersections on either end of the study area act to "meter" traffic with the University Avenue and Old Morgantown Road intersection operating at LOS C or D and the Kentucky Street and Veterans Memorial / 6th Avenue intersection operating at LOS D. The signalized intersections along Kentucky and Adams Streets operate at LOS A. **Figure 2** presents the LOS on signalized intersections in the study area for the 2030 E+C PM peak hour.

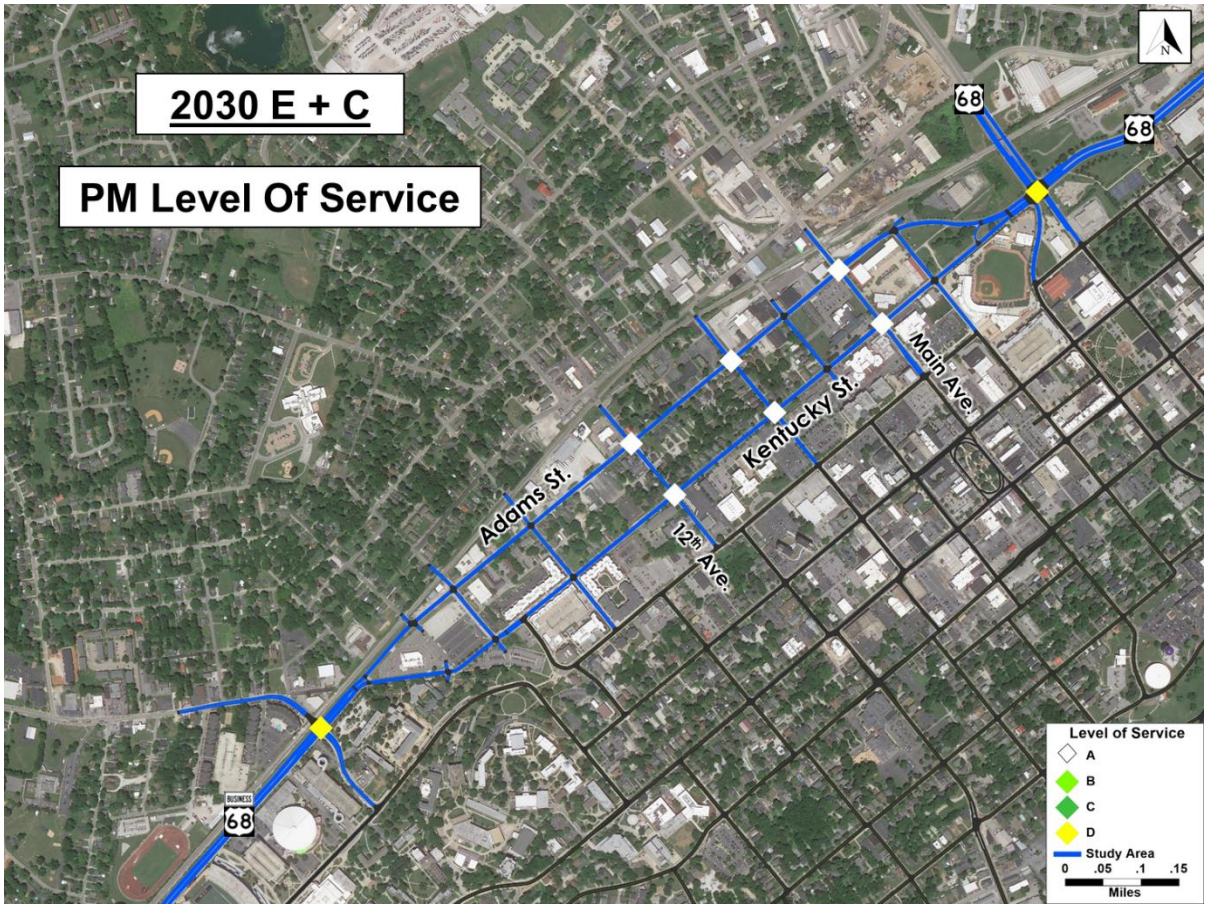

Figure 2: 2030 PM Peak Hour Level of Service (E+C)

5. The following improvement concepts were presented for discussion:
    - **No-Build** – This concept will be carried forward as a basis of comparison for the other improvement concepts.

- **Improvement Concept 1: Conversion of Kentucky and Adams Streets to Two-Way with Single Lane Approaches** – This concept, as shown in **Figure 3**, involves converting Kentucky and Adams Streets to two-way, severing Kentucky Street in both the southwestern and northeastern sections to create a friendlier bike/ped area near WKU's campus, and compelling US 68X through traffic to use Adams Street. Based on results from the simulation model, Improvement Concept 1 would operate similar to the E+C scenario during the AM peak. During the PM peak, however, intersections along Adams Street operate at LOS C or D, as shown in **Figure 4**. While LOS D or better is usually desirable in urban areas, local drivers utilizing Adams Street are used to intersections operating at LOS A. With no left-turn lanes, drivers accustomed to near free flow conditions would be susceptible to queues of over 700 feet.

Figure 3: Concept Improvement 1

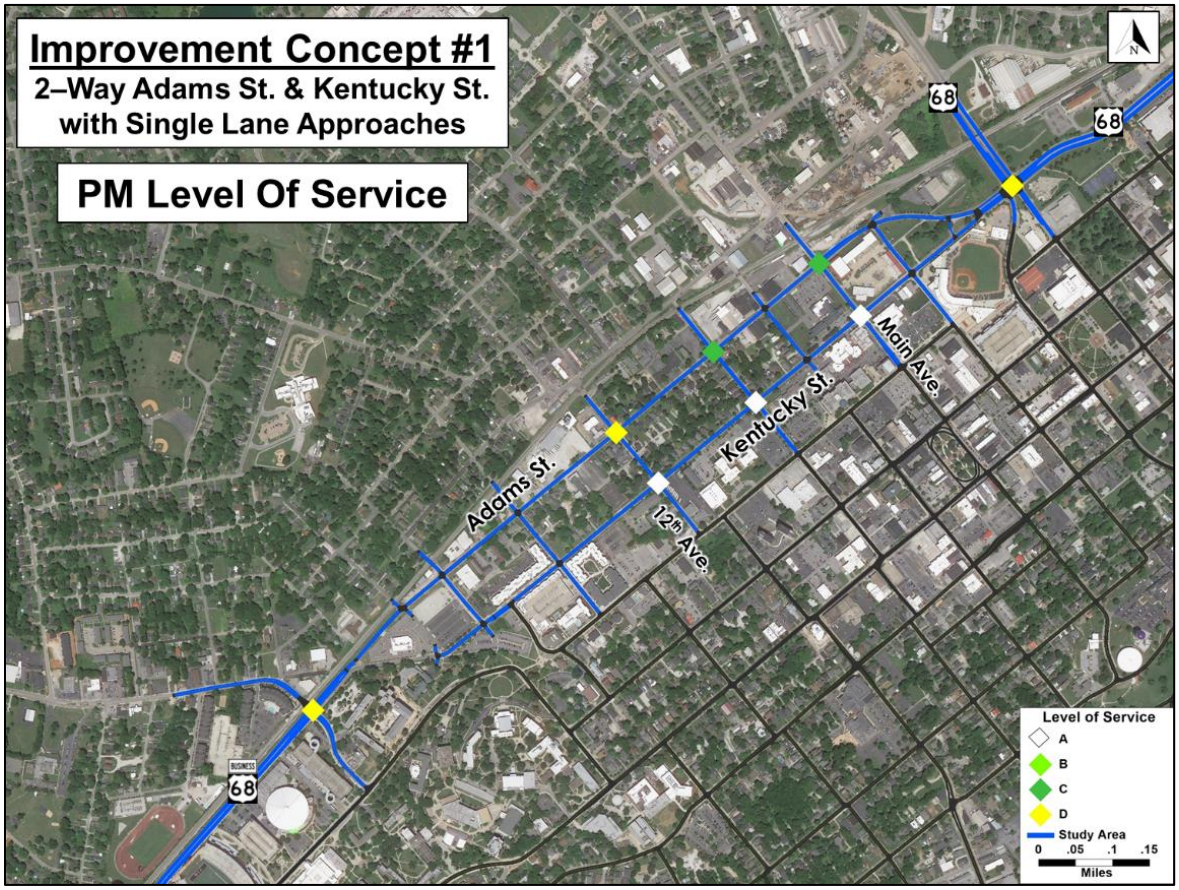

Figure 4: 2030 PM Peak Hour Level of Service (Improvement Concept 1)

- **Improvement Concept 2 – Conversion of Kentucky and Adams Streets to Two-Way with Left-Turn Lanes at Signalized Intersections on Adams Street** – This concept, as shown in **Figure 5**, involves converting Kentucky and Adams Streets to two-way with left-turn lanes at signalized intersections, severing Kentucky Street in both the southwestern and northeastern sections to create a friendlier bike/ped area near WKU's campus, and compelling US 68X through traffic to use Adams Street. Based on results from the simulation model, Improvement Concept 2 would operate similar to the E+C scenario during the 2030 AM peak hour, with Kentucky and Adams Streets intersections operating at LOS A or B. During the PM peak, the University Boulevard and Old Morgantown Road intersection operates slightly worse, at LOS D, as shown in **Figure 6**.

Figure 5: Improvement Concept 2

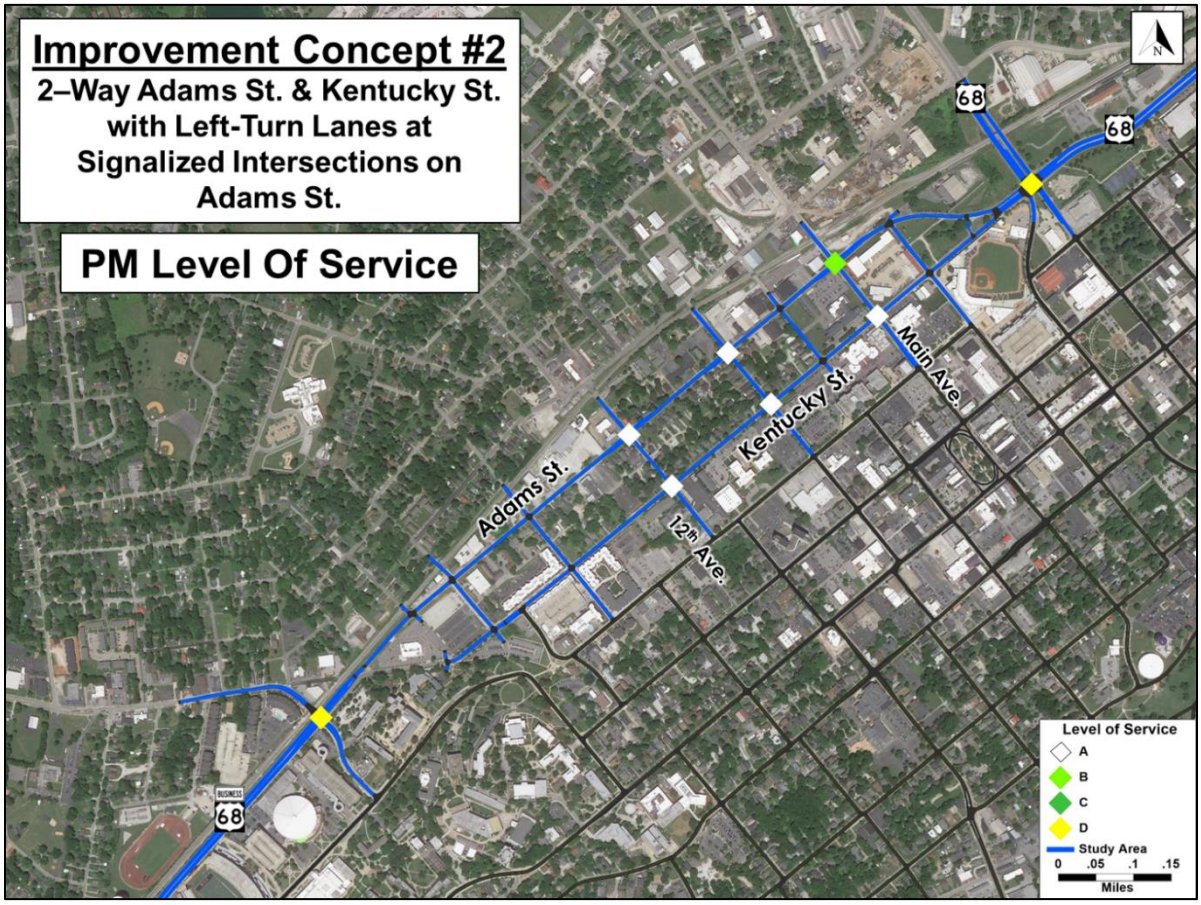

Figure 6: 2030 PM Peak Hour Level of Service (Improvement Concept 2)

- **Improvement Concept 3 – Conversion of Kentucky and Adams Streets to Two-Way with a Center TWTL on Adams Street and Left-Turn Lanes at Signalized Intersections on Kentucky Street** – This "full build" concept, as shown in **Figure 7**, involves converting Kentucky and Adams Streets to two-way, severing Kentucky Street in both the southwestern and northeastern sections, and widening Adams Street to three lanes, including one lane in each direction and a two-way left-turn lane (TWLTL). Kentucky Street will have one lane in each direction with left-turn lanes at signalized intersections. Based on results from the simulation model, Improvement Concept 3 improves traffic operations at the larger University Boulevard and Old Morgantown Road and Kentucky Street and Veterans Memorial / 6th Avenue intersections while maintaining LOS A or B during the 2030 PM peak hour at the Kentucky and Adams Streets intersections, as shown in **Figure 8**.

Figure 7: Improvement Concept 3

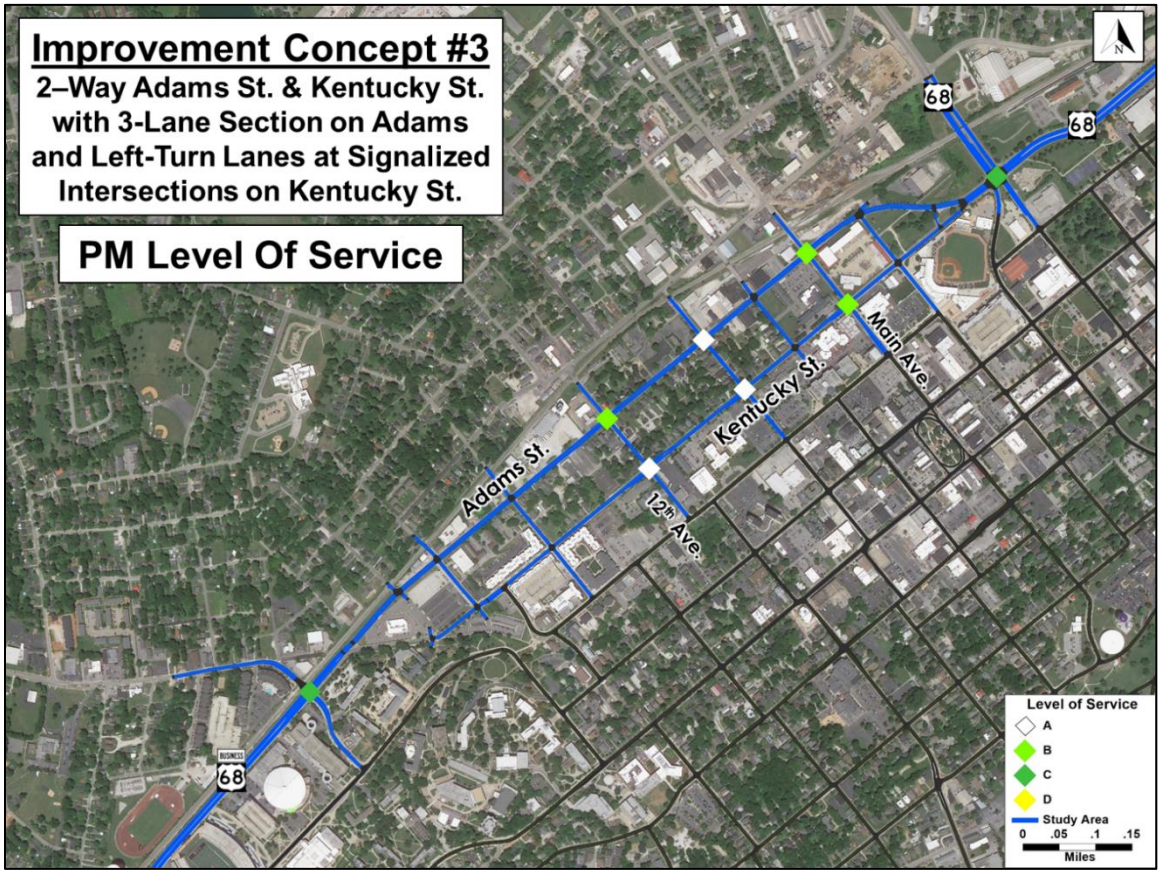

Figure 8: 2030 PM Peak Hour Level of Service (Improvement Concept 3)

- **Improvement Concept 4 – Road Diets on Kentucky and Adams Streets with Bike Lanes** – This concept, as shown in **Figure 9**, involves maintaining the existing one-way couplet and restriping Kentucky Street from two lanes to one (directional) lane. Dedicated bike lanes could be added to both routes as well as left turn lanes at the signalized intersections. Adams Street would remain two lanes. Based on results from the simulation model, Improvement Concept 4 would operate like the E+C scenario, with Kentucky and Adams Streets intersections operating at LOS A or B during the 2030 AM peak hour. During the PM peak, the University Boulevard and Old Morgantown Road continues to operate at LOS D, while the Kentucky Avenue and Veterans Memorial / 6th Avenue intersection improves to LOS C, as shown in **Figure 10**.

Figure 9: Improvement Concept 4

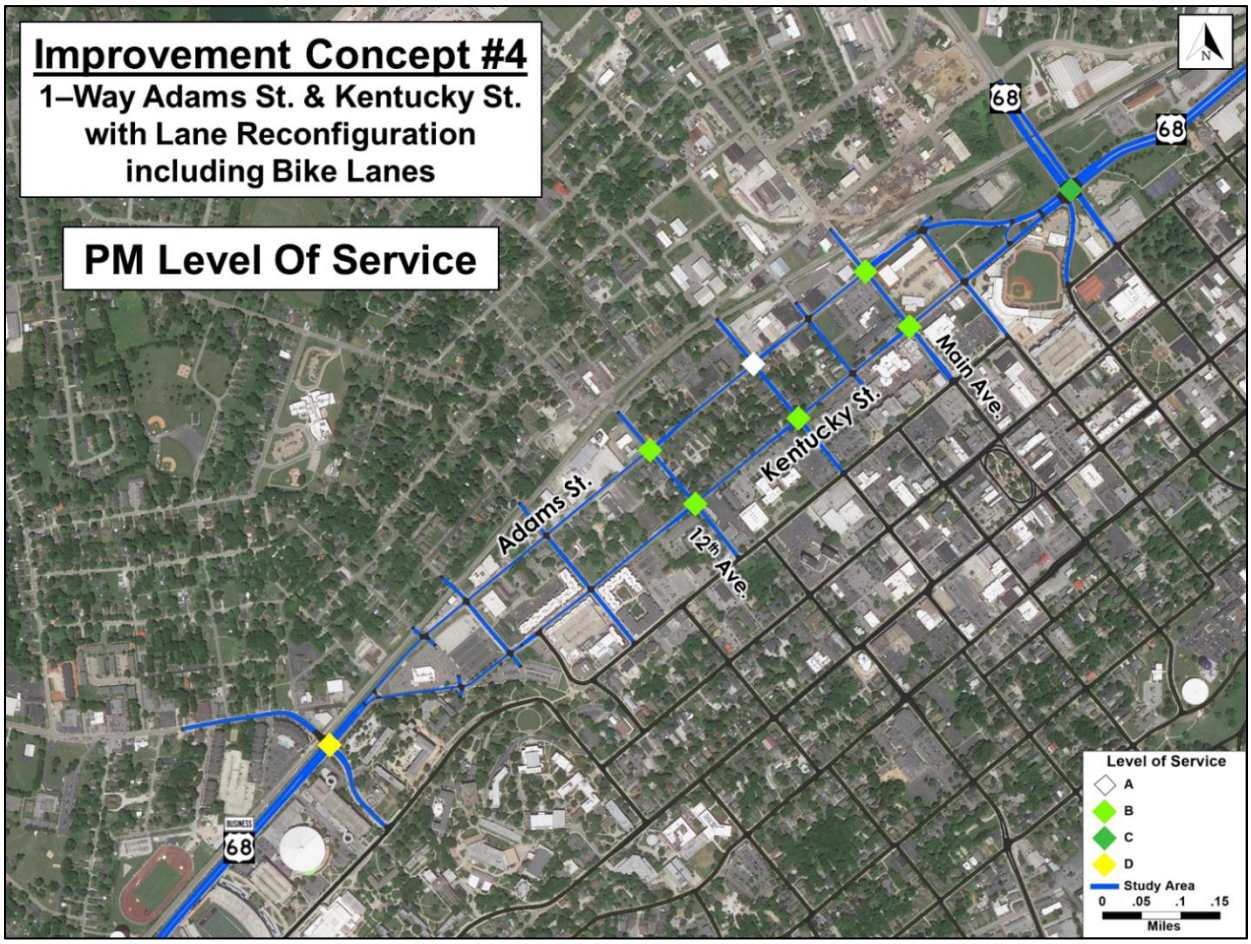

Figure 10: 2030 PM Peak Hour Level of Service (Improvement Concept 4)

In addition to comparing improvement concepts using LOS, simulation model travel times were also compared along Kentucky and Adams Streets for both peak hour scenarios. During the AM peak, Improvement Concept 1 had slightly higher travel times on Adams Street than the other concepts, as shown on **Figure 11**. During the PM peak, however, travel times on Adams Street are significantly higher for Improvement Concept 1 than the other concepts, as shown on **Figure 12**.

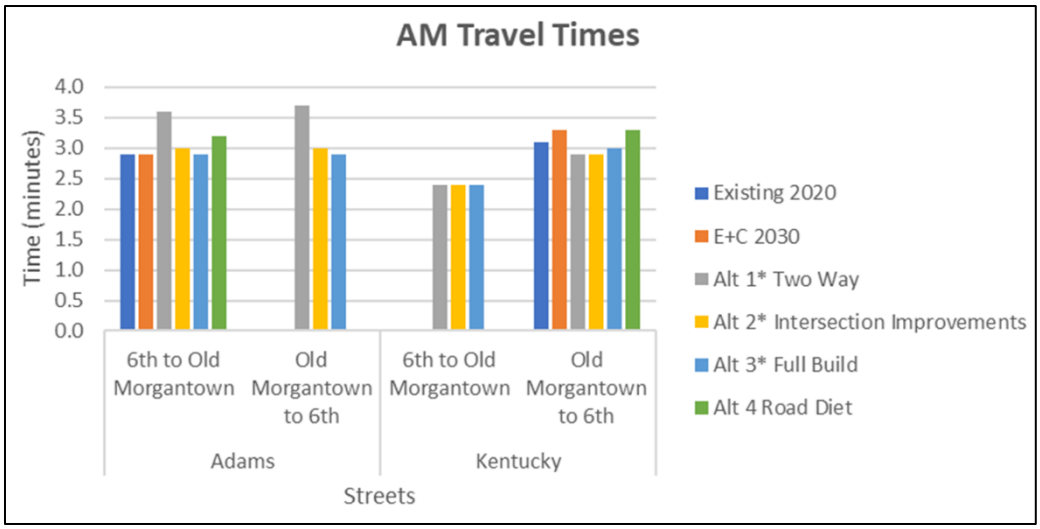

Figure 11: AM Peak Hour Simulation Model Travel Times

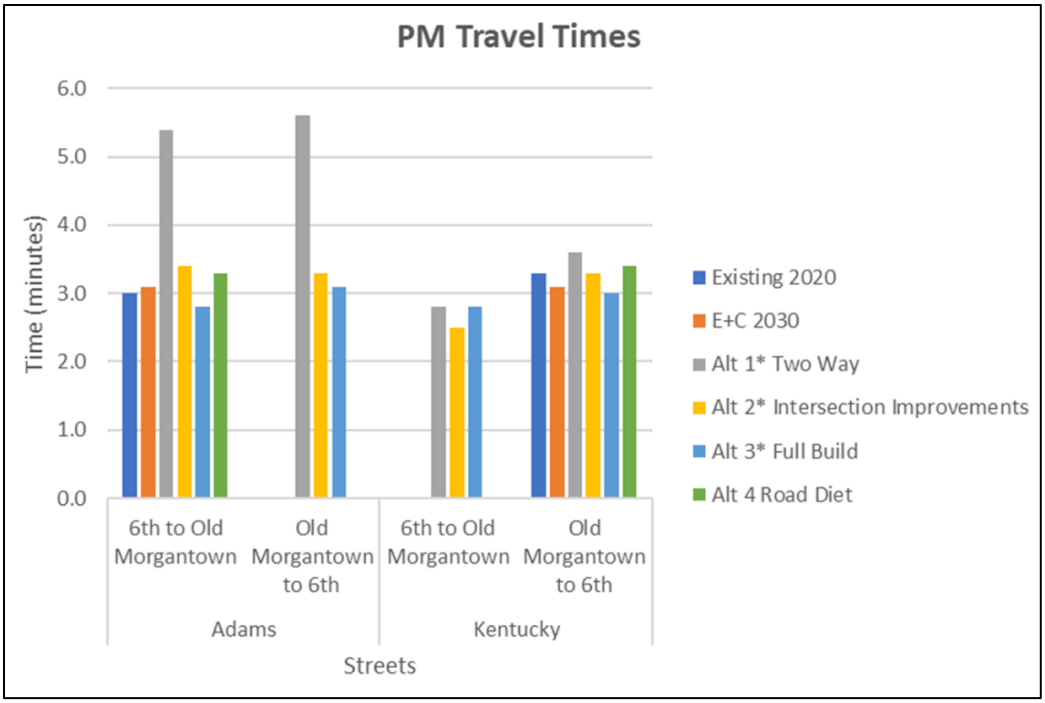

Figure 12: PM Peak Hour Simulation Model Travel Times

6. Considering the technical data and results from the simulation model, the project team had an open discussion about recommended improvement concepts. **Table 2** presents a summary of how each improvement concept addresses important project goals. Based on its ability to satisfy all project goals with a relatively low cost, Improvement Concept 4 is the project team recommendation. The concept will be implemented as part of the scheduled pavement rehabilitation project scheduled for 2021.

Table 2: Evaluation Matrix

Project Goals	Existing	Concept 1 (2-way, no left turn lanes)	Concept 2 (2-way w/ left turn lanes on Adams)	Concept 3 (2-way, 3 lane section on Adams & left turn lanes on Kentucky)	Concept 4 (1-way, road diet with bike lanes)
Est. Construction Cost	**$0**	**$$**	**$$$**	**$$$$**	**$**
Improves safety	✗	✗	✓	✓	✓
Provides opportunites to enhance multimodal facilities	✗	○	○	○	✓
Provides cost efficient alternative	✗	✓	○	✗	✓
De-emphasizes Kentucky St.	✗	✓	✓	✓	○
Accommodates 2030 traffic demand	✓	✗	✓	✓	✓
Key:	✓ Issue is completely addressed ○ Issue is somewhat addressed ✗ Significant issue that is not addressed				
Cost Key: $ = Very cheap, $$ = Minimal Cost, $$$ = Modest Cost, $$$$ = Significant Cost					

Improvement Concept 4 options for bicycle and pedestrian accommodations along Kentucky and Adams Streets were discussed. Since demand for parking is low on Adams Street, the existing pavement could be restriped to include two travel lanes, a buffer, and a bike lane, as shown on **Figure 13**.

- It should be noted that there is one location on Adams Street, near the 12th Avenue intersection, without access to back-alley parking. Other parking accommodations may be necessary for the two homes that front Adams Street at this location.

Figure 13: Potential Adams Street Typical Section (Improvement Concept 4)

The existing pavement on Kentucky Street could be restriped to include a parking lane, a driving lane, a buffer, and a bike lane, as shown on **Figure 14**. Other bicycle concepts for Kentucky Street such as a two-way cycle track and double-buffered bike lane were discussed and ultimately determined to be less desirable than a single bicycle lane that matches the directionality of the auto travel lane.

- Question: Will one lane be sufficient for traffic during large events such as WKU football and basketball games?

  Answer: Roadway design does not typically focus on accommodating special events. However, this design allows for the possibility of using the parking lane as a through lane during special events, if needed.

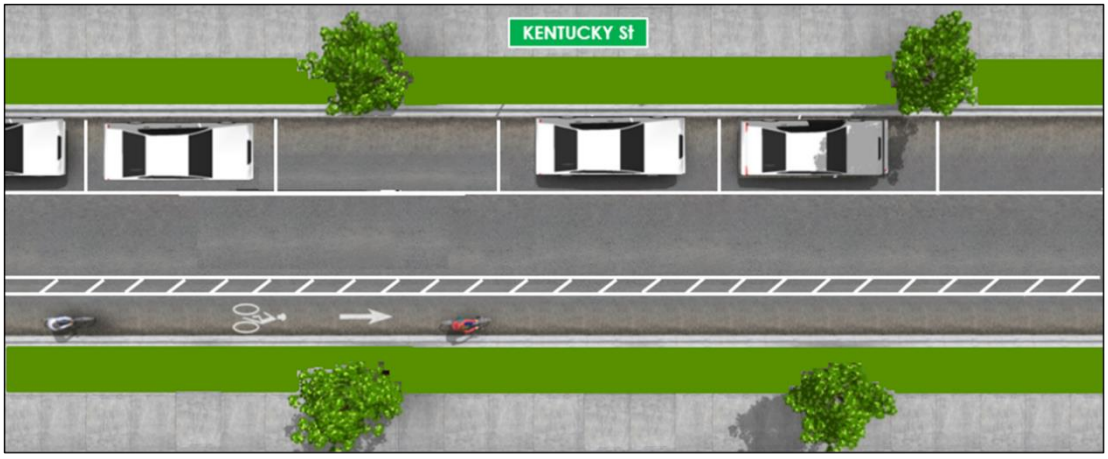

Figure 14: Potential Kentucky Street Typical Section (Improvement Concept 4)

7. There are three unsignalized pedestrian crosswalks on Kentucky Street within three blocks as shown in **Figure 15**. The first is a pedestrian actuated rectangular rapid flashing beacon near the entrance to CVS. To cross, pedestrians push a button and the beacons start flashing. The second crosswalk, at Alumni Avenue, has an LED edge lit pedestrian sign which flashes 24/7. The third, at 13th Avenue, has signs at either end of the crosswalk. All three are MUTCD compliant, but these treatments are inconsistent. Reducing Kentucky Street to one lane will improve pedestrian safety by: 1) eliminating the multiple threat scenario which occurs on multi-lane approaches in the same direction; and 2) decreasing the distance that pedestrians are exposed in the crosswalk. Vehicle compliance (stopping) may also be improved with the addition of conspicuous ground-mount STATE LAW YIELD TO PEDESTRIANS signs. It is recommended that the treatments for the pedestrian crosswalks be consistent for Kentucky Street.

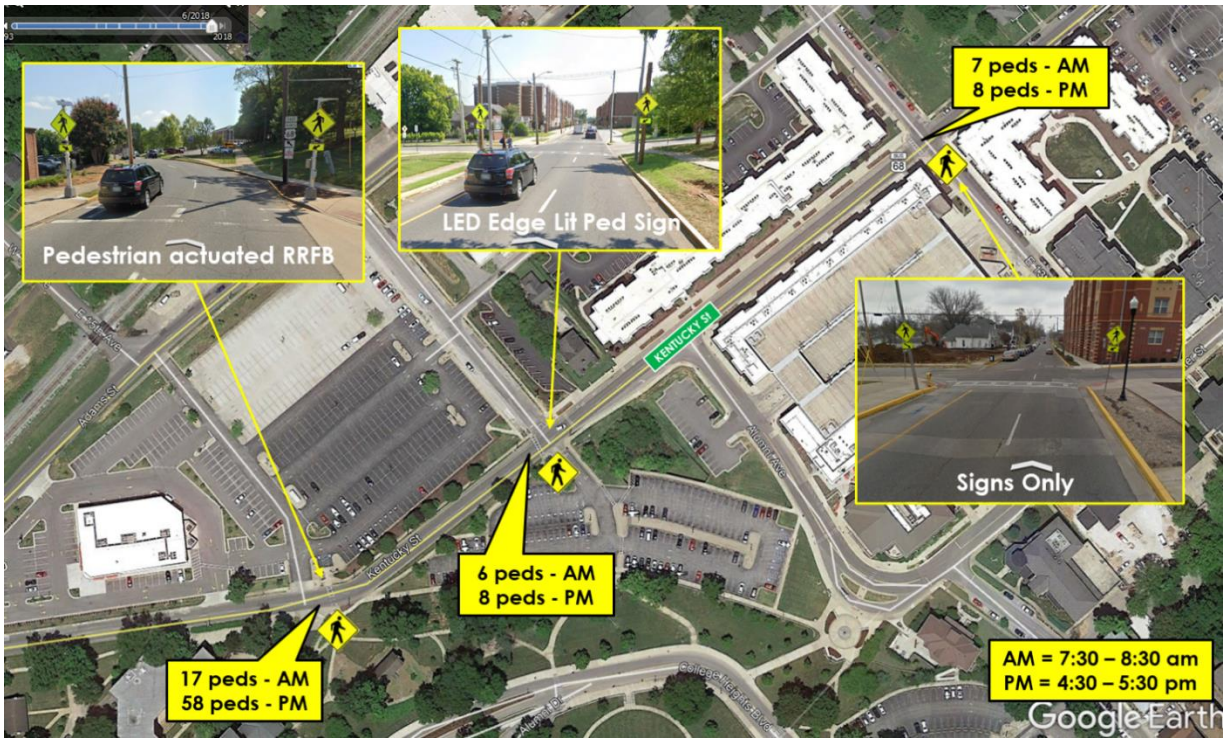

Figure 15: Existing Pedestrian Crosswalks on Kentucky Street

8. The next steps are to meet with various local officials/stakeholders and for Stantec to prepare a draft report. There will not be a traditional local official/stakeholder meeting. Instead, Joe Plunk will present at the WKU Master Plan Committee, and the Project Team will meet with the Bowling Green Mayor and Warren County Judge Executive.

The meeting ended at approximately 3:30 p.m. EDT.